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Career Choice and its influence on the Academic Performance of students in the Faculty of Science of the University of Yaounde 1

A dissertation submitted in partial fulfilment of the requirements for the award of a Postgraduate Diploma in guidance and counselling (DIPCO) in the department of Sciences of Education

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ABSTRACT

The present study is entitled "Career Choice and its influence on the Academic Performance of students in the Faculty of Science of the University of Yaounde 1". This study stems from the fact that despite the presence of guidance counselors in schools, students still make career decisions that tend to work against their academic performance. Therefore, the aim of this study is to determine the influence that students' career choices at the faculty of science in the University of Yaounde 1 have on their academic performance. To set the ball rolling, two categories of research questions were asked; that is, a general and three specific questions. In effect, the main research question was, to what degree can career choice influence the academic performance of students in the faculty of science of the University of Yaounde 1? A principal and three other specific objectives relating thereto were also set and the overall objective was, to verify the degree to which students' career choices influence their academic performance at the faculty of science in the University of Yaounde 1. The quantitative approach of data collection including the use of a questionnaire was adopted. The said data was analysed in two ways; being content analyses and descriptive statistics involving the Pearson Correlation model. Our theoretical framework was constructed around three theories; being Lent, Brown and Hackett's Social Cognition Career Theory, Abraham Maslow's Hierarchy of Needs Theory and John Dewey's Theory of Education. From the analyses made, it was realized that the career choices that faculty of science students make have a significant influence on their academic performance. Here, academic performance was measured by Lecturers' reports in terms of General Point Average (GPA) at the end of the year. It was also realized that this career decisions are not the sole responsibility of the students in question. In fact, their parents, the power of the job market and prestige were confirmed to be contributing factors to this state of affairs. However, it is hoped that this research work will go a long way to serve as an eye opener as far as career decision making is concerned among students.

Key words: Career, choice, academic performance and influence.

RESUME

La présente étude est intitulée Le choix de carrier et son influence sur la performance académique des étudiants de la faculté des sciences de l'université de Yaoundé 1. Cette étude parte du fait que malgré la présence des Conseillers d'orientation dans les écoles, les étudiants arrivent toujours à faire des choix des carriers qui jouent sauvant contre leurs performances académiques. Ainsi, la raison d'être de cette étude c'est de déterminer l'influence que les choix des carriers des étudiants à la faculté de sciences de l'université de Yaoundé 1 on sur leurs performances académiques. Pour y arriver, deux catégories des questions de recherches ont été posé; il s'agit d'une question générale et trois questions spécifiques. En effet, la question principale a été, à quel niveau les choix des carriers des étudiants peuvent avoir une influence sur leurs performances académiques à la faculté des sciences de l'université de Yaoundé 1? Une objective principal et trois autres objectives spécifiques relative aux questions de recherches ont été fixé et l'objectif général a été de vérifier le niveau selon laquelle les choix des carriers des étudiants peuvent influencer leurs performances académiques à la faculté des sciences de l'université de Yaoundé 1. L'approche quantitative de la collection de donnée impliquant l'utilisation des questionnaires a été adoptée. Les dites données ont été analysée en deux manières ; il s'agit de l'analyse de contenu et la description statistique impliquant le model de corrélation de Pearson. Notre cadre théorique a été construite au tour de trois théories ; il s'agit de la théorie de cognition sociale de carrier de Lent, Brown and Hackett, la théorie des hiérarchies des besoins d'Abraham Maslow et la théorie de l'éducation de John Dewey. Des analyses faites, il ressort de cette étude que, les choix des carriers que les étudiants de la faculté des sciences font ont une influence négative significatif sur leurs performances académiques. Cependant, la performance académique a été mesuré par les rapports des étudiants sur leurs notes à la fin d'année. Il ressort aussi de cette travail de recherche que les dites décisions sur les choix des carriers ne sont pas la seul responsabilité des étudiants en question. En fait, leurs parents, le pouvoir du marché de l'emploi et le prestige ont été confirmée come les facteurs qui sont contributives à cette état de chose. Que cela ne tient, notre suait est que cette travail de recherche contribue énormément à ouvrir les yeux des étudiants sur ce qui concerne la prise de décision sur les choix des carriers.

Key words: Carrier, choix, performance académique et influence.

ACKNOWLEDGMENT

Writing a research project of this nature is like building a house where the writer is simply the foreman; that is, the first among specific contractors. While there are those who design the house, there are equally those who provide the materials to build it. Then, there are those who judge the suitability of these materials before they are used. The final product is the handiwork of many, each in his own right. Such is the case in point.

This instant research work was realized thanks to the influence, encouragement and support of many people. While some gave me ideas, others gave me the means to assemble these ideas. Above all, my supervisor Prof. Belinga Bessala; who, thanks to his knowledge in research and despite his tight schedule, provided me with the much needed guidance that has culminated to the realization of this research project.

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DEDICATION

To

My late mother Enow Bertha Enow

And

My wife Eyong Mercy.

CERTIFICATION

We hereby certify that this dissertation entitled “Career Choice And its Influence on the Academic Performance of Students in the Faculty of Science of the University of Yaounde 1” was carried out by ENOW SERGE EYONG. It has been corrected in accordance with the comments of the jury to our satisfaction. We therefore recommend that this dissertation be bound and copies deposited in the Department of Sciences of Education of ENS Yaoundé.

Signatories

Supervisor	Examiner
Prof. BELINGA BESSALA	Dr. Kibinkiri Eric

Date / /2016

LIST OF ACRONYMS AND SYMBOLS

GPA:	Grade Point Average.
SAT:	Scholastic Assessment Test.
PISA:	Programme for International Student Assessment.
OECD:	Organisation for Economic Co-operation and Development.
EFA:	Education For All.
E.N.S:	Ecole Normale Supérieur.
FS:	Faculty of Science.
F.M.B.S:	Faculty of Medicine and Bio-medical Sciences.
FALSH:	Faculté des Arts, Lettres et Sciences Humaines.
G.C.E:	General Certificate of Education.
ENSP:	Ecole Nationale Supérieure Polytechnique.
BMD:	Bachelor- Master- Doctorate.
CIMI:	Centre Interface du Monde Industriel.
U.E:	Unités de l'Enseignement.
HSES:	High Socio-Economic Status.
SCCT:	Social Cognition Career Theory.
USA:	United State of America.
R.H:	Research Hypothesis.
D.V:	Dependent Variable.
C.P.P.S.A:	Cercle Philo-Psycho-Socio-Anthropo.
APA:	American Psychology Association.
IQ:	Intelligent Quotient.
NSF:	National Science Foundation.

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INTRODUCTION

The phenomenon of globalization has led to increased competition and threat to the survival of work organizations. All types and levels of employment have been affected to different extents. Many traditional jobs have been replaced by new ones or have been radically transformed. Increasingly flexible employment contracts and a greater heterogeneity of the workforce are important features in the current labour market. The growing complexity of the world of work has been coupled by the massification of post-secondary education and training opportunities. There has been an expansion of provision at all levels of the educational system in the African states' universities resulting in greater numbers of students of all ages, institutional diversity, and academic heterogeneity. When compared to some years ago, students today have a broader range of educational opportunities although they face a tougher, competitive and more complex labour market.

Citizens today have to learn to assess myriad information systems so as to map out their education, training and employment routes that fit one's interests, skills, competencies, qualifications and evolving labour market opportunities. This implies further educational choices, which must be made in the light of this scenario and labour market demands. In view of the continuous developments in employment and education, access to high quality career guidance is important for creating and maintaining a competitive knowledge-based economy and ensuring social inclusion. Career development, for most people, is a lifelong process of engaging the work world through choosing among employment opportunities made available to them. Each individual undertaking the process is influenced by many factors, including the context in which they live, their personal aptitudes, and educational attainment.

A major turning point in adolescents' lives involves the career choice that they make while in high school. Frequently, it is viewed by family and community as a mere start to workplace readiness; however, this decision plays a major role in establishing youth in a career path that opens as well as closes opportunities. Given the differences in the social and economic context of university-bound versus work-bound adults, it is important to explore how students' career choices influence their academic performances.

Career selection is one of the main important choices in student's plans. This choice of career will have impact on them throughout their lives. The essence of who the students are will revolve around what the students wants to do with his or her choice of career. The oxford advanced learners dictionary, 6th edition of current English defines choice as the right to

choose or the possibility of choosing and also defines career as a job or profession, especially one with opportunities for promotion. Johnson (1976) defines a career as one's lifework. In other words, a career is one's profession which includes a number of occupations, vocations or jobs that one person engages in during his or her working life. A career is the course of events that constitute a life, the sequence of occupations and other life roles which combine and express one's commitment to work in his or her total pattern of self-development.

Parents' educational and occupational background may affect students' choices of career because, some students may contemplate on whether to continue with their parents' occupations or not. What the students see in the television also may affect their career choices. Some careers demand that you have the personality to match the qualities of the occupation. For these reasons the necessity of a guidance counselor in schools cannot be over emphasized upon. This study will be carried out in the faculty of science of the University of Yaounde 1, Cameroon and will be useful to the guidance counselors in assisting senior students in their career choices. It will also help the ministries concerned with education in curriculum planning to broaden the students' career choice opportunities through curriculum content of educational system.

Parents serve as a major influence in their children's career development and career decision- making. Parents want their children to find happiness and success in life and one factor which influences happiness and success is career choice. Research also indicates that when students feel supported and loved by their parents, they have more confidence in their own ability to research careers and to choose a career that would be interesting and exciting. This is important because studies show that adolescents, who feel competent regarding career decision-making, tend to make more satisfying career choices later in life (Keller 2004).

Parents influence the level of education or training that their children achieve; the knowledge they have about work and different occupations; the beliefs and attitudes they have to working; and the motivation they have to succeed. Most of this is learned unconsciously by children and teenagers who absorb their parents' attitudes and expectations as they grow up.

Parental support and guidance can include specific career or educational suggestions as well as experiences that indirectly support career development, such as family vacations, provision of resources such as books, and modelling of paid and nonpaid work roles (Altman 1997). The absence of support, guidance, and encouragement can lead to *floundering*, the

inability to develop and pursue a specific career focus. Lack of support can also take the form of conflict, when a parent pressures a child toward a particular career and may withdraw financial and emotional support for a career path not of the parent's choice.

Family functioning also includes the response to circumstances such as poverty, alcoholism, marital instability, and illness or death of family members. Sometimes an individual may respond to a stressful or negative family environment by making hasty, unreflective career choices in an attempt to escape or survive. On the other hand, critical life events can spur a transformative learning experience that may shape a career and life direction (Fisher and Griggs 1994).

Interactions between parents and children and among siblings are a powerful influence. Interactions can include positive behaviours such as showing support and interest and communicating openly, or negative behaviours such as pushing and controlling (Way and Rossmann 1996a). By sharing workplace stories, expressing concern for children's future, and modelling work behaviours, parents serve as a context for interpreting the realities of work (idem). Parent-child connectedness facilitates risk taking and exploration, which are needed for identity formation in general as well as for the formation of vocational identity (Altman 1997; Blustein 1997). Siblings can be a source of challenge and competition and a basis for comparison of abilities, thus providing a context for identity formation (Altman 1997). Because career development is a lifelong process, *family of origin continues to have an influence through the life span* (idem, p. 242). Understanding early family experiences and relationships can help adults identify barriers to their career progress.

According to the Nigeria National Policy on Education, a school is incomplete without a counselor’s office. If you are teaching say biology and the student does not understand it, there must be problems that need to be spotted out. It could be psychological problems that are affecting the student’s concentration. Until you solve that problem, the student may not make any progress. Both the public and private schools need progress. Even tertiary institutions need counselors.

Academic performance represents performance outcomes that indicate the extent to which a person has accomplished specific goals that were the focus of activities in instructional environments, specifically in school, college, and university. School systems mostly define cognitive goals that either apply across multiple subject areas (e.g., critical

thinking) or include the acquisition of knowledge and understanding in a specific intellectual domain (e.g., numeracy, literacy, science, history). Therefore, academic performance should be considered to be a multifaceted construct that comprises different domains of learning. Because the field of academic performance is very wide-ranging and covers a broad variety of educational outcomes, the definition of academic performance depends on the indicators used to measure it.

Among the many criteria that indicate academic achievement, there are very general indicators such as procedural and declarative knowledge acquired in an educational system, more curricular-based criteria such as grades or performance on an educational achievement test, and cumulative indicators of academic performance such as educational degrees and certificates. All criteria have in common that they represent intellectual endeavors and thus, more or less, mirror the intellectual capacity of a person.

In developed societies, academic performance plays an important role in every person's life. Academic performance as measured by the Grade Point Average (GPA) or by standardized assessments designed for selection purpose such as the Scholastic Assessment Test (SAT)determines whether a student will have the opportunity to continue his or her education (e.g., to attend a university). Therefore, academic performance defines whether one can take part in higher education, and based on the educational degrees one attains, influences one's vocational career after education. Besides the relevance for an individual, academic performance is of utmost importance for the wealth of a nation and its prosperity. The strong association between a society's level of academic performance and positive socio-economic development is one reason for conducting international studies on academic achievement, such as Program for International Student Assessment (PISA), administered by the OECD (Organization for Economic Co-operation and Development).

The results of these studies provide information about different indicators of a nation's academic achievement; such information is used to analyze the strengths and weaknesses of a nation's educational system and to guide educational policy decisions. Given the individual and societal importance of academic achievement, it is not surprising that academic performance is the research focus of many scientists; for example, in psychology or educational disciplines.

The exploration of academic performance has led to numerous empirical studies and fundamental progress such as the development of the first intelligence test by Binet and Simon. Introductory textbooks such as Woolfolk (2007) provide theoretical and empirical insight into the determinants of academic performance and its assessment. However, as academic performance is a broad topic, several textbooks have focused mainly on selected aspects of academic achievement, such as enhancing academic performance or specific predictors of academic achievement. A thorough, short, and informative overview of academic performance is provided in Spinath (2012). He emphasizes the importance of academic performance with regard to different perspectives (such as for individuals and societies, as well as psychological and educational research).

Walberg (1986) is an early synthesis of existing research on the educational effects of the time but it still influences current research such as investigations of predictors of academic performance in some of the large-scale academic performance assessment studies (e.g., Program

For International Student Assessment, PISA). Walberg (1986) highlights the relevance of research syntheses (such as reviews and meta-analyses) as an initial point for the improvement of educational processes. A current work, Hattie (2009), provides an overview of the empirical findings on academic performance by distinguishing between individual, home, and scholastic determinants of academic performance according to theoretical assumptions. However, Spinath (2012) points out that it is more appropriate to speak of *predictors* instead of determinants of academic performance because the mostly cross-sectional nature of the underlying research does not allow causal conclusions to be drawn. Large-scale scholastic achievement assessments such as PISA (see OECD 2010) provide an overview of the current state of research on academic achievement, as these studies have investigated established predictors of academic performance on an international level.

Furthermore, these studies, for the first time, have enabled nations to compare their educational systems with other nations and to evaluate them on this basis. However, it should be mentioned critically that this approach may, to some degree, overestimate the practical significance of differences between the countries. Moreover, the studies have increased the amount of attention paid to the role of family background and the educational system in the development of individual performance. The quality of teaching, in particular, has been

emphasized as a predictor of student achievement. Altogether, there are valuable cross-sectional studies investigating many predictors of academic achievement. A further focus in educational research has been placed on tertiary educational research. Richardson, et al. (2012) subsumes the individual correlates of university students' performance.

CHAPTER ONE

THE PROBLEM OF THE STUDY

INTRODUCTION

This chapter aims at developing the problem of the present research work. It begins with the context of the research and continues with the formulation of the research problem, framing of the research questions and finally research objectives.

1.1 CONTEXT OF THE RESEARCH

Year after year, young Cameroonians and other nationals of both sexes keep on knocking at the doors of state Universities. In fact, given the steady increase in the population of Cameroon and the corresponding zeal by each and every family to have a place in the sun for their children; which for the past decades is the University milieu, the problem of what to do in the University as a subject becomes eminent.

Even more, the rate of unemployment in the country is very high. Indeed, the university now acts as a safety net for young people in need, most of whom decide to pass time here while writing competitive entrance exams into professional schools or simply waiting for the moment that better opportunities will be presented to them. Things are even made worse for these categories of students by the complicated recruitment process into the Cameroon public service, which is mostly through competitive public exams called *concours*, which often take the form of what Weber (1966, pp. 342) describes as *patrimonial recruitment*.

Characterized by all sorts of favoritism, nepotism, tribalism and corruption, this ridiculous system of recruitment has increasingly been pushing hundreds of thousands of young Cameroonians to remain in the University, displaying preference for wayward behavior's; yet making career choices that at times work against their own academic performance just as a way out. The yet to be adequately organized career orientation system of State universities therefore leads to the problem of poor performance, repetition and outright drop-out from school. Of course, this is detrimental to the future of the state of Cameroon that is striving towards attending emergence by 2035 and is in total contradiction

to the Millennium Development Goal Declaration on *Education For All* (EFA) that has recently been coined to appear as *Quality Education For All*.

The choice of the present research topic is justified by the fact that there has been a lot of debate on the career choices students make nowadays. This state of affair calls for profound investigation, analysis and interpretation that would in turn help in clarifying the general public on issues relating thereto, especially in terms of academic output. Such is the case in point.

A lot has not yet been written on either career choices or academic performance in the context of the University of Yaounde 1 in general and that of the faculty of science in particular which is a very important faculty in the said university; a situation that leaves the educational research world relatively blank as that is concern. Pushed by this discovery, the researcher then decided to plunge into the topic so as to bring his own modest contribution to the building of the scientific edifice.

1.2 FORMULATION OF THE RESEARCH PROBLEM

Not all forms of education are purposive. Education that is acquired unconsciously or accidentally and at times in not well structured frameworks is always got for its sake even though we usually make use of it unknowingly. But when education is pursued at a higher level, the *raison d'être* is always obvious; that is tilted towards the attainment of a particular objective which is generally a good job. Having in mind the importance of career choice in the lives of students, the government has been training Guidance Counsellors who are to guide these students so that they can make good career choices.

Unfortunately, despite the presence of these counsellors in our schools and many other positive influence, it has for the past years been noticed that students of the faculty of science of the University of Yaounde 1 have not been keeping pace to what is expected from them. In fact, most students that gain admission into this noble faculty either do so because their career choices are or were made by their parents, friends or are made under the influence of their peers through peer-pressure or are poorly made by the students themselves based on the presumed prestige that is to be got from the anticipated job. That is, with the dream to be one day called Nurse, Pharmacist, Surgeon and so on. This reasoning is not a bad one; for it is

motivating but it has to adequately tie with the science inclination of the said student. This is hardly the case.

Parental influence in making career choices is glaring nowadays. When we talk about career or career information, parents and other parties or factors can contribute, but the final decision ought to be taken by the chooser who in this case is the student. Upsurge in deviant behavior among students, the blame goes to mothers and fathers of these children. Both the present generation of mothers and fathers has allowed their homes to fall. If homes are in ruins and you engage a counselor in the school to talk to these children, the impact would not make much difference.

On the other hand, children from stable homes are more disposed to gain from the school counselor. A counselor can best feel the vacuum created by the negligence of some parents to cater for their children; but the result is often exceptionally wonderful roles.

1.3. RESEARCH QUESTIONS

They are regrouped into principal and specific questions.

1.3.1. Principal question

To what degree can career choice influence the academic performance of students in the faculty of science of the University of Yaounde 1?

1.3.2. Specific questions

They are three in number:

To what extent does parents' decision on career choice influence the academic performance of students in the faculty of science of the University of Yaounde 1?

To what degree does the power of the job market on career choice influence the academic performance of students in the faculty of science of the University of Yaounde 1?

To what extent does prestige on career choice influence the academic performance of students in the faculty of science of the University of Yaounde 1?

1.4. RESEARCH OBJECTIVES

The research objectives are broken down into main and secondary objectives.

1.4.1. Main objective

To verify the degree to which students' career choices influence their academic performance at the faculty of science in the University of Yaounde 1.

1.4.2. Secondary objectives

To examine the extent to which parents' decision on students' career choices influence their academic performance at the faculty of science in the University of Yaounde 1.

To verify the degree to which the power of the job market on students career choices influence their academic performance at the faculty of science in the University of Yaounde 1.

To determine the extent to which prestige on students' career choices influence their academic performance at the faculty of science in the University of Yaounde 1.

1.5. SIGNIFICANCE OF THE STUDY

Whether applied or fundamental, every research exercise has its benefits. This can be direct or indirect and is usually to either the discipline or the scientific field under which it is conducted (theoretical interest) and the area or population concerned (practical interest). Such is the case in point.

The scientific world is like an ocean that collects from the surrounding rivers and for the former to be intact; there must be a continuous supply from the latter. So, the researcher is convinced that this piece of work will immensely contribute towards the extension of the frontiers of scientific knowledge in Science of Education. This is in the sense that new facts and more information concerning career choices and academic performance will now be put at the disposal of upcoming researchers.

This piece of work will serve as a handbook to all students; not leaving out the fact that it will serve as a *mirror* through which the University of Yaounde 1 in general and the faculty of science in particular can be visualized by all and sundry. To talk like Laplantine as

he says: *A Partir d'une seule coutume, voire d'un seul objet, […] c'est toute la société qui se profile* (Laplantine 1995, pp. 76).

Also, this work will enable the researcher to give recommendations to the students on their choice of career.

It will enable the researcher make necessary recommendations to the parents about their children mildness to advice given to them on their choice of career.

It will enable the researcher make recommendations to school administrations and will enable the researcher make concrete recommendations to the government about the choice of career among university students especially now that the rate of unemployment is high.

1.6. DELIMITATION OF THE STUDY

This research work is limited in time, space (Geographical) and theme (Thematic).

1.6.1. Historic delimitation

1.6.1.1. Time factor

This research project ran from October, 2015 to June, 2016 according to the following chronogramme of activities:

Fieldwork is expected to run between March and April, 2016; carried out in the faculty of Science, University of Yaounde 1. This initiative will allow for the discovery of the relationship that exists between career choice and academic performance.

1.6.1.2. Historical background

Higher education saw the light of day in Cameroon as far back as during the French Mandatory period with what was known as *Fondation Française d'Enseignement Supérieur* in Ekounou, Yaounde. In October 1961, the Institute for University Studies was open and on July 26th 1962, the Federal University of Cameroon was created. It later became the University of Yaounde in 1973. The 1993 University reform saw the creation of six State universities in Cameroon; hence, the University of Yaounde 1. Going by the dispositions of

article 2 of Decree No 93/036 of 29th January 1993 based on the administrative and academic organisation of the University of Yaounde 1, it has the following as its principal missions:

- To elaborate and transmit knowledge,
- To develop research and the training of men and women,
- To take superior forms of culture and research to higher heights and to the best rhythm of progress,
- To provide access to higher education to all those who have the passion,
- To go in for development support and to social and cultural promotion,
- To develop the practice of bilingualism.

To these missions of the University was added the University's vision. The latter contain fundamental terms and concepts such as:

- The modernisation of all the institution's components and the development of cooperation for more visibility,
- The reinforcement of professionalization by way of promoting teaching that is in relation to the job market; the quality of the output and the competitivity of certificates in the job market,
- The maintenance of continuity through the rehabilitation of infrastructures and the reinforcement of academic disciplines and research structures.

Statistics show that the University of Yaounde 1 has five campuses; being the main campus, the extended campuses of National Polytechnique and the Faculty of Medicine and Biomedical Sciences and then the Higher Teachers Training College (all in Ngoa-Ekelle). Alongside these three are the Mbalmayo and Nkolbisson campuses. By the year 2012, the institution was counting five schools taking place in the above mentioned campuses, four specialised centres, two virtual universities and sixty-five research laboratories. It also had a teaching staff of 873 lecturers and 884 support personnel were at the service of about 41.475 students. About seventy scientific disciplines are taught in the over fifty-eight departments of the institution. The University of Yaounde 1 is a bilingual institution; with English and French being the official languages.

1.6.2. Geographic delimitation

It has earlier been asserted that the University of Yaounde 1 has five campuses. In these campuses are institutions attached to the University itself and a number of faculties and

departments. Some of the institutions include: the Higher Teachers Training College that is known in French as *Ecole Normal Supérieur (ENS),*the National Advanced School of Polytechniques, etc. As for the faculties, the University of Yaounde 1 count four faculties; being the Faculty of Medicines and Bio-medical Sciences, the Faculty of Arts, Letters and Social Sciences, the Faculty of Sciences, and the Faculty of Education. The attached institutions are lead by Directors, assistant Directors and Directors in-charge of studies or Secretaries general, depending on the case; Heads of administrative and financial affairs and other persons ranked at such. The different faculties are headed by Deans; three vice deans each, a head of administrative and financial affairs each and Heads of service and Departments.

1.6.2.1. The Higher Teacher Training College (ENS-Yaounde)

It was created by Decree No 61/186 of 03rd September 1961. The Higher Teachers Training College was the first higher institution of learning in Cameroon. It was attached to the then Federal University of Cameroon by Decree No 62/df/372 of 08th October 1962. Its initial mission was to rapidly train a sufficient quantity of secondary general school teachers. This initial mission was later completed by two other ones; given the exigencies of that era. This has to do with the training of primary school inspectors. As a means to cover a greater part of the national territory, an annexed of the Higher Teachers Training College was created in Bambili, Bamenda by Ministerial order No 49/B1/91/MEJEC/DES of 20th September 1969. Its main mission was to train first cycle teachers for secondary general schools in anglophone schools in Cameroon. However, this institution became a full flesh higher teachers training college when the University of Bamenda was created in the year 2010.

Thanks to Decree No 88/328 of 28/ 09/1988, the Higher Teachers Training College was attributed other missions which included the training of secondary general school teachers, teachers of normal schools and guardian counsellors; the promotion of fundamental research in general and that of pedagogic research in particular; continuous and distance training, the recycling and perfectioning of the teaching personnel comprising teachers appointed to positions of pedagogic inspector.

The Higher Teachers Training College, Yaounde has over fifteen Departments. They include: the departments of English, French, Mathematics, Biology, Chemistry, Physics,

Computer Sciences, History, Geography, Cameroon Languages and Cultures, Philosophy, Foreign Languages, Classical Letters, Science of Education and Guardian Counselling.

Admission into the Higher Teachers Training College is through entrance exams commonly called *concours* into the first and second cycles. Entrance into the first cycle is conditioned by candidates' obtention of at least two papers in the General Certificate of Education (G.C.E) Advanced Level without Religious Studies for anglophones and *Baccalauréat A, C, D* and *E* for francophones and is open to all Cameroonians of both sexes. These concours are usually destined for the public service but the Ministry of Higher education usually through a Ministerial order give an opportunity for private organisations and schools to present a certain quota of students for the said professional training.

Equally important is the fact that some limited places are usually reserved to foreign candidates who fulfil the required conditions for the exams by the Cameroon government. Candidates presented by private organisations follow the same courses with regular students and write the same end of course exams but do not have the same status like their public service counterparts.

At the end of the training program, students of the Higher Teachers Training College are issued attestations; but in no occasion can such attestations be used as outright Diplomas. Candidates seeking admission into the Higher Teachers Training College suppose to show prove of medical and physical aptitude to impart knowledge. Persons with speaking, hearing and sight disabilities are sidelined.

1.6.2.2. National Advanced School of Polytecniques (ENSP-Yaounde)

It is otherwise called *Ecole Nationale Supérieure Polytechnique (ENSP)* in French and was created on the 04th of June 1971 to train technicians that the nation is seriously in need of for its technological and scientific development. Two forms of training were put in place; that is, a short term training of three years sanctioned by the issuance of a work Engineering Diploma and a long term training of five years sanctioned by a Diploma in Conception Engineering. Initial specialties were in Short term training; being Electro-mechanics, Electronics and Civil Engineering; long term training; comprising of Civil Engineering and later Electro-mechanics.

In a move to harmonize its training system with that of other higher institutes, the *ENSP* has since the year 1991 been focusing its attention only on long term training. In 1990 however, a Doctoral cycle for Engineering Sciences was opened to take place for the period of four years. Since 1999, the five years of training in this institution have been partitioned into two cycles. The first cycle is reserved for fundamental or core courses that take two years of training; sanctioned by the issuance of a *DEUG-MPS-SI.*

This first part of training gives the students the opportunity to learn and appropriate basic knowledge in Mathematics, Physics, Computer Sciences and Engineering Sciences. The second cycle is otherwise known as the specialisation cycle such as Industrial Engineering and Telecommunication Engineering. As of now, the National Advanced School of Polytechniques trains Conception Engineers in the following fields: Civil Engineering, Mechanical Engineering, Industrial Engineering, Computer Engineering, Electrical Engineering and Telecommunication Engineering.

Since 2004, the National Advanced School of Polytechniques has been offering Masters in Statistics and its duration is two years. This program is taking place at the department of Mathematics and at the department of Physics. The *ENSP* embraced the famous Bachelor- Master- Doctorate (BMD) system in the 2007/2008 academic year.

In order to respond to the increasing need in the domain of telecommunication, the National Advanced School of Polytechniques has since the year 2007 been embarking on a distance Masters Program. This training which is an innovation in our University system began with twenty-five students; that is, eighteen Cameroonians and seven foreign students according to the *ENSP's* archive in 2010.

The mission of the National Advanced School of Polytechniques is to push the development of Cameroon in the following ways: the training of high level Engineers, the promotion of scientific and technical research, continuous training in the Intermediary centre with the industrial world kwon in French as *Centre Interface du Monde Indutriel (CIMI)*, put at the disposition of the administration enterprises and international organisations with required expertise and to train high level trainers with the know- how.

1.6.2.3. Faculty of Medicine and Bio-medical Sciences (F.M.B.S)

The University centre for Health Sciences or *Centre Universitaire des Sciences de la Santé (CUSS)* became Faculty of Medicine and Bio-medical Sciences (F.M.B.S) in the year 1993. The F.M.B.S trains generalized and specialized medicinists and higher technicians in Nursing. From this change of name came the creation of a discipline known as the Urgency and catastrophic medicine.

The Faculty of Medicine and Bio-medical Sciences has eleven departments; that is, the departments of Morphological Sciences, Medicine and traditional pharmacopy, Physiological/Biochemistry Sciences, Microbiology/Parasitology/Haematology/Infectious diseases, Internal and specialized medicine, Chirurgy and Anaesthesia/Reanimation, Gyneco-obstetrics, Paediatrics, Ophthalmology, Stomatology, Medical Imagery and Radiotherapy and Public health.

Certificates obtained from the Faculty of Medicine and Bio-medical Sciences include: Doctorate in Medicine, Specialist in Clinical Sciences, Specialist in Bio-medicinal Sciences, Specialist in Public health and State Nursing.

Admission into the Faculty of Medicine and Bio-medical Sciences is through *concours* and candidates must be holders of G.C.E Advanced Level in science subjects, *BAC scientifique* or their equivalents. Admission into the various specializations is conditioned by the end which is the Doctorate degree in medicine. However, students can also be recruited to level four if they are holders of a Bachelor Degree in Biomedical Sciences. State Nurses are admitted in Nursing. In the year 2013, the Faculty of Medicine and Bio-medical Sciences counted a total number of 957 students; that is with a relative augmentation of about 17% in relation to the preceding academic year.

1.6.2.4. The Faculty of Arts, Letters and Social Sciences

The Faculty of Arts, Letters and Social Sciences known in French as *Faculté des Arts, Lettreset Sciences Humaines (FALSH)* was first of all called Faculty of Letters and Human Sciences. It got its present name from the 1993 University reform. In fact, the Head of State's Decree No 93/027 and 93/036 of 19th January 1993 based respectively on dispositions common to State universities and administrative and academic organisation of the University

of Yaounde 1, assigned to the Faculty of Arts, Letters and social Sciences the following missions: teaching through the transmission of knowledge, research, support to development and to social and cultural promotion and the practice and development of bilingualism.

Administratively, the FALSH is comprised of a faculty assembly, a faculty council and a central administration managed by a Dean; assisted by three vice Deans and the head of Division. The role of these collaborators to the Dean is repartitioned as such: a Vice Dean in-charge of programation and the follow up of academic activities; a vice Dean in-charge of the registration office, statistics and students' follow up; a vice Dean in-charge of research and cooperation and finally a head of the administrative and financial division.

In the academic year 2006/2007, the student population of the FALSH stood at 13.168 and as of the 2015/ 2016 academic year, it was close to double. The FALSH counts sixteen departments and two post-graduate research units. The departments are as follow: the department of Anthropology, Arts and Archaeology, English modern letters, French modern letters, Bilingual studies, Geography, History, African languages and Linguistics, German literature and civilisations, Iberian literature and civilisations, Ibero-American and Italian languages, Negro-African literature, Philosophy, Psychology, Sociology, Tourism and Language Sciences.

Lectures at the FALSH as in any other faculty of the University of Yaounde 1 take place in four different facets; that is, specialisation courses, complimentary courses, transversal courses and bilingual training courses (all divided into core and tutorials). The present disposition stems from the 2007 introduction of the BMD system that corroborated, modified and completed certain provisions of the 1993 University reform, fixing the academic year for two semesters with fourteen weeks of effective studies.

Every semester is sanctioned by an end of course examination. It is worthy to point out that lectures are organised into courses commonly known as *Unités de l'Enseignement* (U.E); expected to be validated independently. Certificates offered by the FALSH are the Bachelor, Master and Doctorate Degrees.

1.6.2.5. Faculty of Science (F.S)

It was created by Decree No 62/DF/289 of July 1962 under the framework of the Federal University of Cameroon. The F.S is located in two areas. The main faculty is located South Westward (below the rectorate) while the other is found in what is known as *Campus annexe* (North East of the rectorate) besides *Lycée Général Leclerc*, Yaounde. The latter is the campus where the faculty was first of all located from creation. The main campus was only inaugurated in October 1967.

Apart from the overall mission of the University of Yaounde I, the Faculty of Science is particularly charged with the promotion of pure sciences in general, applied sciences through professionalizing education, support development and social and cultural promotion.

Administratively, the F.S is placed under the authority of a Dean or head of establishment in charge of management and the coordination of all activities at the level of thee faculty and to report them to the rector. He is assisted by two vice deans respectively in-charge of programming and follow up of academic affairs, registration and students' follow up and the research and corporations. However, there is also a head of administrative and financial affairs. To these areas of responsibility are associated the following services: certification, teaching and research, registration and statistics, general administration and personnel, financial and maintenance and material sections. They are headed by heads of service. There also exist specialized services at the level of the faculty. Some of which are as follows:

- **The computer office** ***(cellule d'informatique)*** which is a management, students' academic follow-up tool and the production of academic documents such as lists of registered students, students' academic profiles, transcripts, students' identity cards, etc.
- **The library** which is basically for lecturers. However, every department is dotted with library for teachers and students in the Master's and Doctoral cycles.

The administration of the University of Yaounde 1 is comprised of:

- The Rector,
- The central administration,

- Attached institutions and faculty's administration.

The organisational chart of the central services previews the following: one rector, three vice rectors, one secretary general, one technical adviser, four sections (academic and cooperation affairs, infrastructures, planification and development, administrative and financial affairs and the centre for University works) and deconcentrated structure of the Ministry in charge of finance. That is why we have one financial controller, one accountant, and one chief accountant. However, the administration of every faculty is comprised of a Dean, three vice deans, a head of administrative and financial affairs, heads of service and heads of department.

1.6.3. Disciplinary and thematic delimitation

This piece of work will be treated in an educational perspective; an indication that it falls within the context of Sciences of Education, specifically in Guidance and Counselling. Sciences of education concern the study of different aspects of education; that is, its methodological, didactics and pedagogic approaches. It involves diverse disciplines : history of education, sociology of education, anthropology of education, didactics of disciplines, psychology of learning, comparative education, school administration, organization and functioning of educational systems, educational policies, professional and continuous training, training of the teaching personnel, specialized teaching, etc. The first course in Sciences of education was created by Jules Ferry in 1883 in Sorbonne, France and the first seat for the said subject in the above city was occupied by Henri Marion in1887.

1.7. DEFINITION OF CONCEPTS

1.7.1. Career

A chosen pursuit or course of business activity or enterprise, especially one's professional life or employment that offers advancement and honor.

1.7.2. Choice

It is simply the act of choosing among existing alternatives.

1.7.3. Influence

The power that somebody or something has on somebody or something. Here we focus on the influence parents have on choice of career of their children.

1.7.4. Prospective

The chances of being successful; having a good job/employment; in which case we talk of career prospect.

1.7.5. School

The school is a place where children need to be educated. The process of learning in a school; The time during your life when you go to school.

CHAPTER 2

LITERATURE REVIEW, THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

INTRODUCTION

This chapter aims at reviewing related literature on the phenomenon under study or investigation. It shall describe the body of knowledge surrounding the research topic as well as the theories that supports the research idea. This chapter is divided into three major sub-headings namely: Literature review, Theoretical framework and research hypotheses.

2.1. LITERATURE REVIEW

As mentioned earlier, career decision making has always been one of the most important challenges of students of universities and institutes during the recent years (Jin, Watkins and Yuen, 2009). Commonly, career decision making is a process in which the individual chooses a job along with the commitment of a collection of some essential behaviors, which results in a certain degree of preparation to enable the individual to apply for selection (Paivandy, 2008). Some of the essential behaviors, the functioning of which results in career decision-making preparation of the individuals, are the acquirement of abilities and skills of the career, self-recognition, determination of career goals and interests, consultancy with the experts, and attendance at the required educational and training activities.

Therefore, because the students are always trying to develop their career and personal identities while determining their career and scientific goals during their studies (Gordon, 1981, 1998), the universities and the institutes can contribute to the students' success by making use of the mentioned issues. We relied on the belief of most researchers, but to define and determine the goal that inspires the individuals in the scope of the relevant activity and builds the motivation to guide them to select and apply more properly on the basis of organized framework was considered intention by some researchers (Ochs &Roessler, 2004). Thus, better recognition of career decision-making process and some issues like career decision-making intention and its influential parameters especially on academic performances seem vital at the higher education level (Jin, Watkins and Yuen, 2009).

The credibility of every intellectual exercise lies on the review of what others have written on. The domain of this research project is not however an unexplored one. Previous researchers have certainly tackled the phenomenon in one way or the other and in different aspects. The works of these researchers in effect constitute a reliable source of secondary data for us in the present exercise; since they have helped us to better orientate the axes of reflection on the subject matter. In that light, Quivy and Campenhoudt (1995) affirm that:

> *Lorsqu'un chercheur entame un travail, il est peu probable que le sujet traité n'ait jamais été abordé par quelqu'un d'autre auparavant, au moins en partie ou indirectement […]. Tout travail de recherche s'inscrit dans un continuum […]. Il est donc normal qu'un chercheur prenne connaissance des travaux antérieurs qui portent sur des objets comparables et qu'il soit explicite sur le qui rapproche et sur ce qui distingue son propre travail. (*pp. 42).

This means that the instant topic or its constitutive elements might have been treated in one way or the other by different authors and at different times. Literature review therefore is an exercise which sheds light in appreciation of the vast sea of already existing knowledge on a particular topic, in view of bringing contributions or further ameliorations.

In effect, we have identified a number of books, scientific articles, and journals concerned with career choices and academic performances. This section is structured in sub-sections; carrying different sub-topics.

2.1.1. Socio-economic status

Obemeata (1981), counted many criteria used by Nigeria researchers, to determine socio-economic status. He maintained that education is more valid to determine socio-economic status. He further classified people into high socio-economic background on the basis of education. He said that parents who have secondary education and above are classified as being of High Socio-Economic Status (HSES) while those whose parents have only primary education and below and no formal education at all are classified as Low **S**ocio-Economic Status (LSES), parents who are from good paying jobs such as doctors, lawyers, engineers professors, secondary school teachers, head teachers, civil servants etc are regarded as being of HSES. While parents who are petty traders, labourers, peasant farmers and artisans etc are classified as being of LSES.

Many researchers have written widely on the particular people of SES attending a certain quality of the school and how the SES of the parents have affected the performance of the students.

Niles (1981), referred to Toomey's study of several Countries such as Britain, USA Canada, Australia, and found that 50% of the variance in scholastic attainment is accounted for by home background variables which constitute largely on Linguistic stimulus and literacy of the home, the extent to which the home provided materials, information and ideas directly relevant to school learning, the parents aspiration, the parents interest, concern for an encouragement of the child's education, the physical condition of the home, family size and a residual measure of SES.

Robbins (1963), concluded that it is well known that children from different social classes do not generally achieve the same degree of academic success. Many other researchers dealt with this factor and came out with their own contributions.

Willianson (1979, agreed that students of high income origin have greater chance not only of access to education, but also of promotion within the system. This is seen in the socio-economic status of the dropout, repeaters, successful students and in the fact that middle and upper income groups are particularly over represented in higher educational institutions. This fact was also supported by Halsey (1975), who studied post war Britain and noted that in the 1949 population census, a man who started life in a professional family had fifteen times as high a chance of selective secondary school schooling as a son of a labourer; the difference had been reduced by 1972 to a factor of six.

Marjiribanks (1974) believed that home produces the first and perhaps the most instinct and subtle influence in the mental ability development of the child.

From the literature above one can see that socio-economic status of the children have a great influence on the academic performance of children. And this not only apply to advanced countries but also to developing countries of which Cameroon is an evidence.

2.1.2. Parental influence

If the concept of career is considered a social construction, then one of the ways in which children form this concept is through social relationships. Parents' influence on career

development stems from the continuous process of relationship with their children (Young et al. 1997). Analyzing career-related conversations between adolescents and their parents, Young et al. found *a reconstruction of the relationship between the parent and the adolescent through some aspect of career exploration* (p. 76). Their research demonstrates *how relationships and family functioning are embedded in career conversations and how the construction of career occurs in families* (p. 84).

Ketterson and Blustein (1997) also support the relational context of career development. They cite research demonstrating that secure parent-child relationships are associated with progress in career decision making, affirmative career self-efficacy beliefs, and career planning. Their study found that students who have secure attachments to parents engage in greater levels of environmental and self-exploratory activity. They conclude that secure, comfortable relationships are critical in helping students take the risks necessary in exploring new settings and roles.

Way and Rossmann (1996a,b) explore the question of differences in individuals' ability to make successful career transitions. Their research used an ecological systems perspective to show how development is influenced by relationships with others and with the environment. Their interviews with youths and adults identified a proactive family interaction style that significantly contributes to career readiness. Proactive families- are well organized, cohesive, and expressive, speak their minds and manage conflicts positively, seek out ways to grow, are sociable, make decisions through democratic negotiation, encourage individual development and are emotionally engaged.

Using an authoritative parenting style, proactive parents help children learn to be autonomous and successful in shaping their own lives. They also transmit values about work and teach important lessons in decision making, work habits, conflict resolution, and communication skills, which are the foundation of career success.

Of course, family systems intersect and interact with other systems such as gender, race, and class. Poverty, lack of access to opportunities, and gender-role expectations can hamper the career development process. However, the work of Altman (1997), Bloir (1997), Blustein (1997), and Fisher and Griggs (1994) show how close family connections and strong role models can be facilitative factors in confronting these barriers.

Middleton and Loughead (1993) talk of how parents can be an important and positive influence in decisions affecting a young person's vocational development. Though they also warn that over-involvement in the decision- making process can undermine parental effects as a positive source of influence. Excessive parental control regarding adolescents' occupational decision-making results in negative outcomes. Nucci (1996).

Parents should be cautioned against imposing their own goals on to their children or seeing their child's accomplishments as a reflection on themselves. So while parents should show genuine interest and support for their adolescents' career plans, they must allow adolescents to discover who they are on their own. Some teenagers fear the disapproval of their parents if they pursue a career in art/drama/music as opposed to a practical high-earning occupation such as law or medicine. If parents make it clear that they have no specific expectations for their child's career, he/she will feel free to explore a greater variety of professions, choosing one based on their own preferences rather than those of their parents.

Choosing a career is an extremely important decision that impacts an individual's entire future, so parents can become very stressed up. It is important to stay positive otherwise it can become a stressful time for all involved. Parents unwittingly can make the past seem perfect and the future terrifying.

In a study by Bregman and Killen (1999) it was documented that adolescents valued parental influence and guidance in the area of career choice and vocational development.. It is important for parents to give students support and encouragement to explore the many options available to find the best career fit. It is best to start the discussion as early as possible, don't wait until students are looking at CAO forms in sixth year. Much of the formative discussion should have happened well before this stage. If the process is started early, there is less likelihood of making unwise decisions.

Parents should guard against shooting down ideas their children may have about their future careers. If they react negatively, it may shut down the whole exploration process. Parents need to keep the lines of communication open, and encourage their child to gather as much information as possible on their career interest areas. A parent must recognize that their role is simply to act as a facilitator in their child's career journey and allowing independent career choices marks a young person's first real step into adulthood.

2.1.3. School selection

Blakscmore et al (1980) also stated that from the point of view of educational opportunities; income from properties has the same significance as income from employment. It permits parents to ensure their children's schooling, buy their school uniform and books, provide them with adequate housing, food and private tuition when necessary, and to dispense with the labour of their childfree. High quality private education from nursery school level upwards is used disproportionately by the children of the better of classes.

Sanusi (1987), agreed that educational opportunities do not fully depend on intelligence and those who go to poor primary schools do not do so necessarily because they are intellectually inferior but rather because the society and educational opportunities and advantages open to them are not the same with those of the rich parents.

From the literature above one can easily be convinced that there are numerous factors which can influence academic performance in schools. One cannot pin point a single factor as the dominant factor. The deficiency of one may even cause the others to show any significant influence. Therefore, the academic performance is determined by numerous factors ranging from innate intelligence to school and home background.

2.1.4. Family socialisation

Many educationists believed that mere socio-economic background of the child is of little importance to his/her academic performance or achievement in the school, but rather there are more subtle factors. These more important factors are enumerated as the family socialisation process and support; heredity, intelligence of the children achievement motivation and children's orderliness.

According to Niles (1981) the influence of family socialisation process, family interest and support are more important than the SES factors in the academic performance of the children. To him, family environment and the kind of support given will influence the success or failure of the child.

Bank (1978) in other to support this said school achievement is seen in terms of particular value orientation or different personality structures, and school success is to be

understood as a consequence of what has been called an achievement syndrome, then a logical step forward is to locate the origins of this achievement in the socialisation process itself".

To some people success or failure in school is attributed to orderliness or effect put up by the child in his work.

Douglas (1974) reported that "students who are not succeeding in their studies yield more than their share of disorderly conduct and restlessness in class while the academically more successful ones are likely to be well adjusted to life, hardworking and attentive in school. He also found out that the academically able students were often orderly careful, meticulous and punctual.

Blankemore (1980) when he studied Uganda accounted for intelligence as one of the factors that affect academic performance. He said intelligence, sex, and teachers level of education were the factors most closely related to variation in performance, not social background or birth place"

Roth (1970) also said that dependence of talent upon learning process is more important than the dependence upon surroundings and maturity. But to Tyler (1977), what makes children differ in achievement is the exposure of the children to affluent or talented children. Therefore exposure of children to talented children is another factor that affects academic performance.

Rosen (1970) held a different view entirely. He attributed performance to achievement motivation rather than talent or intelligence. He therefore said that the correlation between achievement motivations more frequently received high marks than those with low achievement motivation.

Skowronek (1976) looking at the influence of emotion and said that the anxiety about failure which inhibits achievement in a pupil often does not originate only in his school career but is established earlier in his pre-school upbringing where in an atmosphere that can best be described as lacking emotional worth, in which successes are accepted as a matter of course, but failure are severely criticized and noted of perfectionism sets the scene, children as has already been observed are concerned more with avoiding failure than with trying to succeed.

Achievement in failure of this type clearly becomes on all-or-nothing criterion which is almost the only measure of personal worth.

2.1.5. School environment

Tyler (1977) defines school quality (school environment) as those aspects of the formal educational equipment amenable to change by public or professional policy. This include the physical nature of the school building, the type of equipment and facilities the school offers, the training specialization and experience of its staff, the average per pupils expenditure and average size of the class groups, the social and intellectual mix of the pupils as a body. It includes the ideological climate of the school or the school district, teacher attitudes, types of control and compliance.

One other man who held a strong belief that school climate is a strong base for academic performance in school is Kamyot**e**(1986) in his article titled *influence of class size in pupil's achievement in physical education*, said more than 60 in class, teachers feel that the class has been too large to be manage. Tyles (1977) furthermore looked at the influence of school environment on academic performance and had this to say "it is often believed that the fact that poor children tend to have a worse school environment is the reason for their lower achievement, higher rate of illiteracy and so forth.

Cuttance (1980) when quoting Coleman et al came out with a conclusion *School factors account for half as much influence as non-school factors in overall differences in school cognitive domain*.

However, the influence of school environment on children academic performance should not be taken lightly because school environment can compensate for what is deficient at home consequently grooming the child for a higher standard.

Diete (1988) blamed the fallen standard of education in public schools in the African continent on the lazy attitude of the teachers in such schools. According to him, teachers in public schools hardly showed any seriousness towards their job and that this contributed greatly to the poor performance of the pupils. He said further that the attitude of teachers in the public schools made the differences between public and private schools.

From the literature above, one can easily see the great extent students' career choices can go to influence their academic performance. Their contribution to learning is of immense importance. From this literature, one can easily see that many factors which originate from home, the school and the society at large have great influence on the academic performance of students.

2.2. THEORETICAL FRAMEWORK

Generally, when data is collected, analyses and interpretations follow. In pure or natural sciences, this exercise is carried out in the laboratory. But in human or social sciences, the situation is different; since the latter deals with human beings who are complex and whose behaviours, opinions, interactions, laws, beliefs, pasts (history), knowledge and/or cultures cannot be treated in the laboratory.

In effect, social scientists have come up with their own mechanism of data analysis and interpretation which is usually with the help of what is known as the theoretical framework. This refers to a set of elements/traits/concepts or principles selected from a theory or a given number of theories and built in a certain manner by the researcher which in turn serves as an aid in the explanation of realities in a particular context.

According to Mbonji Edjenguèlè (2005) however, a theoretical framework is:

> *Ce qu'un chercheur a trouvé dans une spécialisation ou plusieurs, qu'il formule dans ses propres mots et qui lui servira de clé de compréhension des données d'un problème; il est une élaboration du chercheur à partir du matériau puisé dans le champ théorique. (*pp. 16).

We can therefore deduce from the above definitions that a theoretical framework is a construction of the researcher; that is, the latter is the author of the former. However, the researcher's choice of theory and principles depends on the nature of his topic and/or the angle he wants to take in the treatment of the phenomenon under study. So, a theoretical framework is not a theory or a set of theories per say.

It is worthy to note here that it is with the help of a theoretical framework that the reader can determine the scientific discipline and scope that the writer fitted his work in; that is, whether anthropological, psychological or educational. This is because social scientists

nowadays treat similar and/or the same issues. What therefore differentiate, not to say oppose their respective findings is the paradigm of intelligibility that they employ in their analyses and interpretations. A Functionalist, Ethno methodologist and a Symbolic Internationalist for example can never arrive at the same conclusions even if they worked on the same topic at the same time or with the same informants as confirmed by Mbonji Edjenguèlè (2005).

That notwithstanding, three main steps are followed when constructing a theoretical framework. They are as follows:

It begins with an inventory of theories that have a link or those that are related to the topic or phenomenon under study, followed by a thorough scrutinization of the short listed theories. The selection, justification and construction of the concepts that can best suite in the explanation of data that centers on the phenomenon.

However, when the researcher perused the theoretical *grille* of educational sciences, the theories of Lent, Brown and Hackett, Abraham Maslow and John Dewey caught his attention.

2.2.1.Lent, Brown and Hackett's Social Cognition Career Theory

The Social Cognition Career Theory (SCCT) has grown out of Albert Bandura's social cognitive theory and attempts to address issues of culture, gender, genetic endowment, social context and unexpected life events that may interact with and supersede the effects of career-related choices. Created in 1987, the SCCT focuses on the connection of self-efficacy, outcome expectations and personal goals that influence an individual's career choice.

SCCT proposes that career choice is influenced by the beliefs the individual develops and refines through four major sources:

a) Personal performance accomplishments,

b) Vicarious learning,

c) Social persuasion and

d) Physiological states and reactions.

How these aspects work together in the career development process is through a process in which an individual develops an expertise/ability for a particular endeavor and meets with success. This process reinforces one's self-efficacy or belief in future continued success in the use of this ability/expertise. As a result, one is likely to develop goals that involve continuing involvement in that activity/endeavour. Through an evolutionary process beginning in early childhood and continuing throughout adulthood, one narrows the scope to successful endeavours to focus on and form a career goal/choice. What is critical to the success of the process is the extent to which one view the endeavour/activity as one at which they are successful and offers valued compensation.

The contextual factors come into play by influencing the individual's perception of the probability of success. If the person perceives few barriers the likelihood of success reinforces the career choice, but if the barriers are viewed as significant there is a weaker interest and choice actions. By adolescence, most people have a sense of their competence at a vast array of performance areas, along with convictions about the likely outcomes of a career. Through a process of intervening learning experiences that shape further one's abilities and impacts self-efficacy and outcome beliefs, one's vocational interests, choices and performances are shaped and reshaped. The SCCT differs from the majority of existing career theories in its dynamic nature. Through its focus upon the role of the self-system and the individual's beliefs the inherent influence of the social and economic contexts are addressed.

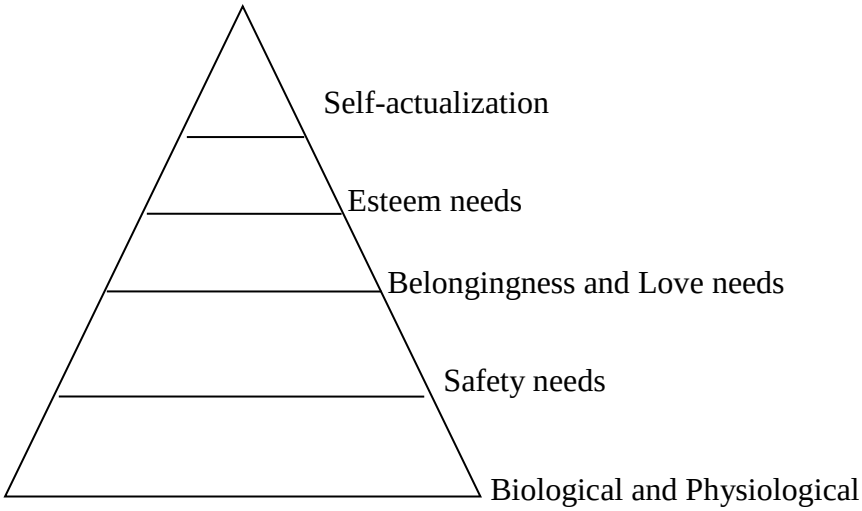
2.2.2. Hierarchy of Needs motivational model

Abraham Maslow developed the *Hierarchy of Needs model* in 1940-50s in the United State of America (USA)and the Hierarchy of Needs theory remains valid today for understanding human motivation, management training and personal development. Indeed, Maslow's ideas surrounding the Hierarchy of Needs concerning the responsibility of employers to provide a workplace environment that encourages and enables employees to fulfill their own unique potential (self-actualization) are today more relevant than ever. Abraham Maslow's book Motivation and Personality, published in 1954 (second edition 1970) introduced the Hierarchy of Needs and he extended his ideas in other work, notably his later book Toward A Psychology Of Being, a significant and relevant commentary, which has been revised in recent times by Richard Lowry, who is in his own right a leading academic in the field of motivational psychology.

Abraham Maslow was born in New York in 1908 and died in 1970, although various publications appear in Maslow's name in later years. Maslow's PhD in psychology in 1934 at the University of Wisconsin formed the basis of his motivational research, initially studying rhesus monkeys. Maslow later moved to New York's Brooklyn College.

The Maslow's Hierarchy of Needs five-stage model below (structure and terminology - not the precise pyramid diagram itself) is clearly and directly attributable to Maslow; later versions of the theory with added motivational stages are not so clearly attributable to Maslow. These extended models have instead been inferred by others from Maslow's work. Specifically Maslow refers to the needs Cognitive, Aesthetic and Transcendence (subsequently shown as distinct needs levels in some interpretations of his theory) as additional aspects of motivation, but not as distinct levels in the Hierarchy of Needs. Here below is a diagrammatical illustration of the model.

Figure 01: Maslow's Hierarchy of Needs Model



Source: Adapted from Maslow Model

2.2.3. John Dewey's Theory of Education

According to Winter (1960), John Dewey's Theory of Education was rewritten by Wardein 1960.October 20th 1959 marked the one-hundredth anniversary of John Dewey's birthday. This eminent thinker of the Progressive movement was the dominant figure in American education. His most valuable and enduring contribution to our culture came from the ideas and methods he fathered in this field.

Dewey won a greater international following for his educational reforms than for his instrumentalist philosophy. Between the two World Wars, where previously backward countries were obliged to catch up quickly with the most modern methods, as in Turkey, Japan, China, the Soviet Union and Latin America, the reshapers of the educational system turned toward Dewey's innovations for guidance.

Most broadly considered, Dewey's work consummated the trends in education below the university level initiated by pioneer pedagogues animated by the impulses of the bourgeois-democratic revolution. This was especially clear in his views on child education which built on ideas first brought forward by Rousseau, Pestalozzi and Froebel in Western Europe and by kindred reformers in the United States.

In its course of development on a world scale the democratic movement forced consideration of the needs and claims of one section of the oppressed after another. Out of the general cause of *rights of the people* there sprouted specific demands voicing the grievances of peasants, wage workers, the religiously persecuted, slaves, women, paupers, the aged, the disabled, prisoners, the insane, the racially oppressed.

The movement to reform child education must be viewed in this historical context. Children as such are not usually included among the oppressed. Yet they necessarily compose one of the weakest, most dependent and defenseless sections of the population. Each generation of children is not only helped but hindered and hurt by the elders who exercise direct control over them.

Just as society may deny satisfaction to the physical, educational and cultural needs of the young, so their parents and guardians may slight or ignore their rights. Most adults cannot be held individually culpable for such misdeeds; they, too, have been shaped by the society around them and are goaded by its necessities. Through them and others around them the rising generation suffers from the inadequacies of their social inheritance and the evils of their surroundings. Growing children are normally unaware of the remoter social causes of their misfortunes and miseries; even their elders may not know about them. So they direct their resentments, as well as focus their affections, upon the members of their immediate circle. The novels of the past 150 years provide plenty of pathetic tales and tragic descriptions of family conflicts at all age levels.

Children cannot formulate their grievances collectively, or conduct organized struggle for improvements in their conditions of life and mode of education. Apart from individual explosions of protest, they must be helped by spokesmen among adults who are sensitive to the troubles of the young and are resolved to do something about remedying them.

However, the impulsion for educational reform does not come in the first place from any abstract recognition of the deprivations suffered by the young. It arises from reactions to widespread changes in the conditions of life which affect all age groups. Their new situation forces both parents and children to seek new ways of satisfying the new demands thrust upon them. The child brought up in a tenement or an apartment in crowded city streets has different needs and faces more complex and perplexing problems than the child on a family farm. The families who have migrated from Puerto Rico to Manhattan since the end of the Second World War can testify to this.

The problems of readjustment differ somewhat according to the child's social status. The class structure quickly impresses its stamp upon the plastic personality, conditioning and regulating the relations between the sexes, the rich and the poor, the upper, middle and lower classes. This determines both the characteristics of the educational system and of the children tutored and trained under it.

Each broad struggle against antiquated social and political conditions since the French Revolution has evoked demands for the reconstruction of the educational system. The kindergarten and child-play movement now incorporated in our public schools was part and parcel of the ferment created by the French Revolution. Thomas Jefferson first called for national free public schools to defend and extend the newly won American democracy. The utopian socialists, in accord with their understanding that people were the products of their social environment, gave much thought to the upbringing of children and introduced many now accepted educational innovations.

The communist colony in New Harmony, Indiana, founded by Robert Owen in 1826, pioneered a pattern in free, equal, comprehensive and secular education that had yet to be realized throughout this country over a century later. From the age of two the children were cared for and instructed by the community. The youngest spent the day in play school until they progressed to higher classes. There the Greek and Latin classics were discarded; practice in various crafts constituted an essential part of the program. The teachers aimed to impart

what the children could most readily understand, making use of concrete objects and avoiding premature abstractions. They banished fear and all artificial rewards and punishments and appealed instead to the spontaneous interest and inclinations of the children as incentives for learning. Girls were on an equal footing with boys.

The educational reformers of the late eighteenth and nineteenth centuries dealt with the two distinct aspects of children's problems. One concerned the claims of childhood as a specific and independent stage in human growth. This perennial problem arises from the efforts of adults to subject growing children to ends foreign to their own needs and to press them into molds shaped, not by the requirements of the maturing personality, but by the external interests of the ruling order. Rousseau had protested against this when he wrote:

Nature wants children to be children before they are men. Childhood has ways of seeing, thinking, and feeling, peculiar to itself, nothing can be more foolish than to substitute our ways for them.

The other involved efforts to reshape the obsolete system of schooling to make it fit the revolutionary changes in social life. These two problems were closely connected. The play school, for example, was devised not only to care for the specific needs of very young children but also to meet new needs which had grown out of the transformations in the family affected by industrial and urban conditions; it was no longer a unit of production as in feudal and colonial times but became more and more simply a center of consumption.

Dewey's theories blended attention to the child as an individual with rights and claims of his own with a recognition of the gulf between an outdated and class-distorted educational setup inherited from the past and the urgent requirements of the new era.

The educational system had to be thoroughly overhauled, he said, because of the deep-going changes in American civilization. Under colonial, agrarian, small-town life, the child took part in household, community and productive activities which spontaneously fostered capacities for self-direction, discipline, leadership and independent judgment. Such worthwhile qualities were discouraged and stunted by the new industrialized, urbanized, atomized conditions which had disintegrated the family and weakened the influence of religion.

In the city the training of children became one-sided and distorted because intellectual activities were dissociated from practical everyday occupations. Dewey wrote:

While the child of bygone days was getting an intellectual discipline whose significance he appreciated in the school, in his home life he was securing acquaintance in a direct fashion with the chief lines of social and industrial activity. Life was in the main rural. The child came into contact with the scenes of nature, and was familiarized with the care of domestic animals, the cultivation of the soil, and the raising of crops. The factory system being undeveloped, the house was the center of industry. Spinning, weaving, the making of clothes, etc., were all carried on there.

As there was little accumulation of wealth, Dewey continued, "the child had to take part in these, as well as to participate in the usual round of household occupations. Only those who have passed through such training, [as Dewey himself did in Vermont], and, later on, have seen children raised in city environments, can adequately realize the amount of training, mental and moral, involved in this extra-school life ... It was not only an adequate substitute for what we now term manual training, in the development of hand and eye, in the acquisition of skill and deftness; but it was initiation into self-reliance, independence of judgment and action, and was the best stimulus to habits of regular and continuous work.

In the urban and suburban life of the child of today this is simply memory, he went on to point out. "The invention of machinery, the institution of the factory system, the division of labor, has changed the home from a workshop into a simple dwelling place. The crowding into cities and the increase of servants has deprived the child of an opportunity to take part in those occupations which still remain. Just at the time when a child is subjected to a great increase in stimulus and pressure from his environment, he loses the practical and motor training necessary to balance his intellectual development. Facility in acquiring information is gained; the power of using it is lost. While need of the more formal intellectual training in school has decreased, there arises an urgent demand for the introduction of methods of manual and industrial discipline which shall give the child what he formerly obtained in his home and social life. The old schooling had to be renovated for still another reason. The curriculum and mode of colonial education had been largely shaped by medieval concepts and aims. The schools were controlled by the clergy and access to them was restricted to the

favored few, the wealthy and well born. The teacher tyrannized over the classroom, imposing a schematic routine upon a passive, obedient, well-drilled student body.

In *The School and Society* Dewey pointed out how haphazardly the existing school organization had grown up. It was composed of oddly assorted and poorly fitting parts, fashioned in different centuries and designed to serve different needs and even conflicting social interests.

The crown of the system, the university, had come down from medieval times and was originally intended to cater to the aristocracy and train an elite for such professions as law, theology and medicine. The high school dated from the nineteenth century when it was instituted to care for the demands from commerce and industry for better-trained personnel. The grammar school was inherited from the eighteenth century when it was felt that boys ought to have the minimum ability to read, write and calculate before being turned out to shift for themselves. The kindergarten was a later addition arising from the breakup of the family and the home by the industrial revolution.

A variety of specialized institutions had sprung up alongside this official hierarchy of education. The normal or teachers' training school produced the teachers demanded by the expansion of public education in the nineteenth century. The trade and technical school turned out skilled craftsmen needed for industry and construction.

Thus the various parts of our educational system ranged from institutions of feudal formation like the university to such offshoots of industrial capitalism as the trade school. But no single consistent principle or purpose of organization unified the whole.

Dewey sought to supply that unifying pattern by applying the principles and practices of democracy, as he interpreted them, consistently throughout the educational system. First, the schools would be freely available to all from kindergarten to college. Second, the children would themselves carry on the educational process, aided and guided by the teacher. Third, they would be trained to behave cooperatively, sharing with and caring for one another. Then these creative, well-adjusted equalitarians would make over American society in their own image.

In this way the opposition between the old education and the new conditions of life would be overcome. The progressive influences radiating from the schools would stimulate and fortify the building of a democratic order of free and equal citizens.

The new school system envisaged by Dewey was to take over the functions and compensate for the losses sustained by the crumbling of the old institutions clustered around the farm economy, the family, the church and the small town. *The school*, he wrote, must be made into a social center capable of participating in the daily life of the community . . . and make up in part to the child for the decay of dogmatic and fixed methods of social discipline and for the loss of reverence and the influence of authority. Children were to get from the public school whatever was missing in their lives elsewhere that was essential for their balanced development as members of a democratic country.

He therefore urged that manual training, science, nature-study, art and similar subjects be given precedence over reading, writing and arithmetic (the traditional three R's) in the primary curriculum. The problems raised by the exercise of the child's motor powers in constructive work would lead naturally, he said, into learning the more abstract, intellectual branches of knowledge.

Although Dewey asserted that activities involving the energetic side of the child's nature should take first place in primary education, he objected to early specialized training or technical segregation in the public schools which was dictated, not by the individual needs or personal preferences of the growing youth, but by external interests.

The question of how soon vocational training should begin had been under debate in educational circles since the days of Benjamin Franklin. The immigrants, working and middle classes regarded education, not as an adornment or a passport to aristocratic culture, but as indispensable equipment to earn a better living and rise in the social scale. They especially valued those subjects which were conducive to success in business. During the nineteenth century private business colleges were set up in the cities to teach the mathematics, bookkeeping, stenography and knowledge of English required for business offices. Mechanics institutes were established to provide skilled manpower for industry.

These demands of capitalist enterprise invaded the school system and posed the question of how soon children were to be segregated to become suitable recruits for the

merchant princes and captains of industry. One of the early nineteenth century promoters of free public education, Horace Mann, appealed both to the self-interest of the people and to the cupidity of the industrialists for support of his cause on the ground that elementary education alone could properly prepare the youth for work in the field, shop or office and would increase the value of labor. Education has a market value; that it is so far an article of merchandise, that it can be turned to pecuniary account; it may be minted, and will yield a larger amount of statutable coin than common bullion, he said.

Dewey, following his co-educator, Francis Parker, rejected so commercial-minded an approach to elementary education. They opposed slotting children prematurely into grooves of capitalist manufacture. The business of education is more than education for the sake of business, they declared. They saw in too-early specialization the menace of uniformity and the source of a new division into a master and a subject class.

Education should give every child the chance to grow up spontaneously, harmoniously and all-sidedly. Instead of trying to split schools into two kinds, one of a trade type for children whom it is assumed are to be employees and one of a liberal type for the children of the well-to-do, it will aim at such a reorganization of existing schools as will give all pupils a genuine respect for useful work, an ability to render service, and a contempt for social parasites whether they are called tramps or leaders of 'society.' Such a definition did not please those who looked upon themselves as preordained to the command posts of the social system.

Each stage of child development, as Gesell's experiments and conclusions have proved, has its own dominant needs, problems, modes of behavior and reasoning. These special traits required their own methods of teaching and learning which had to provide the basis for the educational curriculum.

The kindergarten was the first consciously to adopt the methods of instruction adapted to a particular age group. Dewey extended this approach from pre-school age to primary and secondary schooling. Each grade ought to be child-centered, not externally oriented, he taught. "The actual interests of the child must be discovered if the significance and worth of his life is to be taken into account and full development achieved. Each subject must fulfill present needs of growing children . . . The business of education is not, for the presumable

usefulness of his future, to rob the child of the intrinsic joy of childhood involved in living each single day," he insisted.

Children must not be treated as miniature adults or merely as means for ministering to adult needs, now or later. They had their own rights. Childhood was as much a period of consummation and of enjoyment of life on its own terms as it was a prelude to later life. The first should not be sacrificed to the second on penalty of wronging the child, robbing him of his just due and twisting his personality development.

Socially desirable qualities could not be brought forth in the child by pouring a readymade curriculum into a passive vessel. They could be most easily and fully developed by guiding the normal motor activities, irrepressible inquisitiveness and outgoing energies of the child along the lines of their greatest interest.

Interest, not outside pressure, mobilizes the maximum effort in acquiring knowledge as well as in performing work. The authoritarian teacher, the cut-and-dried curriculum, the uniform procession from one grade to the next and the traditional fixed seats and desks laid out in rows within the isolated and self-contained classroom were all impediments to enlightened education. Whenever the occasion warranted, children should be permitted to go outdoors and enter the everyday life of their community instead of being shut up in a classroom where each pupil sits at a screwed down desk and studies the same part of some lesson from the same textbook at the same time. The child could freely realize his capacities only in an unobstructed environment.

The child learns best through direct personal experience. In the primary stage of education these experiences should revolve around games and occupations analogous to the activities through which mankind satisfies its basic material needs for food, clothing, shelter and protection. The city child is far removed from the processes of production: food comes from the store in cans and packages, clothing is made in distant factories, water comes from the faucet.

The school has to give children, not only an insight into the social importance of such activities, but above all the opportunities to practice them in play form. This leads naturally into the problem or "project method" which has come to be identified with the essence of the progressive procedure.

Children soak up knowledge and retain it for use when they are spontaneously induced to look into matters of compelling interest to themselves. They progress fastest in learning, not through being mechanically drilled in prefabricated material, but by doing work, experimenting with things, changing them in purposive ways.

Occasionally children need to be alone and on their own. But in the main they will learn more by doing things together. By choosing what their group would like to do, planning their work, helping one another do it, trying out various ways and means of performing the tasks, involved and discovering what will forward the project, comparing and appraising the results, the youngsters would best develop their latent powers, their skill, understanding, self-reliance and cooperative habits.

The questions and answers arising from such joint enterprises would expand the child's horizon by linking his immediate activities with the larger life of the community. Small children of six or seven who take up weaving, for example, can be stimulated to inquire into the cultivation of cotton, its processes of manufacture, the history of spinning devices. Such lines of inquiry emerging from their own interests and occupations would open windows upon the past, introduce them naturally to history, geography, science and invention, and establish vivid connections between what they are doing in school and the basic activities of human existence.

Participation in meaningful projects, learning by doing, encouraging problems and solving them, not only facilitates the acquisition and retention of knowledge but fosters the right character traits: unselfishness, helpfulness, critical intelligence, individual initiative, etc. Learning is more than assimilating; it is the development of habits which enable the growing person to deal effectively and most intelligently with his environment. And where that environment is in rapid flux, as in modern society, the elasticity which promotes readjustment to what is new is the most necessary of habits.

Dewey aimed to integrate the school with society, and the processes of learning with the actual problems of life, by a thoroughgoing application of the principles and practices of democracy. The school system would be open to all on a completely free and equal basis without any restrictions or segregation on account of color, race, creed, national origin, sex or social status. Group activity under self-direction and self-government would make the classroom a miniature republic where equality and consideration for all would prevail.

This type of education would have the most beneficial social consequences. It would tend to erase unjust distinctions and prejudices. It would equip children with the qualities and capacities required to cope with the problems of a fast-changing world. It would produce alert, balanced, critical-minded individuals who would continue to grow in intellectual and moral stature after graduation.

The Progressive Education Association, inspired by Dewey's ideas, later codified his doctrines as follows:

- The conduct of the pupils shall be governed by themselves, according to the social needs of the community.
- Interest shall be the motive for all work.
- Teachers will inspire a desire for knowledge, and will serve as guides in the investigations undertaken, rather than as task-masters.
- Scientific study of each pupil's development, physical, mental, social and spiritual, is absolutely essential to the intelligent direction of his development.
- Greater attention is paid to the child's physical needs, with greater use of the out-of-doors.
- Cooperation between school and home will fill all needs of the child's development such as music, dancing, play and other extra-curricular activities.

All progressive schools will look upon their work as of the laboratory type, giving freely to the sum of educational knowledge the results of their experiments in child culture. These rules for education sum up the theoretical conclusions of the reform movement begun by Colonel Francis Parker and carried forward by Dewey at the laboratory school he set up in 1896 with his first wife in connection with the University of Chicago. With his instrumentalist theory of knowledge as a guide, Dewey tried out and confirmed his new educational procedures there with children between the ages of four and fourteen.

This work was subsequently popularized by the leading faculty members of Teachers College in New York after Dewey transferred from Chicago to Columbia University. From this fountainhead Dewey's ideas filtered throughout most of the teachers training schools and all the grades of public instruction below the university level. His disciples organized a John Dewey Society and the Progressive Education Association and have published numerous books and periodicals to propagate and defend his theories.

Dewey's progressive ideas in education have had a curious career. Despite the criticisms they have received from the right and from the left, and even within Progressive circles, they have no serious rival. Today, on the century of his birth, they are the accepted and entrenched creed on education from Maine to California.

Yet this supremacy in the domain of educational theory has not been matched by an equivalent reconstruction of the educational system. Dewey's ideas have inspired many modifications in the traditional curriculum, in the techniques of instruction, in the pattern of school construction. But they have not changed the basis or the essential characteristics of the school system, and certainly not the class stratification of American society.

Such restricted results are not a very good testimonial for the principal product of a philosophy which demands that the merits of a theory be tested and judged by its ability to transform a defective situation,

How is this ineffectiveness in practice to be explained? If Dewey's procedures, ideas and aims are so admirable-as they are-why after fifty years haven't they succeeded in accomplishing more in the spheres of educational and social reform? Why have they fallen so far short of expectations and even become one of the favorite targets of reaction?

2.2.3.1. Operationalization of the theoretical framework

A better comprehension of this research shall be reposed on a theoretical explanation. The theories applicable into this study therefore are three in number. These theories in effect attempt to explain how in making career choices, students are motivated by one way or the other. However, limiting the study to only these theories will be lopsided; given that other theories equally apply wherein the student is considered as a unitary and irrational actor in the decision making process as well as the pursue of self interest. As such, the student as an individual known to be the sole actor in the decision making process is being demonstrated here in reference to the making of career choices.

In a somewhat different stratum, the theories selected for this study are a form of individual motivation; the major motivation of individual behaviour is what the individual stands to reap at the end. For these theories, in other words, it is wrong to reduce students'

decision making as far as career choices are concerned to mere interest and human nature as the primary factors determining students' career choice decision making.

2.3 RESEARCH HYPOTHESES

They are as well divided into two categories; namely: general and specific hypotheses.

2.3.1 General hypothesis

Students' career choices have a significant influence on their academic performance at the faculty of science in the University of Yaoundé 1.

2.3.2 Specific hypotheses

Parents' decision on students' career choices significantly influence their academic performance at the faculty of science in the University of Yaounde 1.

The power of the job market on students' career choices significantly influences their academic performance at the faculty of science in the University of Yaounde 1.

Prestige on students' career choices significantly influences their academic performance at the faculty of science in the University of Yaounde 1.

Figure 02: Synoptic table highlighting essential elements of the research

Topic	Specific Hypotheses	Variables	Modalities	Indicators	Indices
Career Choice and Academic Performance: A study of the influence of students' prospective jobs on their output in school. The case of the Faculty of Science in the University of Yaounde 1	**RH_1:** Parents' decision on students' career choices significantly influence their academic performance at the faculty of science in the University of Yaounde 1.	**V1** Parents' decision **DV** Academic performance	-Low, -Moderate, -High,	- Success, - Failure, - Average performance	- Number of courses passed, - Number of courses failed, - General Point Average (GPA),
	RH_2: The power of the job market on students' career choices significantly influences their academic performance at the faculty of science in the University of Yaounde 1.	**V2** Power of the job market **DV** Academic performance	-Weak, -Moderate, - Strong,	- Success, - Failure, - Average performance	- Number of courses passed, - Number of courses failed, - General Point Average (GPA),
	RH_3: Prestige on students' career choices significantly influences their academic performance at the faculty of science in the University of Yaounde 1.	**V3** Prestige **DV** Academic performance	-Low, -Moderate -High	- Success, - Failure, - Average performance	Number of courses passed, - Number of courses failed, - General Point Average (GPA),

Where: **R.H**=Research Hypothesis, **V**= Variable, **D.V**=Dependent Variable.

Source: Enow (Research work, 2016)

CHAPTER 3

RESEARCHMETHODOLOGY

INTRODUCTION

This chapter presents an explanation of methods and instruments used in carrying out the research. It comprises of the following sub topics: The research design, research area, population of the study, sample and sampling technique, construction of instrument, validation and reliability of research instrument, pilot testing, data collection, procedures and techniques of administration, method of data analysis and conclusion

This has to do with the manner in which both primary and secondary data was collected; techniques and tools that were employed, the nature of informants that were involved and how the said data was analysed and interpreted; since there is no science without a method and no method without science. Here, the researcher applied the qualitative and the quantitative methods and techniques habitually used in sciences of education, educationists are of the opinion that no single technique can be used to adequately investigate a problem.

The study uses qualitative and quantitative empirical data obtained from a variety of sources. These sources have been further regrouped into Primary and Secondary sources. In that light therefore, primary sources essentially included data collected with the use of questionnaires destined for students; interviews conducted with some Lecturers and documentary research on the issue under study. This initiative was aimed at bringing to lamp light the phenomenon under study in all its flanks. Given the nature and orientation of the present research work however, they were not applied in their entirety. In effect, we will be seeing how data was collected and the way it was analyzed and interpreted. However, let's begin by taking a look at how research participants were sampled.

3.1. RESEARCH DESIGN

As earlier asserted, the cross sectional design will be implicated in the course of the study. The latter has to do with contacting some randomly selected faculty of science students and collecting data from them in order to get a fair picture of the prevailing situation and the

considerations that underlie it. The application of this research design is very instrumental; given its scope and pertinence in the resolution of the problem at hand.

It is also a qualitative and quantitative research which is characterized by the fact that the facts are gathered from primary source and will be analyzed in turn with the use of statistics. Statistical approach that will be addressed here is the frequency approach. They will serve as rational basis for making inferences and decisions about whether our hypotheses (stated in chapter two above) are confirmed or rejected. We found it appropriate to be used in this type of research work.

3.2. STUDY POPULATION

For the purpose of achieving this academic research, students of the faculty of science in the University of Yaounde 1 were taken as informants. They were those, by implication, who are duly registered in the said faculty without any distinction of age, sex and Region of origin. They have all been in this faculty for at least one year and above. These students were selected so as to provide responses to the questionnaire.

3.3. SAMPLING TECHNIQUE

According to statistics from the Students' Union office, it was realized that in the faculty of science, the students' population counts over ten thousand persons for the 2015/2016 academic year.

However, we used the simple random sampling technique in order to get the required number of participants for this research exercise. This approach was used due to the bulky nature of the research population. In this process, a total of four departments in the said faculty were taken. This choice was made based on their population threshold and academic renown for the past decades. They include the departments of Bio-Chemistry, Botany, Computer sciences and Mathematics; that is, nine (09) from the department of Bio-Chemistry; twelve (12) from the department of Botany, eight (08) from the department of Computer Science and ten (10) from the department of Mathematics; making a total of thirty-nine (39) informants.

The choice of our sample fell on the above category of people and departments because we felt that as they are directly concerned with the phenomenon under study, they

were going to be better placed to give us adequate and reliable information related to career choices and academic performance at the faculty of science in the University of Yaounde 1. The table bellow illustrates the sample for the study.

Figure 03: Sample for the study

Departments	Bio-chemistry	Botany	Computer Science	Mathematics	Total
Number of students sampled	09	12	08	10	39

Source: Enow (Fieldwork, 2015).

3.4. INSTRUMENTS OF DATA COLLECTION:

Data here contained was got from different sources; categorized under primary and secondary data. Primary data here has to do with *raw material* got from research participants and through questionnaires administered to students in the above four stated departments.

Secondary data on its part is material related to Career choices and academic performance in one way or the other. The former is primary because it is directly collected from the field while the latter is secondary because of the fact that it is got from pre-existing texts. The two (primary and secondary) are data because they are *raw materials* pending treatment. It is after they must have been treated that we can then talk of information.

3.4.1. Primary data collection

Primary data will be collected from the field or study site which is the faculty of Science in the University of Yaounde1, Cameroon. To have this done, the following sources of data collection will be implicated. They include: direct observation, opinion surveys, and literature on Career choices and academic performance, and official and other written documents as earlier indicated. This exercise will be facilitated with the use of tools such as: questionnaires, tape recorders, digital cameras, and writing materials such as bloc notes, pens pencils, bold markers and pen correctors.

3.4.1.1. Research instruments

To show that the assumption made in this study is built on solid ground and to accomplish the research aims, a questionnaire for faculty students, especially senior students was designed. In brief, the principal method of data collection in this research is questionnaire.

3.4.1.1.1. Questionnaire

A questionnaire according to Oxford Advanced Learner's Dictionary is *a writing list of questions that are answered by a number of people so that information can be collected from the answers.* To add to this definition, a questionnaire can be typed or printed in a definite order or form and can be distributed directly or mailed to respondents who are expected to read, understand the questions, then write down the reply in the space meant for the purpose in the questionnaire itself. The questionnaire was design to meet the demands of some of research questions underpinning this study. The tool was chosen for the simple reason that it creates room for the respondents (students) to express their opinions in terms of the way career choices are made. Moreover, it is to some extent a fast means of obtaining sizable information.

3.4.1.1.1. 1. Description of the questionnaire

The questionnaire (see Annex1) was distributed to thirty-nine (39) students in the faculty of Science, University of Yaounde 1-Cameroon. All the questionnaires distributed were returned, making 100% administration success rate. Every questionnaire was a mixture of closed and open questions and was anonymous. It was designed into five sections as follows:

Section one was structure to collect general information about students such as name though facultative, gender, their subject, time spent in the faculty, place and time of interview it is worth mentioning that all these students have an enrolment of several thousand students.

Section two consisted of information on career choices.

Section three is based on questions related to specific variables such as: parents' decision, the power of the job market and prestige.

Finally, Section four on its part involves inquiries on academic performance.

3.4.1.1.1.2. Intention of the questionnaire

In a nutshell, the aim of this questionnaire is to investigate first of all, how students' career choices affect their academic performances and whether parents' decisions, the nature of the job market and prestige are largely to be blamed. This will in addition help in knowing how to redress the situation in order to heighten students' academic performance in the faculty of Science. The rationale for this questionnaire was actually meant to verify students as well as Lecturer's knowledge on the subject matter.

3.4.1.1.1.3. Questionnaire administration

Questionnaires were duly designed and administered to research participants who were expected to provide answers to the questions posed. The questions were mostly closed ended and centred on the specific variables of the present research topic. The specific variables include: parenting, prestige and the job market; not leaving out specific dependent variables.

The main reason behind the utilization of this research technique and tool is to grab details surrounding students' career choices and their output in school. To have this done, we will go in for an indirect questionnaire delivery wherein, we will distribute the questionnaires to our sampled research population that will then fill and return them to us. In fact, this exercise will help us to have statistical or measurable data that will contribute enormously in giving this work the scientific credibility that it deserves.

3.4.2 Secondary Data Collection

Secondary data here has to do with pre-existing material that is related to career choices and academic performance in one way or the other. To have this however, we will adopt two main techniques; that is a review of literature on career choices and academic performance and equally revisit official as well as other written documents relating thereto. All of these falls under what is commonly called documentary research.

3.4.2.1 Documentary Research

This consists of collecting information from documents. Here, text books, scientific articles, theses, journals and magazines related to both career choices and academic performance will be thoroughly consulted in libraries like the Ministry of Scientific Research and Innovation's library, State universities' central libraries, the Faculty of Arts, Letters and Social Sciences or *Faculté des Arts, Lettres et Sciences Humaines (FALSH)* theses and dissertations' library in the University of Yaounde 1, *Cercle Philo-Psycho-Socio-Anthropo (C.P.P.S.A),* the department of Sciences of Education in the Higher Teachers Training College known in its French symbol as *Ecole Normale Supérieure (ENS)*Yaounde and in a panoply of private individual libraries, archives and a good number of websites.

This step or procedure is of prime importance in the sense that it will permit us to have an overview of what other authors have thought and written about in relation to the phenomenon under study and at the same time made the researcher to avoid repetition; a situation that guarantees the originality of this research work.

3.4.2.2 Authentication of instruments

The validation process was done in two phases: the first phase sealed off the presentation of the questionnaire schedules to the research supervisor, after a thoughtful inspection of this instrument; he brought in some corrections and modifications before giving his approval for them to be administered. The second phase of it consisted of doing the necessary corrections following the instructions of the research supervisor, that which was done, before they were ready to serve the purpose for which they were designed.

3.5 DATA ANALYSIS AND INTERPRETATION

Debriefings will be made immediately after every Field working day. Here, data collected will be categorized into sub-themes; carrying different, but related nomenclatures. The sub-themes in question will be constructed around the research variables; be they independent or dependent and general or specific.

However, this research action is co-relational in nature; treated in a socio-constructivist's perspective. Two analytical approaches will be adopted; that is, *content analysis* which concerns itself with the description and explanation of highly qualitative data

and the *descriptive statistical* involving the *Pearson Correlation model*. In this light, the three main theories will be considered. In effect, the *comprehensive paradigm* which has to do with the adoption of the phenomenological attitude in the interpretation of reality will be adopted.

With the use of these approach and paradigm, only the essentials will be sorted and dealt with so as to arrive at the testing of the departure hypotheses and to the accomplishment of the objectives of the present research project. In that light, responses will be coded numerically and written down in relation to our specific objectives as provided by the different research participants. In some cases however, percentages will be used to demonstrate the magnitude of certain opinions for visibility and comparative reasons. It is also worthy to point out that information from qualitative data here contained is directly reported.

Quantitative data that will dominate in this work will be analyzed statistically in the form of ratios, proportions, frequencies and percentages. Tables, pie charts histograms and graphs will also be provided to reflect research participants' responses to each of the items of the research objectives.

Practically speaking, the method used for data analysis is the descriptive statistical technique. Its choice is due to the fact that this method is easy to handle. It can be represented mathematically as follow:

Percentage (%) = Frequency count

In this formula, PC = Percentage Count; FC = Frequency Count and TC= Total Count

The purpose of analyzing this data is to obtain usable table and useful information. With the help of this analysis, the researcher will describe and summarize the data before presenting it.

3.5.2.1 Data treatment and presentation of results

Many research instruments are used in this study (with the intention of shortcoming complementation from each other), but the main research tool of the dissertation was the questionnaire, so the outcome of the questionnaire were quantified. This served as starting point for discussion in chapter four that dealt with data analysis and interpretation of results.

The data obtained through other instruments namely interviews and observation checklists were used in the course of the discussions.

3.5.3 Limits/difficulties encountered

There is a dictum that *there are no roses without thorns.* In that light, the realization of this research work will not be hitch-free; for it will suffer from a number of drawbacks. However, the researcher will do his best to mitigate the difficulties so as to ensure the scientific nature of the entire work.

In the course of this research endeavors there have been a number of difficulties that were faced and which might have distorted the quality of this work. Field research necessitates deep thorough investigation, so our wish was to cover all the faculty of Science of the University of Yaounde 1; but the time frame allocated to carry out this search did not allow us to cover this large area.

In addition to this, some informants seemed to be reluctant or expressed a lukewarm attitude towards the filling of the questionnaire. Some of them were not willing to participate, they complained of *lack of time*. Others collected the questionnaires and disappeared with them. Some of them even went further by saying that this is a form inspectorship placed upon them to verify if they are effectively performing well in their respective subjects. Others said *it is just as if am writing an exam*, still, for others the questions were too difficult.

During the first phase of the administration of the questionnaire, it was very difficult to get in touch with the English speaking students; since the researcher is not of that faculty and in some cases it was absolutely impossible to get to the potential research participants.

Summarily, this chapter explained the rational for choosing a qualitative and exploratory research design. It is also outlined the procedures followed to gain access to the research site and recruit appropriate participants. A questionnaire and document reviews were conducted at the site, resulting in a total of 39questionnaires answered by students; 05 personal interviews structured with the some Lecturers and the review of the books, articles, journals and dissertations related to this topic. The description of the authentication and administration procedures was also mentioned before outlining that descriptive statistical technique was going to be appropriate in the analysis of the data collected. Finally, some

difficulties encountered in the course of the research endeavour were also presented. All the elements of this unit will serve as a basis for data treatment, presentation and interpretation in the next chapter.

3.5.4 Referencing style

The referencing system to be used in this work is tapped from the norms of the American Psychology Association (APA); specifically the French adapted version written by Marc Couture (2012) that was published in the 6th edition of the APA manual in 2010 and which as of 2015 that the researcher is officially launching this research project is the latest and most updated. The materialization of this referencing system will be seen in the different quotations made in the work and more importantly at the level of the bibliographical sources.

CHAPTER 4

PRESENTATION OF RESULTS AND ANALYSIS OF FINDINGS

INTRODUCTION

This chapter presents the results of the data collected from the participants through the use of the questionnaire constructed in relation to the research variables and equally analyse them with respect to the research hypotheses and to verify if the hypotheses are confirmed or rejected by the use of the Pearson correlation model. In this chapter percentages were computed and the statistical values were used to interpret the results.

4.1. PRESENTATION OF RESULTS

4.1.1. Career choice and steps in choosing a career by students in the faculty of science

Most students have a level of uncertainty on where to get help in how to choose a career and career guidance. There are basically three steps that a student can take to help them with the question of how to choose a career. Listed below are several steps that can help one make a good career decision. These steps are especially helpful for students as they develop a career plan.
In the first step, students have to figure out where their career interests are by asking themselves the following questions:

- Where do my interests lie?
- What do I do well and enjoy?
- What kind of personality do I have?
- What's really important to me?
- What are my values?

They can then take any career-related tests university's career center might offer, or take an on-line career assessment such as the Career Liftoff Interest Inventory to help them figure out how to choose a career. They can draw on their own life experiences on jobs, classes or other opportunities that they may have particularly enjoyed. They should remember, this is very personal and is all about them. Choosing a career is said to be very satisfying with the right help.

In the second step, students have to learn about their career options. Rarely do they have the opportunity to take a class in university that shows them the work world as it actually exists. They have to take the initiative to explore it themselves. They need to see if their university's career office has a library of books describing different kinds of work, the typical qualifications needed and the salary ranges for various occupations. Their university's career counselors should be able to help. They have to also talk to people through informational interviews and try out careers by shadowing and taking internships or part-time jobs. The more career planning that one can do as a student, the better prepared he will be when he starts to look for his first job.

A third part of how to choose a career is for a student to sort out his priorities for a career. After he has spent time on steps one and two, some of their strong preferences may start to emerge. They might learn that they do not want to be in an office environment. Or that they might find that their interest in a particular field would not sustain a career, so they cross those types of jobs off their list. Whatever it is that they learn about themselves, they make important discoveries that will help them choose a good career when the time comes. This is a major component of career planning for students in general and those of the faculty of science in the University of Yaounde 1.

Most importantly, they have to keep it all in perspective: they do not have to live forever with any career decision they make in these phases of student career planning. Most people change careers several times during their lives, so the first job one chooses right after secondary school probably will not be his career some years to come; unless he wants it to be. So students need not put too much pressure on themselves to make the perfect decision and always keep their eyes open, and use all available resources in their journey to find how to choose a career.

4.1.2. The state of academic performance in the faculty of science, University of Yaounde 1

All student applications are reviewed to determine which students meet minimum admission requirements and have the strongest overall academic background. In selecting students for admission, the University considers the overall academic record, the rigor of a student's curriculum, the education system where the student has studied, test scores, personal

achievements, educational goals, academic preparation, special talents, and a student's personal background as seen through the personal statement.

An applicant's overall academic performance is a major factor in the admissions decision. Applicants are not considered with grades below a C average (2.0 on a 4.0 GPA for instance). Although a C average is the minimum requirement for admission consideration, a much stronger academic record will be required to be competitive.

All students are required to maintain a satisfactory academic record and meet the obligations of the courses in which they are enrolled. Failure to do so will be dealt with as the Faculty and its designated Boards determine. In all cases, reseat grades in full year courses are considered along with all other grades in the calculations for minimum requirements and satisfactory records.

4.1.2.1. Minimum Requirements

To meet the minimum academic requirements in any semester, a faculty of science student may have at most one failing grade, which may not be accompanied by another unsatisfactory grade; and at least a good number of satisfactory grades; some of which are grade in elective courses taken for degree credit (or in a course taken by cross-registration and counted towards concentration). A faculty student who fails to meet the minimum requirements ordinarily will be required to repeat or even withdraw, whether or not his or her previous record was satisfactory. However, the minimum requirement is set by the Department; depending on the general class average.

4.1.2.2. Satisfactory and unsatisfactory academic records

The requirements for a satisfactory academic record are satisfactory grades in all courses, and at least good grades in allelective courses taken for degree credit (or in a course taken by cross-registration and counted toward concentration). However, for freshmen in their first semester, an academic record will be considered satisfactory if all grades are passing, at most one grade is unsatisfactory, and at least one grade is a satisfactory letter grade. A student whose record is unsatisfactory is ordinarily placed on probation or out rightly asked to repeat. A student with two consecutive unsatisfactory records ordinarily will be required to withdraw.

4.1.2.3. Exclusion from a Course

A student who neglects any course may, after written warning by the instructor, be excluded from the course by the instructor with the approval of the Head of Department. The warning specifies the steps the student must take in order to be allowed to continue in the course. Exclusion from a course is equivalent in all respects to failing it and in and of itself makes the student's record for the semester unsatisfactory. A notation of exclusion on the transcript indicates that the student was not permitted to continue in the course and received no credit. A student may not withdraw from a course from which he or she has been excluded. Students excluded from a course are denied any right to further course evaluation, including final and makeup examinations.

4.1.3. Individual differences influencing academic performances in the faculty of sciences

Individual differences in academic performance have been linked to differences in intelligence and personality. Students with higher mental ability as demonstrated by Intelligent Quotient (IQ) tests and those who are higher in conscientiousness (linked to effort and achievement motivation) tend to achieve highly in academic settings. Meta-analysis suggests that mental curiosity (as measured by typical intellectual engagement) has an important influence on academic performance in addition to intelligence and conscientiousness.

Student's semi-structured home learning environment transitions into a more structured learning environment when student start first grade. Early academic performance are said to enhance later academic achievement.

Parent's academic socialization is a term describing the way parents influence students' academic performance by shaping students' skills, behaviors and attitudes towards education. Parents influence students through the environment and discourse parents have with their children. Academic socialization can be influenced by parents' socio-economic status. Highly educated parents tend to have more stimulating learning environments.

Students' first few years of university life are crucial to the development of learning and social skills. Education preparedness in these areas therefore helps students adjust to academic expectancies.

Another very important enhancer of academic performance in the faculty is the presence of physical activity. Studies have shown that physical activity can increase neural activity in the brain. Exercise specifically increases executive brain functions such as attention span and working memory.

4.1.4. Career choice tests for faculty of science students

The choice for a profession is often a hard one to make. A lot of people have difficulty with the abundance of choices and an excess of interests. We then notice that we do not know ourselves as well as we think, which sometimes makes it hard to determine what really suits us. Luckily *career choice tests* help one to make a choice. They cover interests, talents and personality and determine what would be the best profession for one.

4.1.4.1. Kinds of tests

Often career choice tests are based upon statements. For each statement one indicates how much it suits him. Sometimes one will also have to choose activities that appeal to him the most. By doing so, these tests determine whether one is creative, technical or more analytical. However, a number of career choice tests exist.

4.1.4.2. Free career choice tests

Different career choice tests are available, not all of them are equally good. A lot of the free tests are very short and sometimes rather amateuristic. It is impossible to base an advice on just a couple of questions, simply because a few questions cannot tell enough about one's talents and preferences. Sometimes the tests are not made by professionals and the results are very predictable; one could have guessed them himself. A lot of them are clearly targeted at saving one's personal details or presenting him with advertisements.

Nonetheless, there are free career choice tests that can give a student an insight in the career choice that suits him the most. Even though these tests do not give us a detailed result, they give us an indication of what suits us and which direction we should explore further.

4.1.4.3. Professional career choice tests

Paid career choice tests are more professional, extensive and provide a better understanding of our result. These tests are made by professionals that often have a psychological background, resulting in questions that were asked so that they actually say something useful about what suits us. A student can try a professional career choice test. This test is valid and reliable, although free.

Besides career choice tests, there are also interests tests, which can help students to find out more about those things they look for in a job.

4.1.5. Faculty of science students' career choices and the state of the Cameroon job market

To analyze the data to investigate the influence of students' career choices on academic performance, intention and correlation were used. As mentioned earlier, the methods such as correlation were initially used to determine the influential power of career choices on students' academic performance.

The researcher's study of early researches on career choices in the natural sciences revealed a flourishing, productive research enterprise with little unemployment but with a workforce heavily concentrated in *training* positions, such as graduate students and postgraduate students. The occupants of these positions are taking longer to obtain their degrees; they continue their training after graduating from university by assuming postgraduate positions; their tenure in these postgraduate positions is lengthening; and when they seek out permanent positions and hence, face stiff competition; that is, hundreds of applicants for a single post. The net effect of those trends is an ever-growing accumulation of trained young scientists in positions that were intended to be transitional. Yet these very people are essential for the accomplishment of the research that has brought so much benefit to the nation and reputation to its pure-science endeavor. The researcher was faced with an inherent conflict: the system is producing more graduates than can be absorbed into the Cameroonian permanent workforce and these trainees are usually average students that are not very viable for the job market.

Over the last past years, there has been a substantial growth in the number of natural scientists in all categories of impermanent employment owing in no small measure to a sharply increasing number of graduate certificates being awarded by the Cameroon universities to both Cameroonian citizens and foreign nationals, especially in the last decade. This growth, which has outstripped the small increases in the number of permanent positions available, has been a major contributor to the swelling of the postgraduate pool of pure scientists. The pool numbers about several thousands, many of whom are marking time until they can move into permanent positions.

However, students' opinion as per their knowledge on the job market is illustrated in the tables below:

Figure 04: Opinions of Bio-chemistry students

Responses	Yes	No	Total
Frequency	09	04	13
Percentage	69.23%	30.76%	100%

Source: Enow (field work, 2016)

Figure 05: Opinions of Bio-Vegetal students

Responses	Yes	No	Total
Frequency	06	03	09
Percentage	66.66%	33.33%	100%

Source: Enow (field work, 2016)

Figure 06: Opinions of Computer Science students

Responses	Yes	No	Total
Frequency	05	03	08
Percentage	62.2%	37.5%	100%

Source: Enow (field work, 2016)

Figure 07: Opinions of Mathematics students

Responses	Yes	No	Total
Frequency	05	05	10
Percentage	50%	50%	100%

Source: Enow (field work, 2016)

From the above tables, we can realize that there is general awareness on the job market situation. The current situation is the product of a linked education-research system that is in disequilibrium because of features that are intrinsic and structural, that are not confined to the pure sciences but have parallels elsewhere in higher education and that are likely to continue to produce the same outcomes that we have just mentioned earlier.

The situation has been building for a long time. In Cameroon at large, the training of degree holders in science and the performance of scientific research are intimately linked. It has been an article of faith; at least since the 1945 Vannevar Bush report that both the body of scientific knowledge and the aptitude of young scientists benefit from this linkage.

Accordingly, because graduate students play an important role in research projects, the level of graduate enrollments has been strongly influenced by growth in the research enterprise. The arrangement served the nation and the people involved very well during periods of rapid growth in the academic sector that have been prevailing in Cameroon for some time now. New programs, new departments, and new universities are eager to hire new graduates (and these new units may soon begin graduate education programs of their own).

Lately, however, the growth in the system has begun to slow and it is not yet regaining its earlier rate. Yet the number of new graduates per year continued to rise (albeit at a much slower rate) while new academic jobs became scarcer. As those two trends continue through the years, the term of undergraduate studies begins to lengthen and the proportion of new graduates who will take postgraduate appointments begins to increase, as does the length of time they spent in that status; a sign of the imbalance. To be sure, a substantial increase in hiring in the pharmaceutical and biotechnology industries for a period in the recent years will surely help to absorb some of the excess of trained young scientists, but that too can slow in the later decades. The current situation has been exacerbated by a dramatic percentage

increase from 1980s in the annual number of graduate certificates awarded in the pure sciences; a substantial proportion of which are awarded to average students. In the same light, the size of the postgraduate pool grew as well, augmented by an influx of foreign-trained scientists.

Most of the stakeholders in the pure-science community are well served by the present arrangements and are likely to be satisfied with how the system is working. The principal exceptions are the senior graduate students and the postgraduate students who are searching for research jobs with career-ladder prospects in academies, industry or public service where they can apply their lengthy training and experience. The search is perhaps most difficult for those who aspire to the university positions toward which their mentors and the academic culture guided them. Although the academic sector is the largest employer of natural scientists, the number of openings there and the growth in new positions are being outstripped by the growth in the applicant pool.

Is there any need to intervene, to attempt to redress the imbalance in the system? Some say No; that the system is Darwinian and the competition for occupational survival will bring the fittest to the top. Indeed, the system is designed to winnow out the less competent; not everyone has the talents to become an independent investigator and it is assumed that some fraction of the graduates will eventually decide to pursue other careers. The system is functioning as it should and market forces should be allowed to prevail.

The researcher takes a different position. I believe that the current rate of production is too high and certainly should not grow higher. The system of training and research that worked so well in times of overall expansion of the enterprise is increasingly deleterious in an era of little growth. The aging of the *young* scientist is disquieting. The system is delaying independence and muffling creativity at perhaps the most productive phase of the individual scientist's life. Finally and most important, the researcher is of the opinion that an unduly crowded labour market with small chances for success could in the long run drive out the most talented and ambitious aspirants, who will opt for more promising career opportunities in other fields and professions. When the system produces an imbalance like the contemporary one, it is inefficient, wasteful, and dispiriting to its recruits.

For those reasons, the researcher believes that there is justification for intervention to adjust the imbalance in the education and training system. At the same time, potential science

students have to recognize the complexity of the system and the diffuse interdependence of its components. In chapter five, we recommend a variety of strategies that the researcher has considered for making adjustments, asking of each strategy not only what good purposes it might serve but also what ramifications, especially unwanted consequences, it might have. We have grouped the strategies according to what we believe are desirable goals for making a start on alleviating current difficulties.

Overall, our aim is to ensure the continued health of the students' career aspirations while confronting the disequilibrium that has created a crisis of expectations in the youths who represent the future of pure sciences in Cameroon and the World at large. We hope that our analyses present the dilemma and will stimulate widespread discussion in the scientific community about desirable changes.

4.2. VERIFICATION OF HYPOTHESES

4.2.1. Pearson correlation of results

Based on the results of the study, there is a notable relationship between career choices and students' academic performances; indicating that if the students have noticeable responsibility, their intention towards career decision making will be more effective (r = .62, p = .000). The effect size is 0.62, which is rated as high. The explained variance was calculated as .15 (r^2 = .15). In other words, 15.38% of the variance of career decision-making or choice is explained through the three variables of the research. In addition, there is a positive and significant relationship between career decision-making and academic performance (r = .4, p = .000). The effect size is therefore 0.4 in the mentioned relation and its effectiveness is higher than moderate. The explained variance was then calculated to be 28 (r^2 = .28). It means that academic performance explained about 28.20% of the variance of career decision-making among faculty of science students in the University of Yaounde 1.

Finally, there is a positive and considerable relationship between parents' influence on career decision-making and academic performance; implying the students having more proper academic performances possess higher autonomy in career decision-making (r = .56, p = .000). The effect size in this relation is 0.56, which is very high. The explained variance was calculated to be .56 (r^2 = .56). It can be concluded that 56.41% of the variance in career decision-making is explained by parents influence, which is very impressive among the other

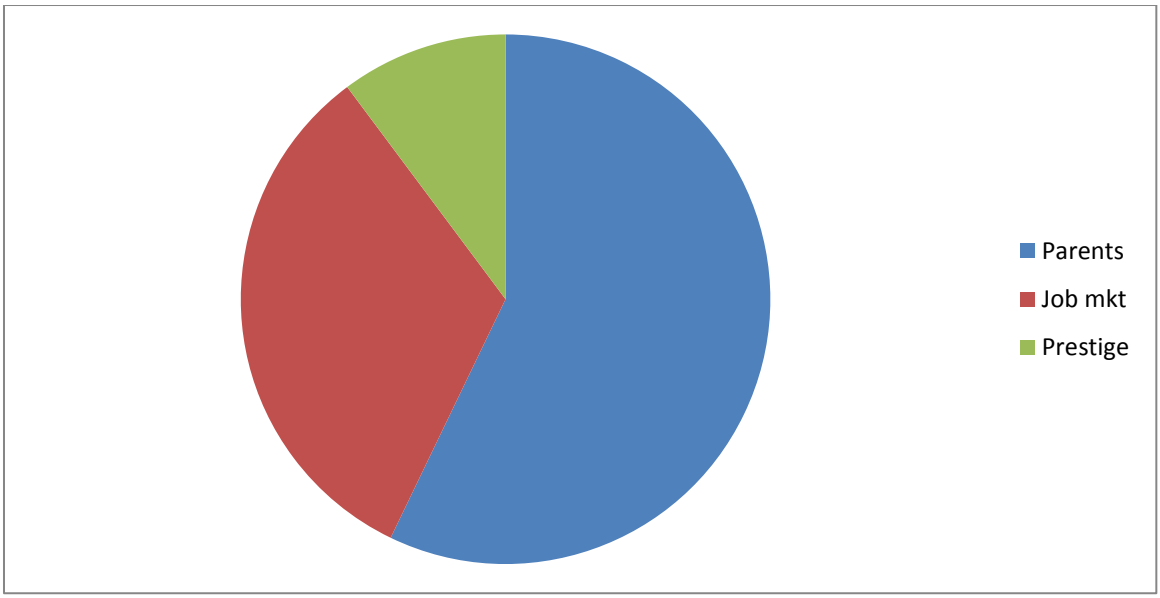
variables and it is also the most effective factor to predict career decision-making. This can be illustrated as follows:

Figure 08: Table showing the general results of the research

Responses	Parents' decision	The power of the job market	Prestige	Total
Frequency	22	11	06	39
Percentage	56.41%	28.20%	15.38%	100%

Source: Enow (field work, 2016)

Figure 09: Sectorial representation of the results



Source: Enow (field work, 2016)

Parents decisions, the power of the job market and prestige significantly influence students' career choices and hence, their academic performances. Even though the influence levels or rates vary, the reality is that their roles are preponderant.

Hierarchical multiple regression analysis was also used to determine the effective variables in the prediction and explanation of changes in career decision-making. The hierarchical multiple regression analysis was used to investigate the relation between the predictor variables such as extraversion, openness, conscientiousness, agreeableness, self-

efficacy belief and outcome expectation with academic performance as the dependent variable because hierarchical multiple regression is able to identify the impression share of each predicting variable over the dependent variable. In addition, in this way, changes of standard beta weights of the predictor variables are known. Regarding the prediction of career decision-making, the predictor variables have significant relationship with the dependent variable.

In the first step of regression analysis, the personality characteristics of extraversion, openness, conscientiousness, and agreeableness involved in the analysis explained 18% of the dependent variance, r^2 = .18, p = .000, F= .26, (4, 148) = 8/38. Thus, the students having no rationality in career decision-making (βp = .18, = .001) and higher openness to the environment (βp = .022) take possession of more effective career decision-making. In the second step, academic performance was added to the regression analysis allocating 8% of the variance of career decision-making, p = .000, F = .31, change (1, 147) = 17/78. In other words, if the students improve their self- efficacy belief (βp = .000), they will make better career choices. It should be mentioned that after adding self-efficacy belief to the analysis, the effect of openness specialty decreased significantly and only parental influence and prestige had influential effects on the intention.

In the third step, career choice outcomes as to the job market variable was involved in the multiple regression analysis and it was concluded that this variable solely explained 34% of the variance of career decision-making, p = .000, F = .68, change (1, 146) = 134/12. In other words, if the career outcome on the job market specialty of the students makes progress (βp = .000), their ability of career decision-making will improve. It can be generally said that the predictor variables explain about 60% of the variance of career decision-making; figuring out that they are capable of predicting the career decision-making intention (adjusted R^2 = .60).

On a conclusive note on this chapter, family, school and social culture nexus are some of the factors that largely influence students' career choices nowadays. Young adults, through interaction with the context of family, school, and community, learn about and explore careers that ultimately lead to career choice. The interdependence of family, school and community culture plays a critical role in shaping the youth's occupational choice. The economic and social circumstances of the broader community colours and influences the youth's perceptions

of appropriate career choices. Youth in communities of more affluence appear to have more family and school support in career exploration, which results in consideration of a wider range of career options. Parents, and other family members, provide valuable learning experiences through their own role models and supporting activities that assist in exploring career interests. Work-bound youths' parents frequently teach skills that provide youth with a broader understanding of their own aptitudes thus contributing to career choice. For instance, *my dad works as a Medical Doctor and some of my relatives too. I may start off in his Hospital, and, you know, I have learned a lot from him on how to be a great Medical Doctor. That is why I am pursuing Bio-medicine*. This is the respond of a Bio-Chemistry student in level II.

CHAPTER 5

INTERPRETATION, DISCUSSION OF RESULTS AND RECOMMENDATIONS

INTRODUCTION

This chapter focuses on the interpretation and discussion of results as well as the proposition of some recommendations to some stake holders in the field of education such as the government, funding agencies universities etc.

5.1. INTERPRETATION AND DISCUSSION OF RESULTS

Selecting the right career and making informed career decisions requires reliable information about the opportunities that a particular occupation may provide. Unfortunately, so many individuals are quick to pursue a career path that ultimately does not enable them to achieve their professional, personal and financial aspirations.

The purpose of the present study was to determine the influence that students' career choices have on their academic performance. Findings from the present study demonstrated that increased parent involvement, defined as the attitude parents have towards their children's education, prestige and the power of the job market, was significantly related to decreased academic performance among faculty of science students, measured through end of course ratings in terms of General Point Average (GPA). Further, parent involvement was significantly related to academic performance above and beyond the impact of the student's intelligence, a variable not accounted for in the present research.

Findings from the present study also demonstrate that increased parent involvement is significantly related to a student's increased perception of cognitive competence. This finding is consistent with previous studies (Gonzalez-DeHass, Willems, & Holbein, 2005; Grolnick, Ryan, & Deci, 1991). While outside the scope of the present study, it is conceivable that parents' involvement may influence the student's perception of cognitive competence by means described by Bandura (1977). Equally, revealed here is the fact that increased parent involvement was significantly related to increased level of pressure on the student. These findings are consistent with previous research and theory (Chapman, Skinner, & Baltes, 1990; Ladd & Price, 1986; Schunk, 1981). There may be several reasons for this finding. It may be the tasks students perceive they are competent to complete are not related to actual classroom

tasks or that teacher ratings of academic performance are in part based on other variables, such as the student's abilities in other domains independent of the student's academic abilities.

The two principal variables (independent and dependent) jointly were *full mediators* of the relationship that exist between career choices and scores in class tests and exams. Examined as multiple mediators, perceived cognitive competence *fully mediated* the relationship between the specific variables and the student's score in class tests and exams. It may be the case that the variance of the relation between these variables is already explained by the student's perception of his cognitive competence. This is one of the first studies to determine the relationship that exist between career choices and academic performance within the faculty of science context in the University of Yaounde 1, Cameroon. The Pearson correlation technique was used to further confirm the findings.

5.2. RECOMMENDATIONS

Several public policy recommendations and initiatives follow from the results of the present study. They are treated under sub-topics that are related to the phenomenon under study. They are as follows:

5.2.1. Dissemination of accurate information on the career prospects of young Pure Scientists

Recommendation 1: To the government, the researcher recommends that accurate and up-to-date information on career prospects in the natural sciences and career outcome information about individual training programs be made widely available to students and faculty. Every natural science department receiving national funding for research or training should be required to provide to its prospective graduate students specific information regarding all undergraduate students enrolled in the graduate program during the preceding years.

Several groups have recognized the need to provide prospective graduate students accurate and up-to-date information on career prospects. As early as 1982, a United States-based National Research Council researcher studying the employment opportunities for postgraduate students in all fields of science and engineering recommended that the National

Science Foundation (NSF) expand its national data-gathering effort to include a survey specifically focused on career decisions of young scientists and engineers. In 1995, a report of the National Academy of Sciences' Researcher on Science, Engineering, and Public Policy on graduate education in science and engineering concluded that academic departments should provide employment information and career advice to prospective and current students in a timely manner. Despite those and many other calls for better career information, most pure-science students today must rely primarily on the anecdotal reports of their mentors and fellow students.

The earlier recommendations stressed the importance of information for current and prospective graduate students but this researcher believes that such data would be equally valuable to faculty, university administrators, and National policy-makers. In particular, the researcher is concerned that the goals discussed here might never be achieved unless the entire pure-science community understands fully the implications of the employment trends.

The researcher has considered several options to achieve the goal of improved career information. The first is to disseminate widely the data presented in this dissertation. Nevertheless, these data have important limitations. First and foremost, because the findings from the Survey of potential certificate holders are based on less than 05% of the research population, reliable estimates are not available for graduates in a particular discipline or department.

Thus, although the demonstrated global trends could be useful to policy-makers, they are not especially helpful to faculty advisers and their students who are considering individual career decisions.

A second option would be to expand the sample of recent graduates' national survey. Because in recent years this survey has obtained a relatively high response rate; an expansion of the sample might be expected to yield high returns. The researcher regards this step to be valuable but it might not be sufficient to meet all the information needs. For example, reliable data on the early careers of graduates from particular departments would not surely be available unless a very large sample of recent graduates is selected and the costs of such a large sample would probably be prohibitive.

A third option that the researcher strongly endorses would be to require every department that receives state subvention for research or training to provide current employment information on all undergraduate students enrolled in its program during the preceding years. Such information might include:

- The number of trainees and their sex, citizenship, and ethnicity.
- The number of students who left the program before completing their training.
- The length of time from enrollment to degree for each student.
- The current situation of the job market.

One of the major obstacles in implementing a national data collection of such magnitude would be making certain that all state supported departments provide accurate and comprehensive information that is in a standard format so that comparisons among different departments can be made. Although the difficulty of obtaining reliable information on the current employment situations of graduates for previous years should not be underestimated, the task is feasible, as demonstrated by the fact that this information has long been a standard requirement for university programs.

A fourth option would be to ask professional societies to assume greater responsibility for compiling and disseminating early-career information. In several science fields (such as chemistry, mathematics, and physics), the professional society conducts a survey of recent graduates and reports median starting salaries, unemployment rates, and other market indicators. Such a survey would be more difficult in the pure sciences because no professional society covers all the disciplines. Nevertheless, professional societies in the pure sciences could play active roles in disseminating the information collected by any of the approaches described above. And indeed the researcher notes that the Federation of American Societies for Experimental Biology is doing well to publish some findings from an analysis similar to that presented in this dissertation. This is an example to copy by Cameroon.

5.2.2. Improvement of the educational experience of graduate students in the Pure Sciences

In addition to its interest in constraining the further growth of graduates' output, the researcher is concerned about aspects of the current system of supporting graduate training, especially the growth in the fraction of graduate students who are employed as research

assistants by the research grants of their mentors. The Cameroon government supports some meritoriouspure-science graduate students in the form of scholarships and most through salary and tuition provided in the research grants of faculty mentors. That category of student support accounted for the largest percentage of the increase in graduate-student enrollment within the last decade.

There is no clear evidence that career outcomes of persons supported by training grants are superior to those of persons supported by research grants. However, the researcher concluded that training grants are pedagogically superior to research grants and result in a superior educational climate in which students have greater autonomy. First, training grants are pedagogically superior because they provide a mechanism for stringent peer review of the training process itself, something that is not considered in the review of a research project. Second, they improve the educational climate because they minimize the potential conflicts of interest that can arise between trainers and trainees.

Although the student-mentor relationship is ordinarily healthy and productive for both partners, it can be distorted by the conditions of the mentor's employment of the student and limit the ability of students to take advantage of opportunities to broaden their education. Third, training grants provide the state of Cameroon with information that it needs to evaluate the level of its investment in graduate pure-science education with the aim of developing a funding framework for graduate education that contributes to the long-term stability and well-being of the research enterprise.

Recommendation 2: To all agencies that support pure-science education and research to invest in training grants and individual graduate studentships as preferable to research grants to support undergraduate education. Agencies that lack such programs should look for ways to start them, and agencies that already have them should seek ways to sustain and in some instances expand them.

This recommendation should not be pursued at the expense of scientific and geographic diversity. Rather, we encourage the establishment of small, focused training-grant programs for universities in Cameroon that have groups of highly productive faculty in important specialized fields, but might not have the number of faculty needed for more traditional, broad-based training grants.

It is true that the current regulations governing training grants bring universities some financial disadvantages because of restricted overhead recovery. Furthermore, training grants cannot support foreigners on student visas, and so this recommendation places at disadvantage programs that depend on foreign students for research or teaching. These disadvantages are outweighed, in the researcher's view, by the salutary effect that the training-grant peer-review process brings to the members of a department faculty; leading them to examine and reflect on how, as an entity, they are providing for the education and training of their graduate students.

Our endorsement of training grants and studentship is not intended to result in the training of more certificate holders, which we argue would be entirely inappropriate. Rather, any growth in the numbers of trainees supported through an expansion of training grants should come at the expense of the numbers of trainees supported on research grants. Thus, the implementation of this recommendation should produce no increase in the numbers of students but only a change in the mechanism by which their training is supported by state funds. It would be best if principal investigators voluntarily reduced the number of students they support on their research grants as support via training grants grew. However, the largest provider of both training grants and research grants, and other agencies would be required to manage the numbers supported by research grants to achieve the goal of constraining further growth.

5.2.3. Enhancement of opportunities for independence of postgraduate students

While the length of graduate training has been increasing, so too have the extent and duration of postgraduate training. Prolonged tenure as a postgraduate fellow provides a person with valuable research experience, but it carries some real costs. In most cases, students are not independent of their mentors so they can not pursue their own research. Unfortunately the researcher did not identify a way to rapidly achieve a reduction in the tenure of postgraduate students. The lengthening of the postgraduate period seems to be due largely to the highly competitive job market for permanent positions in academies and industries; the situation will change only if there is an increase in the number of new positions or a decrease in the candidates for them.

Recommendation 3: To public and private funding agencies, the researcher recommends that they should establish *career-transition* grants for senior postgraduate students. The intent is to identify the highest-quality scientists while they are still postgraduate students and give them financial independence to begin new scientific projects of their own design in anticipation of their obtaining fully independent positions.

The recommendation is based on the experience of the Lucille P. Markey Charitable Trust's Scholars in Biomedical Sciences Program (USA), which until recently supported over 16 postgraduate students per year for 2 years of additional postgraduate work and 5 years as faculty members. Although the program was very small, it identified excellent candidates relatively early in their careers and gave them financial and intellectual independence. Not surprisingly, the Markey scholars were very successful in obtaining permanent tenure-track positions in academies. Since the termination of the Markey program, the Burroughs Welcome Fund has established a comparable program for life scientists. A program administered by the US Department of Agriculture provides postgraduate students the opportunity to apply for research grants and perform independent research.

We propose grants of several years in duration that would provide senior postgraduate students (those with more than 2 years of postgraduate experience) salary commensurate with their experience and a modest supply budget. Successful proposals would define an innovative research project that was distinct from the work going on in the current mentor's laboratory. A mentor would provide laboratory space and would acknowledge in the applications that the project was the intellectual property of the applicant and would leave the laboratory when the applicant did.

The number of people to be supported would be quite small but the program might provide an important opportunity for the most promising postgraduate students and serve as both example and incentive to many more. We make this recommendation with the knowledge that it is possible that the money for a state grant program probably would come from existing state budget. In our view, the benefits of increased intellectual independence and improved motivation of talented midcareer postgraduate students justify such a reallocation of funds. Private funders might establish new programs or enlarge existing programs that support career-transition grants.

The career transition grant would differ from existing national research grants in several important ways. First, permission to apply for traditional grants is usually restricted by institutions to principal investigators who have some form of faculty status, whereas these new grants would go to postgraduate students. Second, the career-transition grants would be modest in scale and would not provide salary support for other laboratory personnel or trainees. Finally, the grants would be transferable to new host institutions once the applicants obtained positions and would terminate on receipt of faculty awards. The success of this recommendation depends on a willingness of training institutions to accept grants to persons who do not have faculty status at the time of application.

The benefit of career-transition grants to individual young scientists is obvious: increased independence means increased opportunity to pursue novel ideas and to make progress in work that can establish a career, opening opportunities for future independent employment. Substantial benefits would also be realized by the scientific enterprise as a result of this stimulation of research energy and the increased diversity in the scientific ideas being pursued. Less obvious but no less important is the benefit that would accrue to the mentors. The presence of more experienced scientists in the host laboratories, although not directly contributing to the productivity of the mentors' work, will contribute to the intellectual climate of the laboratories.

5.2.4. Alternative paths to careers in the Pure Sciences

As traditional research positions in academe, industry, and government have become more difficult to obtain, positions in *alternative careers* such as law, finance, journalism, teaching, and public policy have been suggested as opportunities for graduates in the pure sciences.

The idea of highly trained scientists investing their talents in nontraditional careers seems at first glance attractive. Scientists have analytic skills and a work ethic to bring to any position, and the placement of highly trained scientists in diverse jobs in the workforce would lead to an increase in general science literacy. As the researcher's review of alternative opportunities concludes, however, most of the possibilities are less available or less attractive than they might at first glance appear. Many *alternative* careers are also heavily populated, and competition for good positions is stiff. Others require special preparation or certification or offer unattractive compensation, and none makes full use of the graduate's hard-won pure-

science research skills. The researcher believes that the idea of alternative careers should not be oversold to graduate students.

The interest in alternative careers for student scientists has inevitably raised the question of whether preparation for the degree should be changed from its current narrow focus on training for the conduct of scientific research to embrace a broader variety of educational goals that would connect to alternative career paths. The researcher has discussed that question extensively.

Recommendation 4: The researcher recommends that the undergraduate degree program becomes a research-intensive cycle, with the primary purpose of training future independent scientists.

We have several reasons for that recommendation. First, a steady supply of new, highly trained investigative talent is essential for maintaining the growth and vigor of pure-science research and for exploiting the opportunities of future discoveries. Second, the majority of people so trained are using their skills and abilities in pure-science positions. Third, we have not been able to identify a substantial number of unfilled opportunities in alternative careers.

At the same time, the researcher recognizes that not all students who begin graduate school intending to pursue research careers maintain that desire as they progress through training. Graduate programs should expand their efforts to help students to learn about the diversity of career opportunities open to them, and university faculties and departments should examine possible alternatives to the research students, for example, rigorous degree programs in applied fields of the life sciences.

The degree might be a more appropriate and point for students who determine early enough in their training that training is not necessary for the career goals that they have selected. There has been a decline in the number of further degree programs in the pure sciences and with it a growing perception that the degree has become a consolation prize for those who do not complete a program. Those changes effectively limit the number of choices for college graduates who are interested in a career in the life sciences, although not necessarily careers in directing laboratories conducting fundamental research.

Recommendation 5: The researcher recommends that universities work to identify specific fields of the pure sciences for which Bachelor's-degree training is more appropriate, more efficient, and less expensive than Master's training and that focused Bachelor's-degree programs be established in those fields.

A consolidation of the master's degree will require that new programs be intimately tied to the opportunities in the labour market. Certainly, there is a need for persons with pure-science knowledge to enter teaching careers. Intensive efforts are under way to change the nature and extent of science education in our schools. Those efforts, based on the National Science Education Standards and similar reform documents, emphasize teaching science as inquiry rather than as word associations. None of this will be possible without a structural change in the profession of precollege teaching and a large cadre of people who both understand science and the nature of science as inquiry and have been trained as lead teachers and science-resource specialists. Focused and intensive master's-degree programs would be not only more appropriate but also preferable to the graduate for this type of employment.

Interdisciplinary master's-degree programs might combine advanced pure-science training with studies in nonscientific fields such as management, public affairs, and engineering that would prepare candidates for positions in the public service and industry. A vigorous master's degree program that produces highly skilled laboratory technicians for industry, government, and academe could potentially contribute to righting the imbalance between graduate training and the labour market. One way to resolve this dilemma is to effect a modest shift toward a more permanent laboratory workforce by replacing some fraction of the existing training positions with permanent employees, such as MSc-level technicians and PhD-level research associates.

A system of that kind, with less reliance on trainees to conduct research, has been in operation in Europe for many years. Nevertheless, there is likely to be strong resistance to such a change in the US scientific community. Permanent employees would require better compensation in the form of salary and benefits than graduate students and postgraduate students and could not be expected to work the long hours of most trainees. As a consequence, a shift to a more permanent workforce would probably result in some reduction in productivity and cost effectiveness. Furthermore many US scientists are of the opinion that the creativity of US science comes from the young and inquiring minds of young trainees.

Despite those reservations, the researcher believes that a broader discussion of this option within the life-sciences community is warranted.

5.2.5. Responsibility for effecting change

This dissertation has documented several dramatic changes in career trends in the pure sciences over the past decades in different places around the world. The rapid growth in the academic scientific establishment in the 1960s and the early 1970s in USA set in place a training infrastructure that was built on the premise that there would be continued growth. When the inevitable slowdown in resources to support that growth occurred, it was not accompanied by a commensurate adjustment in the rate of training. The impact of the imbalance between the number of aspirants and the research opportunities is now being felt by a generation of scientists trained in the last 10 years who are finding it increasingly difficult to find permanent positions in which their hard-accumulated skills in research can be used. Unless steps are taken to put the system more in balance, the difference between students' expectations and the reality of the employment market will only widen and the workforce will become more disaffected. Such an occurrence would damage the pure-science research enterprise and all the participants in it.

The training of life scientists is a highly decentralized activity. Notwithstanding the heavy dependence on state funds, the most important decisions affecting the rate of production of life scientists are made locally by the universities and their faculties. The numbers and qualifications of students admitted to graduate study, the allocation of institutional funds for their tuition and stipends (which account for half or more of the total expenditures for graduate-student support), the requirements for the degree; all are local decisions. As a consequence, a large portion of the responsibility for implementing our recommendations falls on the shoulders of established investigators, their departments and universities, professional scientific organizations, and students themselves. Students must take the responsibility of making informed decisions about graduate study, but they must be provided accurate career information on which to base their decisions. Individual faculty members must be willing to set aside their short-term self-interest in maintaining the high level of staffing of their laboratories for the sake of the long-term stability and well-being of the scientific workforce. Directors of graduate programs must be willing to examine the future

workforce needs of the scientific fields in which they train, not just the current needs of their individual departments for research.

The recommendations in this dissertation are offered as first steps to improve the overall quality of training and career prospects of future pure scientists in the faculty of science in the University of Yaounde 1 in particular and Cameroon state universities in general. We hope that the information in this dissertation will be used to begin discussions within the pure-science community on the best ways to prepare future scientists for exciting careers in the profession and to protect the vitality of the pure-science research enterprise.

CONCLUSION

The present study is entitled *Career Choice and Academic Performance: A study of the influence of students' prospective jobs on their output in school. The case of the Faculty of Science in the University of Yaounde 1.*Despite the presence of guidance counselors in schools, student still make career decisions that tend to work against their academic performances. Therefore, the aim of this study is to determine the influence that students' career choices at the faculty of science in the University of Yaounde 1 have on their academic performances.

Although this study had many strengths, results of the present study are tempered by a consideration of several methodological limitations. One limitation was that cross-sectional data were used. A second limitation was that data were collected over a very short time point due to time constraints. Finally, the students' career decision-making was the reporter for several of the measures, which may have led to artificially high relations between the independent and the dependent variable. Specifically, it may be that some students are unduly influenced by outside factors; a situation that determines the students' actual attitude towards their education.

Despite these limitations, study findings generate several directions for future research. First, future investigation of the relationship between career choices and academic performance is needed to better understand how these relations exist in different societies. Second, longitudinal studies are needed to understand how these variables interact over time and to examine the possibility of bi-directional relations among the variables. Third, measuring the decision-making process as to career choices at a time prior to assessing academic performance and mediating variables would allow for a better understanding of the relation among these variables. Finally, given the importance of IQ when predicting a student's academic performance, IQ should continue to be accounted for in future studies examining academic performance.

The importance and necessity to evaluate the mentioned issue more closely comes from the fact that for the past years, career decision-making has been one of the most important challenges faced by university students at large. Uncertainty in career decision making along with the worry of career acquirement in the future after graduation is one of the problematic thoughts of the students especially in the last year of the study. It seems that most

career problems such as uncertainty and doubt in career acquirement of the students in the future is partly due to the lack of motivation, goals, skills, and the required preparation, which are to be obtained from education. Because most faculty of science students organize the aim of their education on the basis of students' intelligence and not on professional and career preparation, the students encounter various problems.

However, researchers consider intention improvement and necessary readiness acquirement for career decision making during education as solutions to the mentioned problems. In addition, they propose that the chance of a proper job selection and career success in the future relies on the mentioned parameters (Creed & Patton, 2003; Creed, Prideaux, & Patton, 2005); unfortunately, such problems are not paid much attention in this faculty and other institutes of higher education in Cameroon. Underestimation of the mentioned issues will most probably result in some unrecovered disasters because the students will not have successful career prospects due to the lack of career goals and intentions.

Therefore, better knowledge of some areas such as career decision-making intention and the factors affecting them is essential in Cameroon higher education system as a whole. Obviously, the findings of this study will be useful to the more proper introduction of the mentioned concepts, their influencing factors, and remedial measures. Therefore, the relevant authorities will be able to contribute to the more stable and sustainable success of the students and the graduates in the future about the mentioned issues.

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ANNEXES

ANNEX 1

QUESTIONNAIRE

UNIVERSITÉ DE YAOUNDÉ I

THE UNIVERSITY OF YAOUNDE I

(For Students of the faculty of Science, University of Yaounde 1)

Fellow student, with regard to the realization of our Masters research Dissertation, we are carrying out an investigation on the topic: Career choices and academic performance... The principal purpose of this research is to reconcile the theory from class with the practice in the field. This questionnaire carries questions on the different aspects of our research topic and you have been chosen to be one of our key informants based on your profound knowledge and experience on the subject matter. So, we will be very grateful if you dedicate some of your time to answer the questions that are posed below.

We are also through this questionnaire assuring you that the confidentiality of the responses that you are going to provide to our different preoccupations and your privacy shall be duly guaranteed where and when need be and that the information given to us shall be used only for the purpose of the present research action.

Please, tick in the box that corresponds to the appropriate response(s) or write full statements where necessary in the spaces provided.

I. PERSONAL INFORMATION ON THE PARTICIPANT(S)

01	Name (facultative)…….....
02	Your age bracket: a) 15 - 25 ☐ b) 26 - 35 ☐ c) 36 - 45 ☐ d) 46 + ☐
03	Sex: ☐ a) Male ☐ b) Female
04	Your educational level a) Undergraduate ☐ b) B.A + ☐ c) M.A + ☐
05	How long have you been in this faculty? a) Less than one year ☐ b) One - two years ☐ c) Three years and above ☐
07	Date and place of interview:.....

II. INFORMATION ON CAREER CHOICES

08	What type of job do you intend to do in life? a) Pure science related jobs ☐

	b) Pure arts related jobs ☐ c) Anything that I find ☐
09i)	From whom did you get information about this job? a) Friends ☐ b) Parents ☐ c) Others ☐
09ii)	If others, specify..... .....
10	What made you to think that this job is good for you? a) The passion I have for it ☐ b) The prestige that goes with it ☐ c) I don't know ☐
11	How do you intend to arrive at this job? a) By doing sciences ☐ b) By chance ☐ c) No idea ☐

III. QUESTIONS RELATED TO SPECIFIC VARIABLES

IIIi) Parents' decision

12	Have your parents ever discussed with you on what you are to do in life? a) Yes ☐ b) No ☐
13	What is their impression on what you are doing in school as a subject?

	a) Positive ☐ b) Negative ☐ c) Mixed ☐
14	Is what you have in mind related to what your parents want you to be in life? a) Yes ☐ b) No ☐
15	If you happen to do something else, how do you think they will feel? a) Happy ☐ b) Sad ☐ c) I don't know ☐

IIIii) The power of the job market

16	Do you have any idea of how the job market is operating nowadays? a) Yes ☐ b) No ☐
17	Have you tried any public exam in Cameroon yet? a) Yes ☐ b) No ☐
18	How do you wish to enter the job market? a) By a competitive entrance exam ☐ b) By furthering education ☐ c) No idea ☐
19	If it happens that you do not get what you really wish to do in life, what will you do? a) Resort to something else ☐ b) Frustrated ☐ c) I don't know ☐

IIIiii) Prestige

20	How do see those who do the job you wish to do in life? a) Admire them ☐ b) Ignore them ☐ c) I don't know ☐
21	Have you ever tried to know how those who do the job you wish to do in life managed to enter the service? c) Yes ☐ d) No ☐

IV. ACADEMIC PERFRMANCE

21	What efforts are you making academically to arrive at your dreamt job? a) Working hard ☐ b) Nothing ☐
22	Are your academic performances reflecting your job aspirations? a) Yes ☐ b) No ☐
23	What do you intend to further do so as to ameliorate your academic performance? a) Work harder ☐ b) I don't know ☐

Thank you for your availability and cooperation

ANNEX 2

RESEARCH AUTHORIZATION

REPUBLIQUE DU CAMEROUN
Paix-Travail-Patrie
UNIVERSITÉ DE YAOUNDÉ I
ÉCOLE NORMALE SUPÉRIEURE
DÉPARTEMENT DES SCIENCES DE L'EDUCATION
SECTION : Conseillers d'Orientation

N
E S

REPUBLIC OF CAMEROON
Peace-Work-Fatherland
THE UNIVERSITY OF YAOUNDE I
HIGHER TEACHER'S TRAINING COLLEGE
DEPARTMENT OF SCIENCES OF EDUCATION
SECTION: Counseling Guidance

ATTESTATION DE RECHERCHE

Je soussigné, Pr Pierre FONKOUA, chef de département des Sciences de l'Education, certifie que l'étudiant (e) nommé(e) :

ENOW BERGE EJONG

Est inscrit(e) au niveau V du département des Sciences des l'Education, Filière Conseillers d'Orientation de l'École normale supérieure de Yaoundé et poursuit actuellement un travail de recherche sur le thème suivant :

CAREER CHOICES AND ITS INFLUENCE ON ACADEMIC PERFORMANCE.

Sous la direction de PROF. BELINGA BESSALA.

Ce travail de recherche l'oblige à s'adresser à certaines institutions ou à certains services en vue de la collecte des données nécessaires à sa finalisation.

En foi de quoi la présente attestation lui est délivrée pour servir et valoir ce que de droit.

Fait à Yaoundé, le APR 14 2016

Le Chef de Département

Pr Pierre FONKOUA