
Professional master in Algerian universities: Current status and prospects

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Abstract:

The higher education sector in Algeria has been radically transformed by the recent reforms that have been introduced and which resulted by implementing the L. M. D. system as a substitute for the classical system since 2004. This transformation was due to some external and internal factors that forced Algeria to move towards adopting the L. M. D. system; such as globalizing the higher education sector and the need to adapt the higher education sector to the labor market. The L. M. D. system comprises three basic stages: License Degree (three years), Master Degree (two years), and Ph. D (three years). After the completion of the License degree, Algerian universities offer several study programmes for the bachelor students in order to achieve the post- graduation in university studies, starting with Master Degree. However, most of the Master programmes are purely academic in nature, and the Professional Master programmes are mostly absent.

The present paper discusses the status of Professional Master programmes in the Algerian universities through an analytical and statistical study in order to identify the obstacles of the Professional Master programmes and its prospects in the Algerian universities.

Keywords: L. M. D. system, Higher education, Professional Master programmes.

ملخص:

شهد قطاع التعليم العالي في الجزائر تحولات جذرية بفعل الإصلاحات الأخيرة التي إدخالها عليه والتي نتج عنها تطبيق نظام ال ام دي. هذا التحول نحو تبني نظام ال ام دي في التعليم العالي فرضته عدة عوامل من بينها عوامة قطاع التعليم العالي وضرورة تكييفه مع سوق العمل. يتكون نظام ال ام دي من ثلاث مراحل دراسية أساسية هي مرحلة الليسانس (ثلاث سنوات)، ومرحلة الماجستير (سنتان)، ومرحلة الدكتوراه (ثلاث سنوات). بعد مرحلة الليسانس، تقدم الجامعات الجزائرية عدة برامج دراسية لطلاب مرحلة الليسانس من أجل إتمام الدراسة الجامعية في مرحلة ما بعد التدرج، بدءاً من مرحلة الماجستير، إلا أن معظم برامج الماجستير أكاديمية بطبيعتها، وبرامج الماجستير المهنية غائبة في الغالب.

تناقش هذه الورقة وضعية برامج الماجستير المهني في الجامعات الجزائرية من خلال دراسة تحليلية وإحصائية من أجل التعرف على معوقات برامج الماجستير المهني وأفاقها في الجامعات الجزائرية. الكلمات المفتاحية: نظام ال ام دي، التعليم العالي، برامج الماجستير المهني.

1. Introduction:

The Algerian university has undergone three reforms since 1998: the management reform of the university; the reform of higher education adopted by the government on 30 April 2002, and the reform of the public service which would affect the special status of university professors of the administrative and technical staff.

The first two reforms took place in a university that has been experiencing a multidimensional crisis for two decades, and by the context in which it is embedded, these are neo-liberal reforms which will be based on several axes: deregulation and the dismantling of the university public service, the reduction of public expenditure in the higher education sector and the opening up of the market. They aim to adapt Algerian higher education to the road map of neo-liberal globalization within the framework of the association agreement with the EU, and;

thus, transforming the public university into a productive university which acts to play a major role in economic growth and social development and welfare.

The L. M. D. (License/ Master/ Doctorate) reform came into effect since the beginning of the academic year 2004-2005 in Algeria, and it initially affected 10 universities before it was totally adopted by the rest of university institutions. The L. M. D. system provides several options for students to pursue their studies from undergraduate to graduate and postgraduate levels. At the graduate level, students enroll in master's studies which enable them to access job and life career. We can differentiate between academic and professional master's degrees. On one hand, academic master's degrees permit students to enroll in Ph. D. stage. On the other hand, professional master's degrees offer job opportunities and employment for university graduates because they already had professional expertise while conducting trainings in professional master's studies.

With the advent of globalization in the third millennium, most of the universities in the world have turned towards professional master's education in response to labor market demands and needs. This evolution in university's role can only be explained to the fact that universities nowadays cannot remain only a knowledge depository and much concerned with fundamental research. In modern times, universities' role is to lead economic growth, innovation in industry, and promote social progress.

In regard to Algerian higher education sector, the ministry of higher education has been investing efforts to promote the quality of teaching and learning at universities through new syllabi and curricula so as to keep pace with the latest developments and innovations in higher education at global context.

As for master's education, it is noticeable that Algerian universities have been offering master's to graduates since the academic year 2007/ 2008. However, the emphasis is only on academic master's offers at the expense of professional ones.

The present paper analyses the status of professional master's offers in Algerian universities taking into account the following research questions:

- ✚ What is the status of professional master's offers in Algeria universities?
- ✚ Why professional master's offers are mostly absent in Algerian universities?
- ✚ What recommendations can be made in order to promote professional master's education in Algerian universities?

2. Overview of evolution of higher education sector in Algeria:

The system of higher education in Algeria emerged during the French colonization. In 1859, a High School of Medicine and Pharmacy was established first, and then a School of Law followed in 1879, and lastly a School of Arts and Sciences. In 1909, the aforementioned schools were merged into the University of Algiers, and it was ruled and administered as its predecessor in France (Ramoune, 1998).

The University of Algiers is considered the first modern Arab University, and during the French occupation, it only served the European settlers in Algeria. In fact, studying Arab language, culture, and its literature was not authorized because of the threat to it posed to those settlers. At first, the lectures were initially provided to European students; however, on June, 10, 1888, the French Minister of War issued a memorandum which required to accept non-French students; such as the Turks, Algerians, Muslims, and Jews to enroll and study at the University of Algiers. Currently, the University is named after Youssef Ben Khada who was the second president of the Algerian interim government during the Revolutionary era. He joined the University in 1943 after being a member of the Algerian People's Party in 1942. He was an outstanding student at the University; He

graduated in 1951 with a B. A. in pharmacy (“Overture on university: The University of Algiers ... A rich history in education and struggle”, 2014).

Generally, the Higher Education sector has evolved into the following four stages:

The first phase (1962- 1971): This stage was characterized by a set of policies which were taken by the Algerian government following independence. Amongst these important policies:

- Making education universal for all sort of people,
- Educating women,
- Making education purely national (Algerian in sense),
- Liberating education from both cultural and technological dependency,
- Relying on national competencies and staff,
- Implementing Arabization policy of education in primary and secondary schools (Al Daoudi and Benzergua, 2015, p. 17).

The second phase (1971- 1988): This is a stage in the process of education is so important because of the policies which were taken and which made a progress in the sector. Basically, this stage is characterized by the following measures:

- Adopting reforms’ policy, in 1971, which aimed at developing and modernizing teaching methods, curricula, and syllabi,
- Opening specialized universities in science and technology (University of Bab Ezzouar)
- Democratizing of education which aimed to provide education facilities to all Algerians regardless of their ethnic and social backgrounds,
- Forming large staff and competencies in order to contribute in developmental processes
- The emergence of the Ministry of Higher Education and scientific research and the rehabilitation of the system of faculties, and accordingly the

Algerian University was divided into faculties and institutes (Al Daoudi & Benzergua, 2015).

The third phase (1988- 1999): This stage witnessed some significant developments in the evolution of higher education. These were as follows:

- Nationalization process of the higher education sector (in both teaching and working staff),
- Expansion of universities' building and the development of teaching methods, syllabi, and curricula,
- Implementing the Arabization process in the field of humanities and the establishment of research centers and laboratories (Al Daoudi & Benzergua, 2015).

The fourth phase (1999-): In this stage, the Higher Education sector has witnessed great improvements because of the following achievements:

- Adopting the L. M. D. system since the academic year (2004/2005) under Decree N° 371/04 of Nov. 21, 2004 ('Official journal of the People's Democratic Republic of Algeria universities', 2004, p. 10),
- The expansion of the universities' network to comprise 90 university institutions covering 47 states (universities, university centers, and high schools),
- The rise in the reception of pedagogic capabilities to more than 1.100.000 seat so as to receive more than 1,320,000 students,
- Creating poles of excellence to encourage scientific research in April 2010 following the signing of resolution of scientific research in Africa by Thomson Reuters, in Engineering, Chemistry, Energy, Mathematics, and Physics; waiting for other poles in Sociology, Agriculture, Economics, Science, and Medicine.

Professional master in Algerian universities: Current status and prospects

- Expanding the network of research laboratories and centers which now exceeds 880 centers and labs,
- Covering Internet debit into faculties and institutes of the national university network by connecting these university institutions and research centers with the national university network (Academic Research Network) (Al Daoudi & Benzergua, 2015, p. 18).

As a consequence, this evolution of Algerian Higher Education sector has resulted in some significant changes and noticeable transformations which can be cited as follows:

- ✚ **Extension of the Algerian university network:** Nowadays, consists of eighty- four higher education institutions; spread over forty- six wilayas across the national territory. There are thirty- six universities, fifteen university centers, sixteen High National School of graduate, five High National Schools for professors, and ten preparatory schools.
- ✚ **Constitution of the Algerian teaching staff:** In 2016, the number of teachers reached to 54.000, compared to only 82 in 1962. This in fact, can be referred to the algerianisation process of Higher Education which was 100%.
- ✚ **Female representation:** Women's number keeps rising in society, both as students and as teachers. The proportion of the females' representation rose from 22.87% to 50.31%, compared to the males' representation. Nowadays, the female component has become the majority (Guerid, as cited in Benmati, pp- 98- 9).

3.The L. M. D. System: Definition, history, and objectives:

It is the appropriation by the Europeans of the architecture of the university curriculum in force in the Anglo-Saxon countries: USA and United Kingdom. The *L* corresponds to a Bachelor's degree (BA), the BA (Bachelor of Arts, equivalent to the license, issued in the US and the UK four years after the baccalaureate). The *M* corresponds to a Master's degree. i. e. MA (Master of Arts) equivalent to the Bac + 5, which in Anglo-Saxon countries is the level for long, in-depth studies and specialization such as professional responsibilities. The *D* corresponds to doctorate (bac + 8) is the Ph. D., sanctioned by the title of "Doctor".

The European continent was the initiative of the process of harmonization of higher education systems in the late 1990s. It was an intergovernmental initiative built by four countries; France, Italy, Germany and the United Kingdom, which in May 1998 participated in the *Sorbonne Conference*. The Ministers of Education of the above-mentioned countries signed the *Sorbonne Declaration* on 25 May 1998 calling for the recognition of diplomas and their harmonization in a two-cycle model: undergraduate and graduate.

Adoption has the following consequences:

- ✚ Human mobility in education and the labor market;
- ✚ Fluidity: moving from one path to another;
- ✚ Flexibility: facilitates the resumption of studies and the recognition of periods with lifelong education;
- ✚ Readability: to increase the readability of European higher education courses at international level. ('Histoire et Objectif du LMD', 2010)

The LMD system, which is nowadays largely adopted in Europe, is carried out within the framework of the "Bologna process" by which it refers to the European process of harmonization of higher education. Born in Paris, in the Sorbonne, in May 1998, by an initiative of Claude Allègre, Minister of Higher Education of

France, the LMD was first associated with Germany, Italy, and UK. This first step was followed by the Bologna Conference in June 1999 to develop an implementation plan in order to achieve the objectives set at the Sorbonne conference ('Histoire et Objectif du LMD', 2010).

On June, 19, 1999, the Ministers of Education of 29 European countries, meeting in Bologna, Italy, signed the *Bologna Declaration* on the future of higher education in Europe. Nowadays, 40 European countries are involved in this process which aims is to (1) establish a European higher education area in which teachers, students and graduates will be able to move easily, and to (2) benefit from a fair recognition of their qualifications. Accordingly, the reform LMD sought to harmonize the architecture of the higher education sector in the period (2002- 2010) within the following basic principles:

- ✚ Higher education to be in service of the European community;
- ✚ University's autonomy is a necessary condition;
- ✚ Assuring quality in education is a key success. (Crosier and Parveva, 2014, pp. 21- 2)

The six general principles of the *Bologna Declaration* are as follows:

- ✚ Creating a comparable and readable system of diplomas, in particular through the "Diploma Supplement", detailed appendix describing studies the results achieved;
- ✚ Founding a structure of studies based on three cycles;
- ✚ Generalizing the credit system or European Credit Transfer System (ECTS), which can be used within the entire European Higher Education;
- ✚ Creating mobility for students, teachers, researchers, others personnel;

- ✚ Evaluating the quality of the education system, which is the basis mutual recognition and mobility;
- ✚ Establishing a European dimension of education and awareness rising among students to European citizenship.

Following the meeting of the universities of Salamanca in March 2001 and the Prague Conference in May 2001, 34 countries engaged in the process. The Ministers adopted the *Prague Communiqué* which set out the following principles and priorities:

- ✚ adoption of a system of easily readable and comparable diplomas
- ✚ adoption of a system based on two curricula
- ✚ establishment of a credit system
- ✚ promotion of mobility
- ✚ promotion of European cooperation in quality assessment
- ✚ Promoting the European dimension of higher education
- ✚ Lifelong learning
- ✚ Higher education institutions and students
- ✚ Make the European Higher Education area attractive.

This process was followed by the *Berlin Conference* in September 2003 in which the European ministers of higher education decided to accelerate the process and to extend it to the doctoral cycle in order to deepen the links between the European education and research areas ('The Berlin Communiqué', 2003).

Three imperative objectives are set for the year 2005 in the *Berlin Communiqué*:

- ✚ Implementing of a two- cycle system,
- ✚ Providing a free and automatic issue of a diploma supplement,

- ✚ Establishing a quality assurance system. (Crosier & Parveva, 2014, p. 43)

In Bergen, a new communiqué was signed in May 2005 following this initiative in Berlin. The Bergen Conference (May 2005) set the following objectives and priorities:

- ✚ implementation of references and guidelines for quality assurance;
- ✚ implementation of national qualifications frameworks;
- ✚ issuance and recognition of joint degrees, including at the doctoral level;
- ✚ creation of opportunities for flexible courses of training in higher education, including the existence of provisions for the validation of prior learning ('The Bergen Communiqué', 2005).

The reform LMD contains the following characteristics:

- ✚ Transversality of basic formation in both 1st and 2nd year of Bachelor degree;
- ✚ Flexibility in formation (flexible curricula);
- ✚ Reorientation if necessary for every semester: Students who have difficulties in Semester one will have the proposal to follow a particular Semester 2 in which they will be able to develop their scientific skills.
- ✚ The teaching units (UE) are capitalized and transferable:
 - The teaching units (UE) are compulsory, "Fundamental": These are either to diversify or to deepen a specific knowledge;
 - The teaching units (UE) "Discovery Units" are to very diverse fields; such as, History and Philosophy of Science, the stakes of

society; Sport, culture, Community involvement; Languages; and Cultural Studies.

Within the framework of the LMD reform, a particular emphasis is given to (1) the teaching of languages through the compulsory learning of at least one foreign language, and (2) the development of Information and Communication Technologies.

The Master level is conducted within 4 semesters, which is the equivalent of 120 European credits. It has 10 semesters and 300 credits in total, taking into account the License level. A Master's degree is awarded at the end of the first two semesters of Master (M1). The Master, which combines the two semesters of M1 and M2, leads to the standard courses comprising:

- A career path with a professional degree that gives a qualification for entry into working life;
- A research- oriented pathway, awarding a Master's degree in research leading to the pursuit of studies leading to a doctoral degree.

3.1.A pedagogical axis: capitalization:

The LMD system aims to enable the learner to construct a course adapted to his/ or her capabilities and needs. In order to do this, the teaching must be flexible. i. e. They should be constituted by elements that learners could combine in differentiated paths: Capitalizable units. A capitalizable unit (teaching unit) is an autonomous and coherent subdivision within a curriculum. The lessons of a unit can take different forms: lectures, tutorials, practical work, field work, research, face-to-face teaching, distance learning, or combining these different forms.

Within the teaching courses, the units are definitively acquired and capitalizable once the student has obtained the required average.

The pedagogical organization at the LMD is based on the teaching unit. It combines different subjects taught in a semester. The latter comprises several teaching units which are divided into:

- **Fundamental unit:** it is a major discipline essential to the specialty to strengthen the basic knowledge;
- **Complementary unit:** it is a minor discipline to reinforce the major discipline.

3.2.An institutional axis: the LMD cycles and the semesterisation process:

For the flexibility of the formation pathways to be effective, all the curricula must fit within a relatively homogeneous framework. This is made possible by the structuring of all courses in three cycles and by semesters.

The course is a progression, within a coherent set of subjects, adapted to the personal and professional project of the student. Thanks to an educational organization offering compulsory courses and optional courses, the student prepares his/ her course, in agreement with the pedagogical team, with a view to a mention of a given diploma.

A well-constructed course is a path that combines fundamental units and complementary units as follows:

The credit system offers a validation unit that can be readable in the European Higher Education context. Each validated (UE) gives rise to a certain number of credits, based on a maximum of 30 credits per semester (60 per year).

The credit value attributed to the (UE) takes into account the amount of work that the student must provide in order to obtain this (UE): volume of teaching/ or instruction followed but also personal work, examination time... etc.

Institutions can choose different types of (UE) depending on their formation needs; however, in general, there are four main types of training offered by the (UE):

- **Fundamental Units:** They correspond to the lessons that all students must follow;
- **Transversal Units:** They contain lessons intended to give tools to students of different origins: language, computer science, mathematics, human rights, cultural and sports animation ... etc.
- **Discovery Units:** These are reserved for certain students to deepen his knowledge or for professionalization.

4.The L. M. D. System and its implementation in Algerian higher education sector:

Algeria's higher educational sector has noticed two major reforms since the independence era to adapt to the needs of Algerian society. This was marked by a number of reforms, including the reform of 1971, which radically restructured higher education by addressing the following challenges:

- The provision of technological and scientific elite capable of responding to the development concerns of the country;
- Algerianization and arabization of higher education sector.

However, the Algerian university experienced an important dynamic of growth which led it to count for the academic year 2008/2009:

- 60 Higher Education Institutions, including 34 Universities;
- 1,100. 000 students;
- Approximately 45,000 students in Doctoral and Magister programs;
- More than 27,500 teachers, 15% of whom are lecturers.

This rapid growth has created multiple constraints, both in structural terms and in ensuring the quality of training and its adaptation to changes in the socio-economic world. In order to respond to these dysfunctions, several commissions

Professional master in Algerian universities: Current status and prospects

have been established since the 1980s. Thus, conclusions have been regularly drawn up to highlight deficiencies affecting different aspects of the system. These include:

- over-staffing for insufficient supervision;
- significant failure and wastage rates and low training yields;
- weak dynamics of program renewal;
- virtually non-existent relationships with the socio-economic environment;
- over-centralized management of university life.

These findings have demonstrated the urgency and the need to equip the Algerian university with the educational, scientific, human, material and structural means that will allow it to meet societal expectations while aligning itself with the new trends and trends in the world Higher Education. It is in this perspective that the new reform of higher education, known as the 'reform LMD' was implemented.

The LMD system was adopted, while confirming its public nature, to reaffirm the essential principles underlying the vision of the missions devolved to the Algerian university, namely:

- To provide quality training, taking care of the satisfaction of the legitimate social demand for access to higher education;
- To realize true osmosis with the socio-economic environment by developing all the possible interactions between the university and the world around it;
- develop mechanisms for continuous adaptation to changes in the business lines;
- To consolidate its cultural mission by promoting the universal values expressed by the university spirit, in particular those of tolerance and respect for others;
- To be more open to global developments, particularly those of science and technology;
- To encourage and diversify international cooperation in the most appropriate ways;

- To lay the foundations for good governance based on participation and consultation.

Algeria has adopted the LMD system for the following reasons:

- * place the Algerian university in a global configuration;
- * for a strategy of appropriation of knowledge and mastery of technology;
- * to make the university perform well in a global context dominated by innovation, creativity and competitiveness.

Being initially designed in the Anglo- Saxon countries, the Algerian policymakers decided to implement L. M. D. reform in partial replacement of the previous classical system. In the academic year 2004- 2005, Algeria has joined the rules and principles of the *Bologna Process* by adopting the L. M. D. principles (License, Master, and Doctorate). The philosophy of teaching under the new architecture stipulated that more space is given to the learners' output and mobility.

It is worth to mention that within the L. M. D., there new elements that appear in managing the teaching process. These are Semestrialization (S), and Educational Units (EU). Since studies are organized into semesters to relax the organization of training programmes, students are expected to attend around 400 hours in a 16 week period (i. e. 25 hours per week). Lessons, on the other hand, are grouped into educational units; namely, Fundamental, Methodological, Discovery and Transversal (Mellouk, 2013, p. 85).

Units	Definition	Modules/ subjects	Hours per week
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Professional master in Algerian universities: Current status and prospects

Fundamental	It includes core subjects for a particular discipline	Oral Expression	03
		Written Expression	03
		Linguistics	03
		TEFL	03
		Civilization	03
		Literature	03
Transversal	Students are exposed to other languages, social sciences and technical communication.	Theme & version	1 :30
		ESP	1 :30
		Psychology	1 :30
Discovery	it is anticipated all along the lessons of training materials relevant to other specialties	Foreign language	1 :30
		(Italian language)	1 :30
		Statistics	
Methodology	This gathers the subjects taught methodological tools aimed at helping the learner to accomplish his training course;	Research	1 :30
		Methodology	

Table 3: English curriculum Educational Units and Modules within the L.M.D. system (Third year License degree). Source: Adapted from: Mellouk, (2013).

5.Overview of master’s degree:

Originated from the Latin word ‘*Magister Artium*’ or ‘*Artium Magister*’, a master’s degree is the most commonly taken postgraduate qualification. It is above the Bachelor’s and below the Doctoral level; it is awarded to students who show a high level of expertise in their field. Study at the master’s level is always intense and typically involves writing a dissertation, or thesis. It typically lasts for between one and four years, depending on the field and mode of study.

A master's degree requires previous study at the bachelor's level, either as a separate degree or as part of an integrated course. Within the field of study, master's graduates are expected to possess advanced knowledge of a specific topic, high order skills in analysis, critical evaluation, professional application, and the ability to solve complex problems (‘Master’s Degree’, n. d.).

Since master’s degree provides mastery or high- order overview of a relevant field of study, graduates of a master’s degree possess a range of academic criteria such as:

BOUTKHIL GUEMIDE

- advanced knowledge of a specialist body of theoretical and applied topics;
- high order skills in analysis, critical evaluation and/or professional application through the planning and execution of project work or a piece of scholarship or research;
- creativity and flexibility in the application of knowledge and skills to new situations; and
- the ability to solve complex problems and think rigorously and independently. ('Master's Degree', n. d.).

As for master studies in Algerian universities, it is linked to laws issued by the Ministry of Higher Education of which the most important is Law N° 06 of 3 Dhul-Qa'da 1431 Hijri corresponding to October, 11, 2010, which relates to enrollment in master studies for the academic year 2010- 2011. The aim of this law is to determine the general rules applied in the field of registration in the second phase studies of the master's degree during the academic year 2010- 2011. In general, the process of registering and conducting studies in the master goes through the following steps:

The masters' programmes are opened, either academic or professional, after having been prepared in a special code and proposed by a committee at the level of the department of the University's faculty. This committee which is composed of specialized teachers in the field in the department prepares the master programmes by indicating the field and specialization to be taught in the composition together with teaching staff and the subjects/ or modules to be taught in the master programmes.

After the master's programme is approved by the scientific committee of the department, the scientific council of the faculty, and the scientific council of the

University, the offer then passes to the *Conférence Régionale* for approval. After that, the masters' programmes are approved and then indicated at the National Symposium of Universities. Following the Ministry's approval, a special leaflet is issued by the Ministry of Higher Education which indicates all the Masters' offers approved by the Ministry, with reference to the specialization, the type of master, as well as the University authorized to open the master programmes.

The university will; then, publish the master's announcement for the next academic year in order to receive the students' files and study them by the scientific committee of the department. As for registration in master, the above-mentioned ministerial circular states that the university that proposes the master study should register 97% of its students who are recently graduated with their Bachelor's degree (third year students), and 3% of students who were previous graduates and from outside the University by order of merit.

The registration period for the master's degree runs from June to July each year, and studies start at the beginning of the new academic year at Universities in September. The first semester ends in the January and is followed by examinations of the first semester. The second semester begins in February and ends in June during which exams of the second semester are organized. The third semester in master's studies begins with the new academic year in September and ends in January. Students are; then, given the opportunity to complete their master dissertations for submission in order to graduate and obtain their master degree.

6. Professional master's degree: Definition, characteristics, and objectives:

Just after a Bachelor's degree, which is undergraduate level of education, the master's degree imposes a final choice of orientation for graduate students. In two years, the master offers students a complementary specialized formation which

broadens their knowledge and their future career prospects. Also, a master's degree facilitates access to a working position or a career abroad.

Generally speaking, there are two types of master degrees: Academic master and the professional master. The academic master; namely, master of research, is best recognized of course-based master degree which corresponds to studies leading to the Doctorate degree.

On the other hand, a professional master degree, as its name indicates, is research-based master programme which focuses on the professional field to direct graduates to operational positions in company. It requires graduate students to carry out their own research project(s) in a specialized field of study. Professional master's degrees normally take a little longer than academic master's degrees to complete. In fact, for the same specialty, the difference between the two types of master in terms of teaching is not very great; however, the tendency exists in the future career of both types of master.

The term *professional* is used to describe master's degrees which are certainly not new. Master's degrees for professional careers have been a feature of both European and North American graduate education for decades. It is worth to mention that most universities and colleges in Europe and North America have long-established business programs, many of them offering the Master of Business Administration degree, which are considered *de rigueur* for those who want to make their future in the corporate world.

As the name indicates, professional master's degrees are more specialized types of master programme which often focus on a specific professional area. These are sometimes known as *tagged master's degrees*, because they are *tagged* to a certain field, or professional master's degrees, because they focus on career development in a particular profession. Some professional master's degrees start with the word Professional in the title, such as the Professional Science Master's

Professional master in Algerian universities: Current status and prospects

Degree (PSM), a hands-on degree with a heavy practical component giving students the skills and knowledge needed to work professionally in their chosen field (Haidar, 2014).

Professional masters' degrees are types of interdisciplinary master's degree that are concentrated in applied fields of studies. While academic masters' degrees tend to focus on theory and research, professional masters' degrees tend to emphasize practical skills designed for current and aspiring professionals including post-bachelor and post-graduate students. i. e. Professional master degrees give students the skills they need to thrive in constantly evolving workplaces.

Generally, professional masters are described as: innovative graduate degree that typically consists of two years of academic training in an emerging or interdisciplinary area of science, mathematics or technology. The PSM also contains a professional component that may include internships and "cross-training" in business management and communications. All have been developed in concert with industry and are designed to dovetail into present and future professional career opportunities. (NPSMA, as cited in Leckie, 2011, p. 5).

Therefore, professional master's degrees combine intensive study in science or math with courses in management, policy, business, or law and emphasizes writing, project management, and other industry-sought skills. Internships and capstone projects guided by mentors in industry are a key part of the curriculum.

The purpose of professional masters' programmes is described as follows: The professional master's degree is meant to supply intermediate-level professionals for the scientific workforce, largely in business and industry.

It is a professional rather than a research degree and is intended to be

BOUTKHIL GUEMIDE

equivalent to a law or business degree for young people who major in the sciences and mathematics as undergraduates. Unlike the typical science and engineering master's degree program, PSMs are not consolation prizes for those who drop out of Ph.D. programs. Instead, they are terminal degrees designed in close cooperation with regional industries to prepare applied scientists and mathematicians for work in new and emerging industries. (NPSMA, as cited in Leckie, 2011, p. 5)

The beginning of 2000 has seen an increasing interest in master's programmes in response to a conference held in 2002 by the *US National Science Foundation* in which experts and speakers mentioned the need for more professional master's education in the field of science, technology, and engineering. Accordingly, graduates of Master's programs, especially, in the Sciences and Engineering, "lack essential knowledge ...and workplace skills (e.g. the ability to work in teams, communication/ presentations skills) ... to be of maximum benefit to the company" (Council of Graduate Schools 2006, p. 14). So, the movement to master's programmes:

Represents an effective answer to both these problems. It produces quickly and efficiently many of the applied scientists that today's high-tech industries need. ... the enthusiasm of employers and the rapidity with which the graduates found well-paid jobs suggest that the demand for master's programs will grow. (NGA, 2006, p. 2).

The need for a range of science and extra- science components was identified: to produce students who not only had advanced disciplinary knowledge in science/ engineering, but also had:

- a working knowledge of business and ethics;

Professional master in Algerian universities: Current status and prospects

- flexible training – able to apply their skills to various areas of the company as needed;
- teamwork experience and ability to participate effectively on interdisciplinary teams;
- writing and presentation skills;
- understanding of basic principles of business, profit motive and related ethical issues;
- ability to design and execute experiments with minimal supervision;
- ability to prepare technical reports and project plans;
- ability to prepare and present information to a wide variety of constituents. (Council of Graduate Schools, 2006, pp. 4- 5)

Generally, master's programmes contain the following characteristics:

- offer skills-based courses;
 - offer interdisciplinary courses;
 - emphasize writing and communication skills;
 - have final project or team experience;
 - have a required internship;
 - have an advisory board of industry/government/non-profit employers;
 - have at least some faculty members with nonacademic experience;
 - have assessment and quality controls such as accreditation/licensing.
- (Leckie, 2011, p. 13)

7. Professional master programmes in Algerian universities: Current status (Data, statistics, and analysis):

Throughout the world, graduate education at the master's level is changing. In Europe, through the *Bologna Process* which aims to harmonize European degrees and make them more compatible with practices elsewhere, master's level education is now clearly distinct from undergraduate education and is recognized

with the awarding of separate master’s degrees in all disciplines. Since its implementation in 2004/2005, the Ministry of Higher Education and Scientific Research in Algeria has been working to improve the quality of both teaching and learning in L. M. D. by diversifying offers of formation in various disciplines and levels.

In regard to master's studies, the Ministry is trying to open different fields in the master level, whether academic or professional, in order to adapt to the requirements of the labor market and to attract a large number of students. However, through the data collected regarding the status of the professional master’s offers in Algerian universities, there seems to be a total absence of professional master's offers, compared to academic masters. Accordingly, this is what we seek to analyze and describe with the existing data.

Fields	ST		SNV		SM		MI		STU		SHS		LLE		DSP		SEG	
	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P
Years																		
2007	75	01	19	06	14	05	33	05	05	01	03	00	11	00	00	00	06	04
2008	149	01	47	10	49	05	23	07	08	03	08	00	13	00	00	00	54	05
2009	183	17	46	04	46	03	59	02	09	00	30	01	21	00	09	01	37	02
2010	112	17	44	04	24	00	30	04	08	01	90	02	50	02	25	01	42	02
2011	118	10	41	06	32	05	21	09	14	02	98	04	56	03	34	00	47	06
2012	110	15	49	07	39	07	23	12	16	04	108	04	54	00	32	00	42	11
2013	121	18	42	09	33	04	28	07	22	04	112	00	48	02	30	00	46	08
2014	152	14	40	07	25	06	31	04	28	06	88	00	41	02	28	00	49	07
2015	143	12	39	05	29	00	24	00	26	07	76	03	40	00	29	00	39	04
2016	166	16	48	06	32	00	27	00	29	05	70	01	43	00	31	00	38	03

Table 4: Academic and professional masters offered in Algerian universities in all domains (2007- 2016). Source: Adapted from MESRS (2010- 2016).

7.1.Data Analysis:

Professional master in Algerian universities: Current status and prospects

From the above table, graphs, and data, we notice that offers of professional master's degrees in Algerian universities are very few in comparison to academic master's offers. For example, we note that at the beginning of implementing the L. M. D. system, there have been 166 academic master's offers compared to 22 master professional master's offers. This is due to the dominant pattern of teaching and training which prevailed before the advent of the system of the L. M. D. i. e. the classical system which is only based on academic formation. Accordingly, professional master's offers were very few at the beginning of this phase. So, the presence of academic master's offers at the national level in some scientific domains; such as, Sciences and Technologies (53%), Sciences of Nature and Life (14%), Material Sciences (10%) and Mathematics and Informatics (23%), is due to the fact that these scientific domains were the first concerned with the implementation of the L. M. D. system in reforming Higher Education sector in Algeria in 2004/ 2005.

On the other hand, other domains; such as, Letters and Foreign Languages, Social Sciences and Humanities, Law and Political Sciences, Economics, Commercial and Management Sciences were still concerned with the classical system, which explains the absence of academic master's offers and, rather, their existence in few numbers. Unlike the academic master's, professional master's did not much attract Algerian Universities and faculties in the aforementioned disciplines because of the general orientation of Algerian universities and colleges which were more interested in academic training and formation rather than being concerned with professional trainings at the first phase of implementing the L. M. D. system in Higher Education reform, as evidences in the above data and graphs showed the numbers of master's offers proposed in both academic and professional master's (87% for academic master's compared to 13% for professional master's in 2007).

This general trend towards academic training and formation continued in the Algerian colleges and universities successively in 2008, 2009 and 2010, where professional master's reached 92 offers (7%), compared to the academic master's offers which amounted to 1213 (93%) in that period.

Since the year 2012, professional master's increased and knew some development, and the number of offers reached 60 in Algerian universities which represents 11 % of the master's projects offered in that period. This increase and development is due to the fact that the Algerian Ministry of Higher Education and Scientific Research worked to develop this kind of formation and training as well as to accelerate the reform in Higher Education by eliminating the dominant classical system of teaching and formation and moving towards the new L. M. D. system which seeks to adapt to market demands.

However, this tangible development in professional master's offers quickly fell to less than 31 offers in 2016 (6 %)- compared to 484 academic master's offers (94 %). This, in fact, was influenced by the reluctance of students in this type of formation and training, and the absence of economic partnership, especially with the economic crisis experienced by Algeria and the decline in the labor market. Accordingly, all these factors had negative impacts on professional master's formation which is directly linked to the labor market and the volume of investments to be achieved in both short and medium terms.

So, what confirms the lack of professional master's offers in Algerian Universities is the type of disciplines and domains which provide such master's offers and projects dominated by both technical and practical aspects rather than theoretical ones. For example, we find the domain of Letters and Foreign Languages offered only 9 master's professional projects (9 %); compared to 121 (36 %) for Sciences and Technologies, 64 (19 %) for Science of Nature and Life, 35 (11 %) for Material Sciences, 50 (15 %) for Mathematics and Informatics, 33

(10 %) for Sciences of the Earth and the Universe in the period 2007- 2016. Also, we notice from data in the table and graphs above is that the domain of Law and Political Sciences has only offered 2 professional master's projects (1 %) in the same period. This is related to the following factors:

7.2.Economic factor: It is mainly related to the needs of the labor market and the type of formation and training required therein;

✚ **Pedagogic factor:** We notice that the scientific domains and technical disciplines are mostly appropriate for the pattern of professional master's formation and training, while the domains of Letters and Humanities, which are literary disciplines, are more appropriate for academic master's;

✚ **Students' reluctance:** University students admit their reluctance to professional master's formation and training for purely pedagogic reasons which are as follows:

- Students desire to continue their studies after graduation because academic master's degrees offer them an opportunity to participate in doctoral competitions, unlike professional master's degrees. Also, academic master's degrees offer several opportunities for employment in the public sector rather than professional master's degrees;
- Suffering experienced by professional master's students: The professional master's formation is the result of a partnership agreement signed by the university and the economic, commercial, or industrial partner that ensures vocational training for university students in a particular field in order to gain professional experience that helps to employ these students immediately after graduation. However, this condition is not available in Algerian Universities; it makes University students who graduated with professional master's degrees suffer from employment.

8. Conclusion and recommendations:

Since the advent of the third millennium and the world has engaged in globalization, most Universities in the world have abandoned the classical system of teaching and formation which was based on academic and theoretical formation and replaced it by the L. M. D. system which relies on vocational training in order to cope with the developments and needs of the labor market. Therefore, these international universities give a great importance to this type of education and formation and propose many professional masters' projects for their students.

Algerian Universities, like those in the world, are obliged to open up to the labor market to keep abreast of developments and meet its needs. Therefore, they should focus on developing this type of education by offering many professional masters' projects and encouraging students to engage in this form of education so that they can gain more skills. Despite the fact that the Algerian Ministry of Higher Education and Scientific Research is working hard to develop professional masters' education within the framework of L. M. D. system, this type of education still needs modern mechanisms in order to promote professional masters' offers in Algerian Universities. In our point of view, the following solutions and recommendations may help to develop professional master's education in the Algerian Universities:

Strengthening partnership between universities and economic sector:

In the modern time, the university has not become knowledge depository, focused on fundamental research. However, there is a high pressure for universities to become more active in their activity and role in the progress of the society. As for Algerian universities, they should evolve from a simple *knowledge*

factory interested in innovative outputs to an *entrepreneurial- relational university* active, with industry linkages and research contracts funded by both public and private sectors.

Also, universities should strengthen their business relations with economic and industrial partners in inter- organizational relations. In the case of professional master's offers, cooperation between universities and enterprises will result in providing major graduates, skilled, and better trained in the field of labor. In addition, universities will keep pace with labor market and its developments. In this sense, the relation university- business will result in investing science and research in service of economy and industry.

Valuation of professional master's degrees at the level of public service:

As far as employment is concerned, graduates of Algerian universities having professional master's degrees suffer from employment in the public service, in public enterprises, because of the fact that the public service (a high administrative organism related to the general secretary of the government which is responsible for organizing employment and its regulations in the public service) does not recognize these degrees. So, to give more importance to these professional degrees, the public service in Algeria should give a regard and valuation to these degrees so as to incite students to engage in this type of professional formation.

Sensitizing students of the importance of professional master's degrees:

Algerian decision and policy- makers should, in their turn, encourage and incite students to the importance of professional master's degrees and the opportunities they offer to them in the labor market. Not only academic master's

degrees that permit permanent recruitment to graduates, but also professional master's degrees offer lot of potentials to university graduates; such as, professional expertise, acquisition of skills, better trainings, and possibility to start up a business company.

✚ Increasing scholarship amount for professional masters' students:

In an attempt to attract more students to engage in professional master's formation, responsible of higher education sector in Algeria should increase the amount of scholarship to students who engage in professional master's education. Acting so, professional master's education would seem more important than the academic one.

✚ Ensuring permanent positions for excellent masters' students and effective practical training with salaries:

Professional master's formation should be highly revised by the Algerian higher education sector because of the employment problems which result from this type of education. i. e. Graduates with professional master's degrees lack job opportunities. Out of fundamental research and knowledge-based education, professional master's students should be provided with effective practical trainings while conducting training period in the companies in which they are engaged. In order to incite and encourage them in professional master's education, students should be provided with a salary in their training period at companies. Also, graduates who are ranked excellent and major should be ensured with permanent employment positions in the companies where they conducted their trainings as a means to encourage and incite other students to engage professional master's education.

✚ Granting loans to professional master's students for the establishment of small enterprises:

In an attempt to promote professional master's education among Algeria graduates, decision- makers should encourage professional master's graduates by providing them with loans so as to start up their small business enterprises. This, in fact, will assure students in the future that employment exists in several forms; whether in public, or private sector, or starting their own business.

✚ Creating professional master's fields required in labor market for professional master's students:

One of the major obstacles in professional master's education in Algerian higher education sector is the lack of appropriate fields in professional master's education. This is related to the committees at universities that are responsible for developing professional master's offers so as to start this type of education and formation. Since there is a vacuum between universities and the economic sector, professional master's graduates feel that professional master's education they are undertaking is not related to the labor market. So, these committees should reconsider and regard professional master's offers thoroughly and relate it to the labor market and its developments.

✚ Encouraging cooperation with 'Start Up' companies in promoting professional master's offers:

The term "start-up" means the instance of setting in operation or motion, or fledgling a business enterprise. It is a business or undertaking that has recently begun operating ("What Is A Startup?", 2013). In this context, a startup is a young company that has just begun to develop. Startups are usually small and initially financed and operated by a handful of founders or one individual. These companies offer a product or service that is not currently being offered elsewhere

in the market, or that the founders believe is being offered in an inferior manner (Fontielle, n. d.).

The term startup is also associated with a business that is typically technology oriented and has high growth potential. For example, if a startup company invents and sells important software for Algerian schools and universities, they have already got a very select market. So, to grow rapidly, start-up companies need to make something they can sell to a very big market.

In the case of Algeria, start-up companies are not yet present in the labor market scene. However, they can be of a great importance to Algeria universities. Cooperation between start-up companies and Algerian universities can result in (1) defining precisely what types of fields needed in professional master's formation, (2) selecting the best students to engage in professional masters' education, (3) recruiting professional master's graduates in the needed positions, and (4) developing products needed in the market.

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Professional master in Algerian universities: Current status and prospects

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