# The professional skills expected of university Teacher researchers in the LMD system in Algeria.

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***Abstract***
In order to confirm whether the skills developed by the university teacher researchers recently recruited by the Algerian universities correspond to the professional skills repository published on July 28th, 2016, a survey was carried out by the teachers recruited by the University of Mascara between 2015 and 2016.
The survey aims also to assess the relationship between the required and acquired, the results obtained indicate that new teachers face pedagogical and didactic difficulties and that the education they received during their university studies does not cover the diversity of the tasks recommended by the LMD system. That proves that the measures taken by the Ministry of Higher Education and Scientific Research aiming to support them to integrate effectively into the profession are too often absent.
***Keywords*****:** Professional skills, University teacher-researchers, repository, University of Mascara.

***Résumé :***
Dans le but de vérifier si les compétences développées par les enseignants-chercheurs nouvellement recrutés par les universités algériennes correspondent au référentiel des compétences professionnelles paru le 28 juillet 2016, une enquête a été menée auprès des enseignants recrutés par l'Université de Mascara entre 2015 et 2016.
Cette enquête visait également à évaluer le rapport entre le requis et l'acquis, Les résultats obtenus indiquent que les nouveaux enseignants rencontrent des difficultés d'ordre pédagogique et didactique, et que la formation qui ont bénéficié durant leurs études universitaires ne couvre pas la diversité des tâches recommandées par le système LMD, ce qui prouve que les dispositifs menés par le ministère de l'enseignement et de la recherche scientifiques dans le but de les soutenir à s'intégrer efficacement dans le métier, sont trop souvent absents.
***Mots clés :*** compétences professionnelles, enseignant-chercheur, référentiel, l'université de Mascara

## 1. INTRODUCTION

Reform of the Algerian higher education system which began in 2004 went hand in hand, besides a complete revision of the educational programs, with the adoption of key choices relating to the training of future teachers considered as the keystone of education. Furthermore, the issue of teachers training arises intensively to the extent that such reform is likely to succeed only if it is made sure that the change actors have the professional skills which enable them not only to transmit knowledge and know-how which they master thoroughly the basis, but also to have a reflexive attitude towards their class practices.

### 1.1.Study issue:

Do the new Algerian teachers have the professional skills contained in the 2016 repository?

### 1.2. Study hypothesis:

1. Among the recently recruited teachers, the older ones are fitter for developing the expected skills.
2. The recruited teachers in the exact sciences fields develop rapidly the skills related to ICT compared to other teachers.

### 1.3. Study objectives:

To treat such issue, the study aims to deal with the following objectives:
- Discovering the professional skills required from the new Algerian university teachers,
- Analyzing the professional practices of the new teachers in terms of their compatibility or not with the profile of the required skills described in the repository, and
- Suggesting the best way to perform such skills.

## 2. THEORETICAL FRAME:

First, we will present a non-exhaustive review of the professional skill concept. Then, we will explicate the profile of the required skills stated in the skills repository defined by Ministerial Decree No. 932 of July 28th, 2016. Yet, before we start we should understand what the university teacher researcher represents in the LMD system.

### 2.1.What is a university teacher researcher in the LMD system?

In 2004, the Algerian university knew a new teaching system called LMD. Consequently, new concepts emerged: " teacher researcher", "teaching-learning", "assessment", "skills", "tasks" ", "know-how", "interpersonal skills"...

A teacher-researcher is a teacher who has the double task of providing teaching in a higher institution and participating in the development of the basic and applied research in his/her discipline (Freeman, 2010).

The Algerian regulations clearly define the teacher-researcher's duties according to Executive Decree No. 08-130 of May 3rd, 2008.

The particular status of the Algerian teacher-researcher sets in Article 28 four corps (JORA, 2008):

1.Corps of assistants.
2.Corps of assistant professors subdivided into two grades (Assistant professors B and A);
3.Corps of senior lecturers, also subdivided into two grades (Senior lecturers B and A).
4.Corps of professors frame which also includes two grades: professor and professor emeritus.

Teacher researchers are required to:
- provide quality and up-to-date teaching related to the developments of science, knowledge, technology and pedagogical and didactic methods in accordance with the ethical and professional standards,
- participate in the development of knowledge and guarantee the transmission of knowledge during the initial and continuing training, and
- conduct research and training activities to develop their aptitudes and abilities to perform the teacher-researcher function.

### 2.2. The teacher's professional skills, writings review:

The term "skill" can be the subject of various interpretations, defined as a polymorphous and polysemous nebula (Lemaître & Hatano, 2007, p 15). Generally, such concept is used to designate a remarkable work which demonstrates a deep knowledge of a cause or a subject and to extract a recognized expertise.

A person is skilled when he/she demonstrates a know-how-to act which consists of both internal and external resources that are mobilized and combined in a proper and unique manner in order to deal with a given context or situation. This know-how-to act is never completed suggesting hence the possibility of development and evolution of the skills which it is composed of (Adapted from Brassard, 2015, Foucher, 2010 and Tardif, 2006).

Nevertheless, according to Scallon (2004), in the education field, skill involves a dimension that differs from the general concept for it is not based on observable results as the only explanation of the phenomenon. Actually, it results from a process that organizes the actions and gives the teacher the ability to establish the most logical and skillful manner to deal with a practical situation.

In literature, professional skill is defined in three ways:

Perrenoud (1998) considers the teacher's professional skill as a "habitus" which presents all our perception, assessment, thought and action frameworks, i.e. the way of internalizing and structuring an individual's perceptions, judgments and actions without being necessarily aware.

While Gauthier and Tardif (2004) believe that the professional teacher must be able to be aware of the acts and decisions that he/she acquires during the performance of his/her function. Within such concept of the professional skill, a teacher, like any other professional, is a "rational actor", able to direct his/her practice according to a rational order. He can still justify what he/she does with reference to knowledge (psychological, sociological, pedagogical, epistemological or knowledge which results from the experience of a practitioner that the teacher has accumulated).

These two concepts of skill are very opposed but a connection seems possible.

In fact, the teacher's professional skill necessarily involves strongly internalized ways of being and doing which he/she implements without having to deliberate. Such ways of being and doing suffer the impact of constraints which are material, institutional, relational etc. It is not excluded that the teacher also takes into account advice, values and (formal) guidelines to be respected in order to make decisions. This justifies the idea that the definition of the teacher's professional skill involves a third model.

The paradigm of the reflective practitioner (Schön, 1987, 1994) has more or less explicitly inspired works on the teachers training for nearly twenty years. The teacher must become a reflective practitioner able to adapt to all the teaching situations by analyzing his own practices and their results. He must give meaning to his actions; wonder about his own concepts about what he is doing and why. Through this ability to "self-analyze" he/she can then "identify his successes and failures" and thereby readjust his/her actions. The teacher can then no longer be content with reproducing teaching routines. He/she must be able to use them and/or create new ones in a "self-reflexive" and "on the spot" way (maroy, 2011).

From now on, it is the teacher himself who must construct the "right way of doing" by a back-and-forth between practice and theory through the adoption of a "critical, pragmatic, even opportunistic" attitude compared to theoretical knowledge, techniques and teaching tools that he/she learned during his/her training, in which he can draw but in a reflective and adapted-to-the-situation manner. Such "self-reflexive" dimension of work is supposed to make the teacher "autonomous": he/she must become an "actor" capable of acting and thinking on his own, but also aware that he can react to the difficulties of his profession instead of suffering them (Bedard, 2000).

**2.3. The architecture of the skills repository:**

A professional skills repository is a document which retakes; lists and organizes all the skills expected from the teaching staff.

Such skills are acquired and deepened during a continuous process starting in initial training and continuing throughout the career through accumulated professional experience and the contribution of the continuing education.

In Algeria, the first professional skills repository of the recently recruited teachers-researchers was published on July 28th, 2016 as per Ministerial Decree No. 932. The text defines the modes of educational support to the teacher researcher, describes the skills required from the new teachers based on a skills repository containing twelve skills. Each skill of the repository has items which detail their components and specify the field. The items do not constitute a burden of prescriptions but different possible implementations of a skill in various situations related to practicing the professions.

The teacher researcher must be able to:

*1.Master the classical and innovative didactic tools (S01):*

This skill allows the teacher-researcher to develop his/her skills in the field of didactics, learning his/her discipline and put his/her knowledge into practice.

*2. Guarantee a cognitive climate in the teaching process (S02):*

This skill refers to the instrumental skills that must be guaranteed through the development of cognitive capacities in order to make teaching meaningful and relevant to students.

*3. Become aware of the pedagogical dialogue (S03):*

This skill allows the teacher to help the student to become a teacher with regard to himself and give a meaning to his/her studies, to improve the education levels and challenge failures. It also allows motivating the student to learn, develop his/her mental actions and reduce the distance between the teacher and the student and between the students themselves.

*4. Lead a development dynamic of the student's skills (motivation to self-learning) (S04):*

This skill allows combining skills, knowledge and the abilities required for student learning. The teacher must plan and implement his/her skills for the development of his/her students' skills through an interactive teaching, problem-solving approach, case analysis, project-based teaching and collaborative work.

Such practices known as "active" make the student search by himself, select resources, interact and understand problem situations close to his/her daily life and professional life.

*5.Use team leadership techniques in teaching situations (Seminars, Practical courses, internships) (S05):*

This skill allows the teacher to develop then implement an operational action plan intended to achieve a set of general and specific objectives previously defined. It also allows identifying the strengths, weaknesses, opportunities and threats of the teacher's pedagogical actions in situations of leading seminars, practical courses and internships.

*6. Learn collaborative work in the pedagogical committees and training teams (S06):*

This skill allows learning how to collaborate within a team and be part of complementarity and continuity of the teaching processes.

*7. Introduction into the practice of tutoring and supporting the students (doing an internship) (S07)*

This skill enables the student to benefit throughout his pedagogical background from an educational support system aiming to facilitate his/her course choice, guarantee the pedagogical coherence of his/her background and promote his/her training project. The intensive use of social networks to increase dialogue possibilities with the student is encouraged.

*8. Oral and written expression mastery in teaching and research situations (S08):*

This skill allows implementing and leading teaching situations through oral and written styles that enable to communicate effectively in the teaching and research language.

*9. Develop initiatives and innovation in terms of knowledge and know how (S09):*

This skill allows the teacher researcher to confirm his position at the university as an innovator and user of knowledge, and brings him to take another look permanently and deeply his roadmap to provide the investment return expected of him which is mainly translated into meeting the needs of his students.

*10. Identify the pedagogical action potential (S10):*

This skill enables the university education to respond and adapt effectively and efficiently to the needs that the student may know during the natural process of his evolution. It enables the university to train employable managers capable of progressing in external or internal socio-economic contexts.

*11. Assess collectively and individually progression during the acquisition of knowledge, know-how and interpersonal skills (S11):*

This skill allows to collect information on the evolution of the students teaching process performance and to take a critical look leading to develop a reflexive thought on the attitudes to be undertaken to improve the education quality and to achieve the set objective.

*12. Use the evaluation grid linked to the objectives of the institution's training plan (S12):*

This skill allows mastering the development process of the evaluation grid, its use context and the assessment purpose.

Guarantee the training effectiveness and efficiency, know the mapping of the acquired skills and measure the impact levels of the pedagogical training on the teacher and/or the student's professional development in relation to the institutions' objectives.

## 3. EMPIRICAL FRAMEWORK:

The study presented in this paper is a quantitative study based on a questionnaire survey conducted on all the teachers recently recruited by the University of Mascara. The methodological choice of the study will be presented as well as the main results obtained.

### 3.1. Methodology:

The objective of our survey is to examine the skills of the new teachers using as an analysis basis the 12 professional skills of the Algerian ministerial repository of 2016.

The approach used within the research is the quantitative type. The questionnaire used for data collection was developed based on the results obtained during the analysis of semi-structured interviews with 50 teachers.

The semi-structured interview will allow us to highlight the teaching practices as suggested by T. Philippot and G. Baillat (2011) who prefer to offer the teacher the opportunity to produce a discourse on his practice in order to understand, discover, describe and interpret the professional skills of the new teachers.

This analysis allowed us to identify the most recurrent segments of discourse compared to the uses of ICT, professional practices linked to the LMD system (Bachelor's, Master's and Doctorate's degrees), professional didactics and teaching skills.

These segments compose the questionnaire statements which we tried to align with the skills defined by the Algerian ministerial repository in order to have a concrete vision on the skills acquired by the teachers.

The questionnaire consists of five sections:

- Participants' personal and professional information.
- Skills related to the use of ICT.
- Skills linked to the LMD system.
- Teaching skills.
- Professional didactics.

Likert scale from 1 to 5 was chosen as a response option for the items that assess the teachers' acquired skills (01: strongly disagree, 05: strongly agree).

We conducted our survey a random sample of 50 out of 100 questionnaires distributed at one of the Algerian universities (Mustapha Stambouli University located in Mascara) on all the teachers (assistant professors class "A" and "B"), recruited between 2015 and 2016 and distributed in the seven faculties of the university (exact sciences/sciences and technologies/nature and life sciences/ business, economic and management sciences/law and political sciences/arts and languages/human and social sciences,).

### 3.2. Personal and professional information:

The sample consists of 39.9% male teachers and 60.1% female teachers.
70.2% of the sample is composed of assistant professors class "A" and 29.8% of assistant professors class "B" recruited between 2015 and 2016.
82.4% of the respondents hold a doctoral degree and 17.6% hold a Magister degree.
We took into account the age difference, 30% of the sample is composed of teachers under the age of 29; 40.8% of the interviewees are less than 39 years old and 29.2% of the teachers are under 49 years old.

### 3.3. Results and discussion:

Two main types of analyzes were performed to obtain the results showed below: Descriptive statistics and variance analysis (ANOVA).

#### *3.3.1. Descriptive analysis:*

The following tables show all the averages and standard deviations of the different skills developed by the new teachers.

*3.3.1.1. Skills related to the use of ICT:*

We noticed on the table showing the number of teachers' statements on skills related to the use of ICT that the highest averages concern the development of behavioral skills linked to the inter-functional relationships created through communication (see table 01), while teachers find difficulties to individualize learning and develop the students collaborative learning situations to encourage them to work in a team.

**Table 01: Skills related to the use of ICTs**

| | | Average | Standard deviation |
|---|---|---|---|
| S01 | Exchange and communicate remotely. | 4,290 | 1,1899 |
| | Develop adapted learning situations with different needs of the Students. | 2.345 | 1,2966 |
| | Know how to work between situations that require ICTs and those who do not use. | 3,586 | 1,2882 |

The last item concerning the modes of ICTs use, teachers find that computer tools facilitate certain actions that allow students to develop some skills (write, copy, calculate, research). However, the teacher remains essential to enable students to acquire the necessary *Know how* which does not require the use of ICT such as reflection, analysis, linking, argumentation, etc.

*3.3.1.2. Skills linked to the LMD system implementation:*

The LMD system implementation requires a new form of pedagogical organization which requires specific skills from the actors.
In this context, the respondents stated that working under the LMD system enabled them to develop the following skills: ability to work in a team and respecting the opinions of their

colleagues and their personal styles, the active participation in the meetings of training and research teams.
Concerning tutoring, the teachers interviewed claimed that they did not receive a training which allows them to carry out adequately this new mission and complained about the continuing change of the teaching programs. On the other hand, they stated that they teach according to the programs indicated in the new frameworks.
As for the platforms dedicated to training, teachers have a positive perception of the digital tools and environments of teaching-learning but they do not use them enough nor properly.

**Table 02:** ***skills related to the application of the LMD system.***

| | | Average | Standard deviation |
|---|---|---|---|
| S06 | Communicate on the didactics and the effective pedagogical techniques | 4.356 | 0.521 |
| | Teach in accordance with the programs shown in the canvas. | 4.387 | 0.572 |
| | Participate in the meetings of the training and research teams. | 4.214 | 0.486 |
| S07 | Participate in tutoring training | 1.256 | 0.645 |
| | Accompany students through pedagogical methods in their Learning. | 2.356 | 0.685 |
| | Support students in their projects and be mindful of their needs. | 3.985 | 0.574 |
| S09 | Set up pedagogical and distance training platforms | 3.652 | 0.802 |
| | Organize seminars, conferences and field surveys | 4.9851 | 0.599 |
| | Develop their skills by their own research. | 4.9821 | 0.487 |

*3.3.1.3. Teachers' pedagogical skills:*
According to the survey, the main difficulties encountered by the new teachers are pedagogical due to a lack of training on educational psychology. Teachers find difficulties to well know the abilities of their students and to transmit the idea that knowledge is in perpetual evolution. The only way to learn is to learn how to learn.
In terms of the LMD system implementation, the new teachers regularly find themselves in front of a large number of students to teach several different modules in which they have not been trained.
In this context, they do not feel that they are up to their tasks. They find themselves deprived in terms of teaching methods to face their professional activities. They also feel negatively judged by colleagues, the university board and students themselves.
The skills considered important by the teachers are:
Be aware of the relationship between the student's mental actions and the teaching tasks such as: attention, note-taking, understanding, analysis, synthesis, memorization and reflection. Teachers agree at 80% that it is also important to be patient in adapting to the different levels of students. This skill allows the student to develop his/her learning, adjust his/her mental actions and identify him/herself as a thinking being.

**Table 03:** ***Teachers ' pedagogical skills***.

| | | Average | Standard deviation |
|---|---|---|---|
| S02 | To be a psychologist to know the students and their abilities | 2.354 | 0.568 |
| | Teach students how to learn | 2.564 | 0.466 |
| | Differentiate between classical training and LMD training | 2.652 | 0.681 |
| S03 | Practice the pedagogical dialogue to overcome the difficulties of learning | 4.521 | 0.652 |
| | Plan and implement teaching methods | 4.289 | 0.548 |

| | | | |
|---|---|---|---|
| | Adapting to different levels of students | 4.698 | 0.512 |
| S04 | Center the teaching on the student. | 4.365 | 0.523 |
| | Adopt the competency-based approach to advancing learning. | 2.351 | 0.238 |
| | Make the student responsible for the choice of his/her learning | 3.211 | 0.631 |
| S05 | Set starting goals and reach them at the end of the course | 1.243 | 0.562 |
| | Use cognitive coaching. | 1.654 | 0.496 |
| | Bring learners to express themselves. | 3.251 | 0.675 |
| S10 | Ensure the quality of learning. | 2.366 | 0.635 |
| | Facilitate vocational insertion through teaching practices. | 1.235 | 0.544 |
| | succeed to animate the university-enterprise interface. | 1.114 | 0.645 |
| S11 | Mastering training evaluation tools. | 2.398 | 0.891 |
| | Involve the student in the evaluation of his / her knowledge. | 1.156 | 0.685 |
| | Identify learning difficulties | 4.128 | 0.701 |

According to their statements, teachers highlighted their perceptions about students, their understanding of the teaching process, their vision of knowledge and the expected benefits of learning for students. It appears that there is a strong focus on students and their learning.

Concerning the skill of learning assessment (S11), teachers report that continuous assessment is one of their major concerns because it enables to identify learning difficulties, except that they find it difficult to develop effective assessment criteria in an innovative education system such as the LMD system.

The skill of adapting to the class environment is often seen as a bête noire by new teachers. Many of them admit to have difficulties to provide a good quality of learning due to lack of professional experience.

*3.3.1.4. Professional didactics:*

The latest scientific work about the paradigm of learning and information processing tend to demonstrate that it is not knowledge *per se* that is instructive but the ability to present this knowledge to students in order to be acquired, applied and transferred in the form of skills (Tardif 1997).

In this context, the teachers interviewed are not able to intervene regarding the students' metacognitive skills which prevent them from anticipating the learning obstacles.

They believe that the continuing education they received allowed both to increase their basic skills acquired initially and to acquire other skills in other knowledge spheres.

The respondents believe that in order to succeed in placing the student at the center of learning, it is necessary to develop the students' linguistic skills, because they allow them later to be responsible for the development of their acquired knowledge through self-training. However, they find it difficult to adapt new didactic approaches to improve the education quality, and this is probably due to their modest experience in the field of education.

**Table04: *Professional didactics***

| | | Average | Standard deviation |
|---|---|---|---|
| S08 | Use clear and relevant language with students. | 2.396 | 1.240 |
| | Acquire the proper knowledge of the taught module. | 4.262 | 1.320 |
| | Know the importance of oral and written expression | 4.231 | 1.355 |
| S09 | Mastering the techniques of bibliographic research | 4.332 | 1,433 |
| | contribute to the evolution of the student's knowledge through his own research. | 4.321 | 1,435 |
| | Develop the modern and appropriate didactic approaches to Improvement in education. | 2.163 | 1.409 |

### *3.3.2. The variance analysis (Anova):*

To test the two hypotheses aforesaid, analysis of the significant differences observed in the development of professional skills in respect of factors (age, subject taught) revealed the following results (variance analysis was performed at a threshold of 0.05):

Regarding the respondents' age, an ANOVA reveals a significant difference in skill (s03) (awareness of the pedagogical dialogue) ($F(2.55) = 3.446$, $p = 0.034$), the Tukey post-hoc test reveals that teachers aged between 39 and 49 years old obtained a higher average in this skill than teachers aged between 29 and 39 years old ($p = 0.042$) and teachers aged less than 29 years old.

As for the teaching discipline, the results show that science and technology teachers obtained a significantly higher average in four of the twelve professional skills. They are the ones related to ICT command ($p = 0.002$), the use of team leadership techniques ($p = 0.000$), collaborative work ($p = 0.000$) and learning assessment ($p = 0.009$).

While the social and human sciences teachers obtained a significant average in the linguistic skill (S8) ($p = 0.024$) and the skill related to identification of the pedagogical action potential (S10) ($p = 0.040$).

## 4. CONCLUSION:

Skill of new teachers is a subject of great importance in the field of education. Actually, teaching training and professional efficiency are part of the themes that reign in debates.

Our study aimed to examine the skills of the new teachers by using as an analysis basis the 12 professional skills defined in the Algerian ministerial repository of 2016. The results obtained revealed the following points:

- The main difficulties encountered by the new teachers are pedagogical and didactic. Nevertheless, difficulties related to the other two categories should not be neglected. Yet, we can still consider that novice teachers have less difficulty to integrate into the university community than to obtain material resources adapted to their needs or to manage certain administrative procedures.
- Teachers find difficulties to individualize learning and develop collaborative learning situations for students to encourage them to work in a team.
- The professional practices of teachers are predominated by the acquisition of "knowledge" in comparison to "savoir faire". A serious reflection must be considered in this respect.
- Older teachers are fitter for developing the expected skills in the pedagogical dialogue.
- Science and technology teachers rapidly develop ICT skills while humanities and social sciences teachers develop linguistic skills better.
- Training received by teachers during their studies does not cover the diversity of a teacher's tasks.
- The measures taken by the Ministry of Scientific Education and Research to support teachers to integrate effectively into the profession are scarcely present and too often absent.

Despite the fact that all the new teachers complain about the continuing change of the teaching programs, they continue to teach according to the programs indicated in the new frameworks.

For this purpose, development of the teachers' professional skills has become an emergency in order to guarantee the quality of learning recommended under the LMD system.

In this context, teachers should focus on the following aspects:

- Pedagogical techniques,
- Communication skills,
- Class conduct and supervision,

- Definition of the pedagogical objectives,
- Assessment techniques,
- Higher education policies, and
- Legal status of the teaching staff.

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