The Skills of Phd students of Faculty of Sciences Ben M'Sik-Morocco, for processing information, communication and self-learning

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Abstract:- Our study aims to evaluate the skills of Phd students of the Faculty of Sciences Ben M'Sik, in terms of processing information, communication and self-learning. We have done above mentioned study on three categories of students in three different classes (1st, 2nd or 3rd year). And because of this detailed study we have not only become able to evaluate their skills and knowledge in every part, as well as measure their progress and professional growth in doctoral training.

We have just given Phd students the opportunity to witness so that they may judge the development and appreciate their self-evaluation and resultantly give their opinions and suggestions about discussed items. They have been provided with a detailed questionnaire and they responded by using their ability to apply scientific and technical literature and data processing for explicit exposure. They persuaded common public, practiced languages, adapted and improved their knowledge and methodology on a constant level.

This study gave us a remarkable vision about the flaws which Phd students have at different levels of doctorate. These flaws and deficiencies have been tried to be managed and erased in a definite way. We have met our goal by opting more efficient methods and improved solutions including targeted trainings that complied well with the specific needs of these graduate students.

Keywords:- Skills, PhD Student, Information, Communication, Self-learning, Processing, University, Professional, Doctorate, Conference or seminar, Levels of Languages, Data.

I. INTRODUCTION AND PROBLEM

Doctoral students often have serious difficulties in identifying and valuing all professional skills developed during their doctorate.

Now these skills would give them the possibilities, not only, to have a career as a researcher in the academic world, but also all types of crafts which require a strong capacity of innovation, and in all socio-economic, public and private sectors.

Doctoral students are brought by a personal reflection, to situate themselves at their doctoral training and to establish a scalable inventory skills developed during the PhD.

II. METHOD

2.1 Participants:

The target population of the survey consists of students (1st, 2nd, 3rd or more) of the Faculty of Sciences Ben M'Sik University Hassan II Mohammedia-Casablanca. PhD students have an average age of '27, 35 'between years (23 years and 41 years).

NB: the age of doctoral students has no specific criteria.

Our sample consisted of 160 doctoral students from several disciplines over three stages:

o **Step 1 (At the beginning of his PhD).**
o **Step 2 (In the middle of his PhD).**
o **Step 3 (In the final phase of his PhD).**

Table 1 Distribution of postgraduates' Steps' based on 'Sex.

			Step			Total
			Stage 1	Stage 2	Stage 3	
Sex	M	Employees	30	15	11	56
		% Included in your sex	53,6%	26,8%	19,6%	100,0%
		% of total	23,3%	11,6%	8,5%	43,4%
	W	Employees	38	17	18	73
		% Included in your sex	52,1%	23,3%	24,7%	100,0%
		% of total	29,5%	13,2%	14,0%	56,6%
Total		Employees	68	32	29	129
		% Included in your sex	52,7%	24,8%	22,5%	100,0%
		% of total	52,7%	24,8%	22,5%	100,0%

The three stages have a predominantly female workforce, represented by:

Step 1: (29.50% Female, 23.30% Male).
Step 2: (13.20% Female, 11.60% Male).
Step 3: (14.00% Female, 08.50% Male).

2.2 Measures:

Our investigation "Question Self-Assessment Skills PhD from the Faculty of Ben M'Sik" on the development of skills, consists of 155 questions divided into 04 major routes.

The first axis is a listing of general information about the students (Age, Sex, Status, Activity, email address, Doctoral Training Fellow, Finance PhD).

The second axis is the position of the doctoral student, wondered about how the student is in relation to its institutional environment and in relation to the progress of their research project (How do I stand in relation to my institutional, How I stand with respect to the advancement of my research project ...).

The third axis "evolutionary balance of skills used in the PhD" to collect as much information on the skills and knowledge developed during years of doctoral aims; namely: Information Processing, Communication, Self-learning, language ability, Project management, Teamwork, Networking, Scientific, technical and computer...
The last line "How do I project myself in a professional perspective" is a very important part that allows the doctoral student to give his view on the labor market and its prospects and its motivation projection in the trade considered. And this by asking questions about skills.

In more than 155 closed questions and accurate, we thought was open-ended questions to provide an opportunity for PhD candidate to speak out about their needs, ideas, intentions and prospects.

2.3 Procedure

The survey was conducted months of March, April, May, June and July 2014 I started by PhD students of the Chemistry Department. A period of 15-30 minutes devoted to each laboratory to explain the questionnaire and answer the questions of doctoral students. A period of one week was assigned to PhD students to complete.
Training was designed in collaboration with the CEDoc, which had the theme "The professional skills of doctoral students, developed as part of the doctoral training" Self-Assessment "," Made of 06 hours (2 hours / Step) 30 minutes for the presentation of the questionnaire and 1h30 granted for the completion of the questionnaire and support for doctoral students. And questionnaires were collected on site by myself and my supervisor.

2.4 Analysis:
A - Data processing

Table 2: Information processing, communication, self-learning.

	Total			
	Weak	Unsatisfactory	Satisfactory	Very good
I practice a documentary watch	21,40%	30,80%	37,90%	10,70%
I master the methods of bibliographic research (abstracts, databases, Internet, ...)	11,30%	27,00%	38 ,4%	23,3%
I can handle my electronic database	9,4%	32,10%	39,6%	18,9%
I know writing a literature review	12,6%	37,7%	39,0%	10,7%
I attend seminars, workshops or conferences	12,6%	17,6%	41,5%	28,3%
I know extract usable data from my raw scores	13,8%	27,00%	45,3%	13,8%
I know interpret actionable data	12,6%	27%	50,3%	10,1%
I know organizing and presenting data	9,4%	26,4%	44,7%	19,5%
I know analyze problems to translate in terms of research problem	12,6%	32,7%	40,9%	13,8%

This table is an important part of doctoral students claiming to be satisfied with their interpretation, organization and analysis of their data usable methods. However **21.40%** are less close to the practice's literature and methods of bibliographic synthesis.

Finding 1: **From this we understand that there's a specific doctoral stage who cannot use the scientific literature and technical interpretation of their data.**

B - Argumentation and Communication

Table 3: Arguments and Communication

	Total			
	Weak	Unsatisfactory	Satisfactory	Very good
I can do a review of various aspects of my research 1	12,00%	34,80%	38,60%	14,60%
I know write written reports to argue my conclusions 1	14,60%	27,20%	45,60%	12,70%
I know write a scientific paper in my field	13,90%	27,20%	39,20%	19,60%
I know submit an article to a journal and keep track of the proceedings	24,70%	32,30%	24,70%	18,40%
I know respond to questions and comments from experts who reviewed my article	20,90%	25,90%	38,60%	14,60%
I know present my research at a poster session 2	12,70%	24,10%	40,50%	22,80%
I know orally present my work at national / international conferences 2	15,20%	22,20%	43,70%	19,00%
I know rephrase my search results article, publication or communication 1	17,10%	29,10%	39,20%	14,60%
I can design adequate communication (posters, projected presentations, course materials or training, etc.)	17,10%	25,90%	43,70%	13,30%
I know how to adapt to the expectations of my interlocutor	12,00%	36,10%	37,30%	14,60%
I know my present research actors socioeconomic World 2	19,60%	41,80%	27,80%	10,80%
I know realize a hierarchy or project partners 1	20,30%	39,20%	27,80%	12,70%
I can listen and consider constructive criticism of my colleagues	11,40%	17,70%	47,50%	23,40%
I know convince my colleagues, my director or project partners in the interest of my ideas 2	9,50%	22,80%	44,90%	22,80%
I know write the minutes of a meeting 1	15,20%	30,40%	37,30%	17,10%
I am able to report orally to colleagues the content of a meeting or a conference 2	13,90%	26,60%	43,00%	16,50%
I can collaborate in an internal newsletter (electronic or paper) 1	18,40%	35,40%	31,60%	14,60%

I know pass on my knowledge and skills related to my research	**12,00%**	**24,10%**	**48,70%**	**15,20%**
I know lead a course or training	**12,70%**	**31,60%**	**36,10%**	**19,60%**
I actively participate in seminars including constructive criticism 2	**17,70%**	**33,50%**	**31,00%**	**17,70%**

Almost 30.00% of the students do not have the ability to write a report, a report, a simple communication or report.

An important part of doctoral represented by 41.80% do not have enough skills to present their research to stakeholders in the socio-economic world. And a quarter of PhD students have communication problems namely: present research, answering various questions of the speakers, attend a conference or seminar ...

Finding 2: **Doctoral students lack communicative and writing skills. It is found that candidates of a particular stage represent those who have more gaps than others.**

C – levels of languages

Tableau 4 : levels of languages

	Total			
	Weak	**Unsatisfactory**	**Satisfactory**	**Very good**
Assessed level in French	3,80%	13,40%	39,50%	43,30%
Assessed level in English or other	15,90%	40,80%	35,00%	8,30%

Doctoral students rate their level of 13.40% inadequate French and English or other 40.80%.
Finding 3: The PhD students as the years of doctoral improve their language level, starting with the first year.

D - Ability to adapt and continually enrich their knowledge and methods

Tableau 5 : Ability to adapt and continually enrich their knowledge and methods

	Total			
	Weak	**Unsatisfactory**	**Satisfactory**	**Very good**
I know what skills I need to raise my PhD	**14,40%**	**13,70%**	**46,40%**	**25,50%**
I know seize opportunities to develop my skills	**11,10%**	**30,10%**	**35,90%**	**22,90%**
I acquired new scientific skills I used in my research strategy	**13,70%**	**21,60%**	**39,90%**	**24,80%**
I adapted techniques or methods to my needs	**11,10%**	**24,20%**	**44,40%**	**20,30%**
I helped to create or improve techniques or methods	**20,90%**	**30,10%**	**37,30%**	**11,80%**
I make a point on my scientific and technical knowledge regularly	**13,10%**	**28,10%**	**43,10%**	**15,70%**
I developed scientific knowledge transferable to other areas of activity	**17,60%**	**32,70%**	**34,60%**	**15,00%**
I developed personal skills useful in any field of activity (autonomy, creativity, ...).	**16,30%**	**28,10%**	**30,10%**	**25,50%**
I read various publications	**13,10%**	**22,20%**	**37,90%**	**26,80%**
I know linking research seminars at which I attended my work (if applicable)	**15,00%**	**20,30%**	**47,70%**	**17,00%**
I am interested in other areas of science as my thesis	**17,80%**	**27,60%**	**37,50%**	**17,10%**
I can adapt to an international context	**16,40%**	**27,60%**	**38,20%**	**17,80%**
I spot the useful training and I do the steps to benefit	**19,10%**	**30,90%**	**33,60%**	**16,40%**

A roughly one-quarter of doctoral see the relationship with additional research (publication, conference, training ...). Insufficient.

More than 20.00% of the students did not have great opportunities to develop their skills are: scientific research on strategies, both personal value to their business areas.

More than a quarter say they have a doctoral level of adaptation, insufficient for methods or techniques, and the lack of ability to contribute to develop methods or techniques..

Approximately 30.00% of the students do not have enough scientific knowledge and others do not have the possibility of developing their knowledge.

Finding4: The skills of PhD students are changing in the years of doctoral, and they are certainly developed from one year to another.

III. CONCLUSIONS

Doctoral students need to develop their writing and communication skills with the advancement of their research progressively with the years of PhD, and they acquire a mastery of use of the scientific and technical literature, and to process and interpret data to the end of their PhD.

Progressively and when the PhD student takes a position in his thesis, he sees the importance of developing its languages (French and English which is the language of science, or other).

Doctoral training develops the phds students languages.

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