Strengthening the Teaching of Soft Skills in the Pedagogical Architecture of Moroccan Universities

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Abstract—The objective of this article is to initially build indicators that can measure the soft skills of students from Moroccan universities and to study the degree of homogeneity of these soft skills between students from different fields, then to study the correlation links that may exist between these soft skills. Our study has shown that communication is correlated with other soft skills, namely risk aversion, perseverance, self-esteem and sociability. Hence the interest of intervening in the training of students and the provision of the educational resources necessary to strengthen their soft skills such as the deployment of training workshops, as part of the activities of career centers and skills certification via partnerships with the Economic, Social and Environmental Council, which aims to develop the exchange of experiences and data and to mutually benefit, as well as with other cultural, scientific and foreign partners in order to support the reform of the Bachelor's cycle and the revision of the pedagogical architecture that results from it. The objective is to facilitate professional integration and promote the employability of young graduates of Moroccan universities. The construction of soft skills curricula, the training of trainers for teaching and the development of soft skills modules, the development of the educational tools necessary for the teaching of soft skills, training in the creation of online courses on soft skills are among the priority areas.

Keywords—soft skills, higher education pedagogy, e-learning, information and communication technologies for education, Morocco

1 Introduction

The reflection on Hard-Skills and Soft-Skills in academia has been the objective of previous reforms of the Moroccan Ministry of Higher Education and remains at the heart of the national and international debate, especially in open access establishments which are subject to massification , multilingualism and the professionalization of higher education as opposed to the traditional model with the objective of "transmitting specialized knowledge resulting from research through lectures which serve as support for Directed and Practical Work". Competency is a complex word as it contains different components (knowledge, skills, and knowledge to know how to act) and the fact that it is "the challenge of all human individuals and organizations." For Moroccan

higher education, the evaluation of reforms by the Higher Council for Education, Training and Scientific Research revealed the dropout rate of university students and highlighted the dysfunction in academic institutions open access by a report of the results of cohort Apogee, three Moroccan universities (Hassan II, Ibn Tofaïl and Abdelmalek Essaadi) which covers around a quarter of the total number of students at the national level over the entire period: "Regarding performance, only one-third on average students from all cohorts seem to get the basic license. "(National Evaluation Forum 2018, p.22). Other difficulties remain: How the different educational actors and socio-economic can make open-access academia favorable to learners wishing to validate their prior learning and enhance the knowledge on the competitive employment. What are the strategic and educational opportunities to adopt? How to strengthen the multiple intelligences of students according to their pace and develop in them the spirit of creativity and leadership. With what professional values and ethics in relation to the principle of subsidiarity [1]. How to detect signs of dropout students and academics and how to support them. This transdisciplinary issue is an interinstitutional challenge requiring a multitude of reflections. This paper aims to publicize multidisciplinary communications on recent research in this congruent theme through a combination of presentations of important themes in the following axes: Teaching Methods and Research Academics and development of soft skills. Educational engineering and leadership development. Scientific values and professional ethics. Information and communication technologies for education, e-learning, Learning Analytics (teaching methods, constraints and perspectives). Multilingualism and Technolect. Trades, future challenges and educational and scientific research. The rest of the paper is organized as follows, the second part represents the Pedagogical practices of skills, concept development of soft skills through seminars is reserved for the third part, The fourth part highlights the training in soft skills, the fifth part describes the role of the teacher in the educational component in the era of Soft Skills, the integration of Soft Skills into university training is detailed in part six, part seven portrays Soft Skills on an international scale, the integration of Soft Skills in the universities in Morocco - National strategy for vocational training 2021 is studied in part 8, the ninth part is reserved for the Conclusion.

2   Pedagogical practice of skills

The term skill refers to specific technical know-how or to fundamental knowledge. Unfortunately, personal skills don't seem to fit into the skill category. However, to meet the varied requirements of the working world, activating resources other than technical ones, putting them into practice and interacting in a context or situation, requires a register of so-called psychosocial skills. Soft skills have become one of the most sought-after concepts in the 21st century and in the world of work referring to communication skills, conflict management [2], human relations, make presentations, negotiation, team spirit [3], and other capacities, defined in terms of desired outcomes. The term refers to more personal characteristics that point to a high level of emotional intelligence. Recruiters seek to identify "soft skills" in candidates who apply for positions. For this

purpose, with equal skills how to distinguish two candidates. This is where "soft skills", a form of interpersonal skills, come into play to highlight the difference in profiles and decide on the final choice. Life skills are all the skills which are useful in life and which can be considered as essential skills. For example, learning to drive and using a computer are life skills for most people. Life skills are abilities that help people achieve success in their personal, educational, social and professional experiences. By cross Competence is an organized set of cognitive and metacognitive knowledge (knowledge, skills, attitudes) that enables the subject, within a family of situations, to adapt, solve problems and complete projects (Figure1). A transversal skill can be predominantly socio-affective (respect others, cooperate), or predominantly cognitive (memorize, structure information). Transversal skills dominant socio-affective have a crucial place in the construction of identity and personality. Among the transversal competences which are mainly cognitive, are those which concern the management of learning and those which relate to the processing of information. Hard skills are formally demonstrable skills, born out of technical and often academic learning. They are made official thanks in part to the notes, diplomas and certificates. Specialized skills called hard skills are specific, technical, often linked to the practice of a trade. They are "skills" that are taught that can be defined, specified and measured (therefore evaluated) such as mathematics, reading and using computer programs [4]. Technical skills, are specific skills that an individual possesses, helping them to perform a certain task. They are acquired through practice and learning such as computer decoding, programming, industrial painting, assembly, maintenance, assembly, construction, online sales.
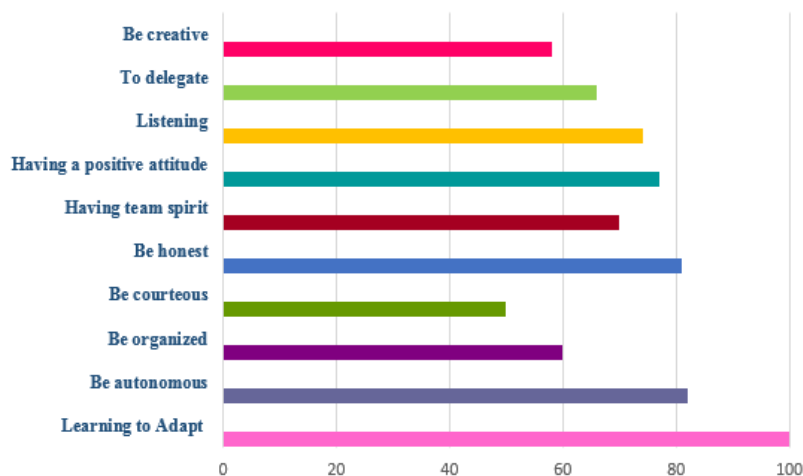

Fig. 1. The soft skills useful in a professional environment

Soft skills are all the "personal" skills that an individual can have. It could be adaptability, good listening skills, or even empathy. Some even classify leadership as a "soft skill". However, if this is already the case in the United States or the United Kingdom, in France they are only too little exploited, because little taught in school. Unlike hard skills, which are demonstrable skills, resulting from technical or academic learning,

measurable and certified by grades or diplomas, the "soft skills" are a true lever of performance and competitiveness for the company. In addition, these skills stand the test of time as they "build" the individual with or without the social group [2]. These are therefore skills that can be described as "free" that build "human capital" at the individual level. The soft skills are more related to what the people, rather than what they know. Considering that hard skills can be learned and perfected over time, soft skills are more difficult to acquire and change. Soft skills are inherent skills related to the character and personality of an individual. A person with strong soft skills such as the ability to express themselves easily can easily be a good leader. There are a multitude of methods and practices of this concept. This wealth of approaches is justified by the diversity of objectives, values and culture of the institutions concerned and finally the means available to teachers in order to achieve their goals. In contrast to "hard" skills, known as technical skills required to perform specific tasks in the practice of a trade, "soft skills" are widely applicable in all professional fields but difficult to identify in training programs.

3   Development of the soft skills concept through study cycles

Scientists are recognized for their intellectual agility. Some are less skillful in their relationships. Their behaviors can complicate their relationship at work and impact their performance; They can also slow the progression of their careers. We are convinced that the implementation of support during studies and during professional life can develop the soft skills of these scientists and be beneficial for themselves, as for the whole socio-economic system. In this paper, to better share our beliefs, we have formalized our thoughts in us pushing our scientific experiments and associates, as well as many references. We will start by laying down a number of definitions, based on our experience - the objective being to ensure a common vocabulary - to then argue on the usefulness of the development of soft skills for scientists and present possible support, "Soft skills" are defined in opposition to "hard skills", formally demonstrable skills, born of technical training and whose proof is provided by obtaining grades or diplomas. It is about " expertise". Soft skills are more diffuse and informal; they are oriented towards human interactions, the "skills". The Moroccan Ministry of National Education, Vocational Training, Higher Education and Scientific Research has formalized the soft skills to be included in the Bachelor program. Ability to work in a multidisciplinary team (achieve a common goal, facilitate interactions between team members, demonstrate commitment and enthusiasm, know how to manage your emotions and those of others) [5]. Understanding of professional and ethical responsibilities (awareness of societal and ethical issues takes a step back in a complex environment, analyze, synthesize and make recommendations based on facts, demonstrate moral integrity). Ability to effectively communicate orally and in writing (set the objective sought, namely articulate his message and adapt it to the interlocutor, argue to convince).

Understanding the impact of technological solutions in a global and societal environment. Recognition of the need for training throughout life (understand their training needs, develop an action plan).

4   The soft skills training is an investment

The university offers frequently based on a purely theoretical educational content. Yet current employers require more university courses to be able to offer a solid field experience to enable the graduate student to be ready for employment. The student must be able to directly apply his academic knowledge in the professional world. The multi-disciplinary training can meet this demand (Figure2). This intellectual maneuver is however little undertaken by the learners who often reveal their inability to apply their technical knowledge in the face of new situations. This problem comes from a seemingly dysfunctional education. Current models do not seem to deliver what is required by the market. They focus more on the transfer of information rather than on the cognitive development of students as critical-thinking. This view of teaching is now outdated. The knowledge economy increasingly requires direct use of knowledge learned in the professional world [6].
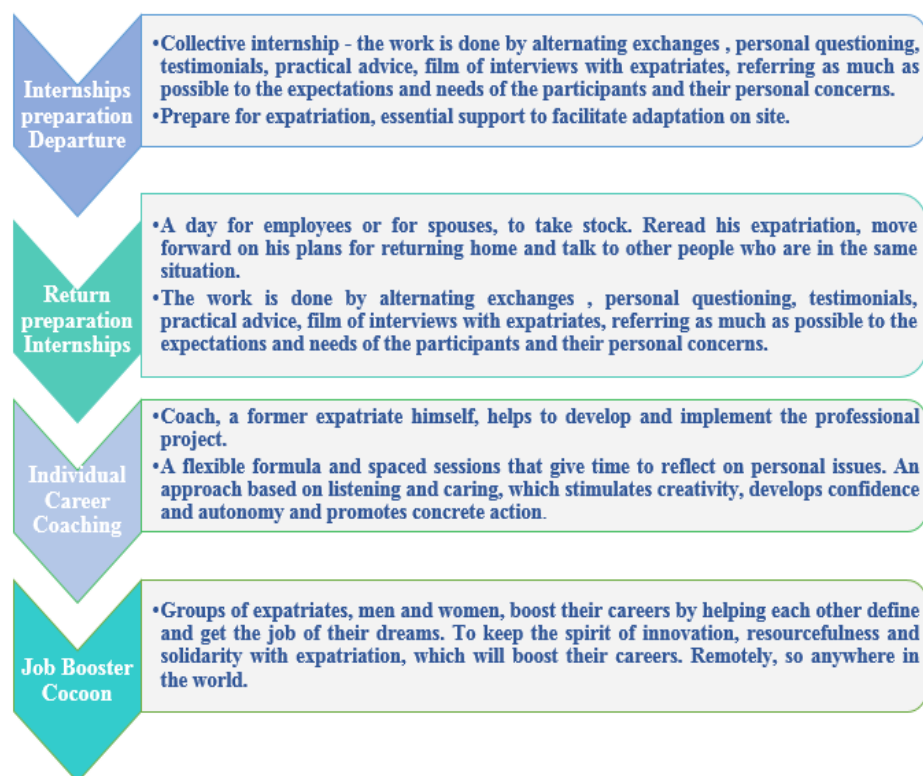

Internships preparation Departure
- Collective internship - the work is done by alternating exchanges , personal questioning, testimonials, practical advice, film of interviews with expatriates, referring as much as possible to the expectations and needs of the participants and their personal concerns.
- Prepare for expatriation, essential support to facilitate adaptation on site.

Return preparation Internships
- A day for employees or for spouses, to take stock. Reread his expatriation, move forward on his plans for returning home and talk to other people who are in the same situation.
- The work is done by alternating exchanges , personal questioning, testimonials, practical advice, film of interviews with expatriates, referring as much as possible to the expectations and needs of the participants and their personal concerns.

Individual Career Coaching
- Coach, a former expatriate himself, helps to develop and implement the professional project.
- A flexible formula and spaced sessions that give time to reflect on personal issues. An approach based on listening and caring, which stimulates creativity, develops confidence and autonomy and promotes concrete action.

Job Booster Cocoon
- Groups of expatriates, men and women, boost their careers by helping each other define and get the job of their dreams. To keep the spirit of innovation, resourcefulness and solidarity with expatriation, which will boost their careers. Remotely, so anywhere in the world.

Fig. 2. Soft Skills support

However, it should be noted that the practical learning of knowledge -experiential learning, does not necessarily stop at the traditional forms offered, such as the intern-

ship or the end-of-study assignment. The "cooperative education", derived form of alternation, which combines academic training period and total immersion in business, could be an option. The cooperative education weaves a very close and continuous relationship between the university and the employer upstream of the professional mission. This relationship ensures a coherent integration of specific learning objectives into the student's future professional work (Figure3). This cooperation also allows learners to gradually adapt to the professional world while applying the principles studied in class. Other more flexible solutions are also possible such as part-time or professional equivalence [7]. The latter allows the allocation of credits for professional work done as part of a student training. Industrial missions offered by partner companies, competitions, student consultation, the training provided by professionals or site visits are other exploitable opportunities. Learning is not limited only to purely academic or professional relationships. It can be supplied by other means such as during meetings or theme in clubs.
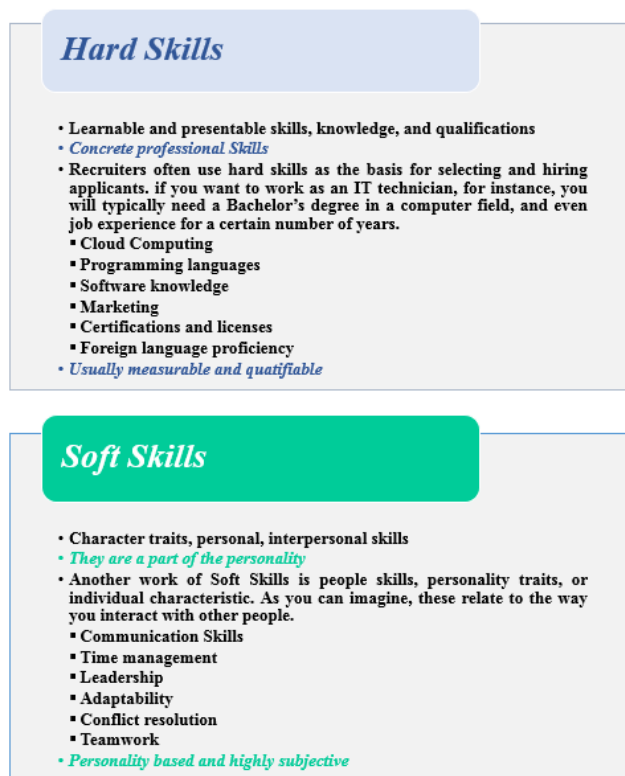
Fig. 3. The difference between Hard skills and soft skills

5 The role of the professor in the educational component in the era of soft skills

With content changes to achieve and pedagogical approaches to rehabilitate, it will be more necessary than ever for faculty to be more present in its function accompanist against the student. Eventually, the professor could become a personal mentor for the students. Artificial intelligence would take care of the teaching tasks. However, this previously require to make available more resources. This perspective opens new doors of access to faculty. With a simplification of the teaching tool, more professional practitioners would have the opportunity to be able to teach the reality of the world of work [8]. The question then arises as to how and who will teach the faculty to use the most recent technologies and the new recommended teaching methods. Strong growth in this category of jobs is expected. Communication between faculty and themselves would remain perhaps the best solution to enable them to innovate in teaching (Figure 4). The dissemination of innovative tutorials to help organize creative activities is an example often cited. The promotion of educational experiments can also involve the creation of an online community of new ideas. This would allow the sharing of best practices for teaching a subject at national or even global level. Professors' courses could even be reproduced or inspire new educational content adapted to more local issues. The work shared between the academy and industry would finally allow teachers to benefit from the latest innovations in research for the benefit of their students. Maintaining an active part in research is therefore absolutely necessary. Increased sponsorship between industries and universities can help [9].

Fig. 4. Skills configuration

6   The integration of Soft Skills in university training

For now, there is still no accurate solution on the integration of soft skills and education in current university courses. But there are five key elements to facilitate their interference in educational pedagogies: exposure, practice, feedback, reflection and personal experience. The soft skills must also be integral with the program in question, and should not be treated as independent components. Teamwork is not in itself sufficient, unless the members are from very varied fields of studies. Digital platforms can provide support in developing these skills. Scripting these through software may be possible. Apprenticeship would remain a privileged response [10]. The temptation to only teach soft skills through e-learning is strong and would prove to be a practical solution. However, artificial intelligence is not a sufficient substitute for reality. Digital technology is capable of improving the skills of everyone. But some skills such as social skills, teamwork, and presentation skills would require learning in a traditional environment. Social development is also to be taken into consideration. Despite growing demand for soft skills, today's students are less empathic and creative than in the past. In addition, students are not yet fully aware of the issue of soft skills. They visualize including poorly the links between the teaching of soft skills and their direct application in the realities of the working world.

7   The soft skills internationally

At beginning of each year's batch of "new trends". The recruitment sector is not spared by this trend. In France, 80% of jobs require one or more of these skills related to life skills. In a study in January 2019 more than 850,000 jobs, the international job search engine "Adzuna.fr" looked at the soft skills most frequently mentioned by French recruiters. This analysis was extended to five other countries (USA, Germany, Netherlands, UK and Italy) on a base of more than 5.5 million jobs. Reading the data collected abroad, we notice that not all countries are equally interested in the personal skills of applicants. The United States top the list of most soft skills applicant countries mentioned in 90% of analyzed job offers. The United Kingdom is no less concerned with human qualities of its candidates (86%). The demand for soft skills is also very strong in France (80%) and Germany (79%). It is slightly lower in Italy (72%) and the Netherlands (70%) (Figure5) [11].
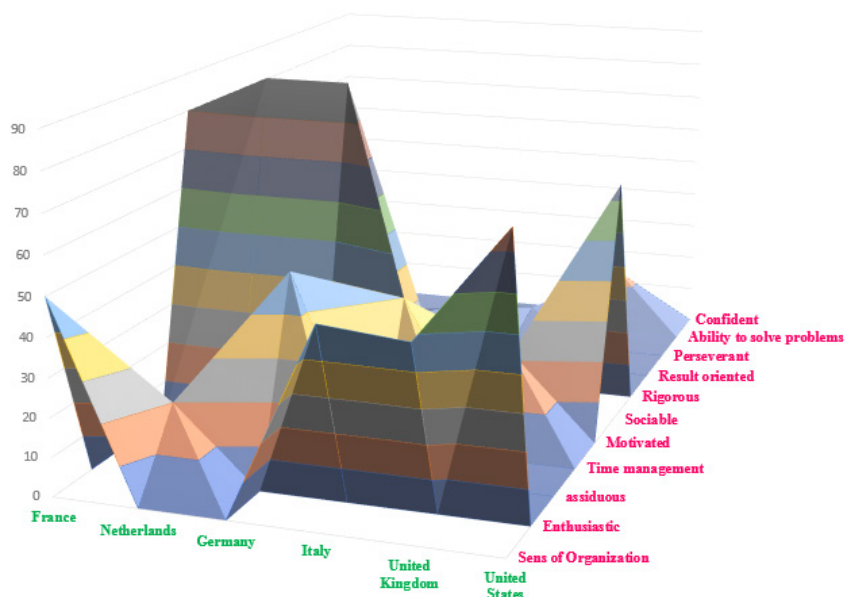
Fig. 5. International practices in soft skills
http://www.reapcmaroc.com/pages/pub/doc/benchmark_competences_cles.pdf

Internationally, the most requested skills are organization and motivation in all countries. However, there are notable differences between English-speaking countries and their European counterparts. Thus, more than a quarter of British and American recruiters ask for organizational skills, compared to 10% in France and Italy. From one country to another, we do not value the same personal skills. Thus, the United States, the skills are highly valued, a candidate must have organizational and communication skills. In general, the Anglo-Saxon countries have important similarities in their demand for soft skills. Note, however, that in the United States, attendance is preferred to British motivation. In the Netherlands and Germany, recruiters focus on the voluntary behavior of their future recruits, which must be animated by a yearning to want. Enthusiasm, motivation and performance culture dominate the expectations of recruiters [12]. Finally, France and Italy focus on the way of working and the general behavior of candidates. A potential recruit is expected to know how to prioritize their tasks, organize and manage their time rigorously in order to be able to plan long-term actions.

8 The integration of soft skills in the universities in Morocco

The new educational system adopted in Morocco is supposed to be adapted to the integration of any additional training deemed relevant, personal development and improvement of disciplinary or technical skills of students. It introduced new pedagogical and administrative responsibilities for teachers, pushing them to be more active and to

participate in the creation of courses and the management of modules. The announcement of an education policy or a reform of change in education serve by the experiences of other countries, whether North or South, tinged with nobility and objectives of a highly equitable character. The texts repair many injustices or failures findings in either systems or in human relations, taking into account regional differences or other and by reinstating a set of principles valid and applicable to all [13]. As with all reforms, it is the plans for their implementation that specify the ambitions and give the right measure of the achievement of the objectives in the short, medium and long term. As for the current targeted change in the education and training system. However, it is not clearly demonstrated "how" these results will be achieved in the reality of the facts until their significance in the heart of classes and classrooms.

8.1 National strategy for vocational training 2021

As stipulated in the text of the National Vocational Training Strategy 2021, the development of key skills (soft skills) aims at the integration and integration of young graduates of the training system (Figure 6). The objective is clearly established to intervene in the most optimized format and scenario on training programs developed using a skills-based approach [14]. The purpose of this integration is to improve the employability of these young people on the labor and to ensure the prerequisites at the level of the entry profile in the vocational training system.
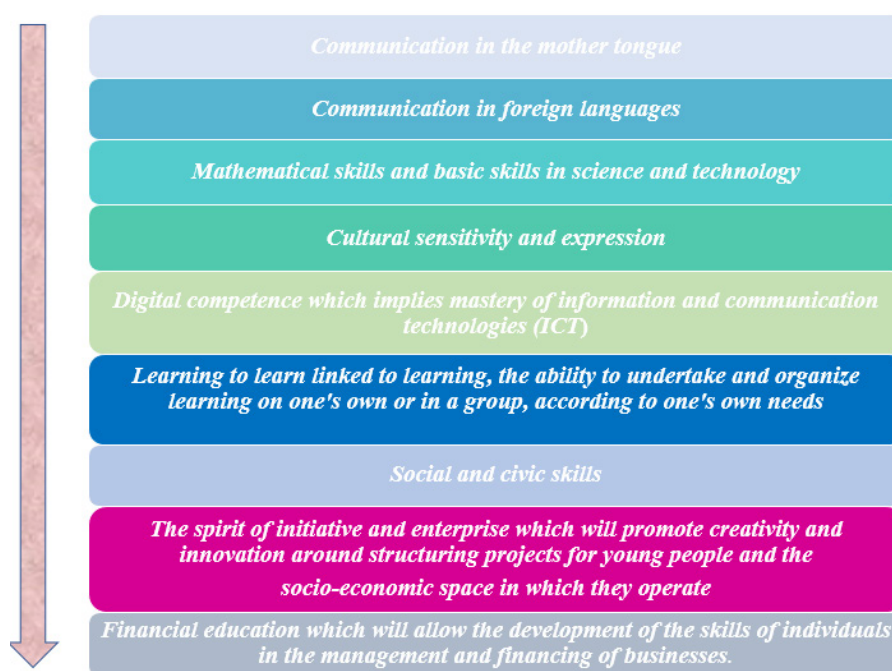

Fig. 6. The skills identified

The overall vision 2021 pre-orients any intervention subsequent to the entrepreneurship development opportunities, self-employment, the creation of businesses to support the modernization and performance of the productive fabric for greater competitiveness of the national economy. The choice of skills deemed "key", however, recalls the ambition of the text of the reform of education especially concerning languages or citizenship and intercultural. These skills or "knowledge" are supposed to be acquired by candidates for vocational training who have completed their basic education up to the final class (the minimum prerequisite for entering the first level of university entry) [15].

Public training (initial training) is offered in Morocco mainly through the vocational training establishments of the National Office for Vocational Training. However, there is a sectoral ministerial offer which refers to other training departments (such as agriculture, tourism, fishing, health, crafts, etc.) and there is also a private offer in addition to intermediation interventions for employability purposes offered by the National Employment Agency. As is the case in many countries, vocational training has not always had a positive image in Morocco, considered by young people and employers as a default solution for students who have failed in the education system. Today, its positioning has significantly improved even though there is still a lot of work to be done on changing the perception of these professionalization paths as first choices and not just alternatives [16]. For countries like Morocco, where the higher education system expands to accommodate more and more new students, it can be difficult to envisage the simultaneous incorporation of new teaching methods and new content (Figure7). And it must be recognized that the primary and secondary education system does not provide socio-emotional learning content or psycho-pedagogy for the moment. Also, each phase of development and education brings special opportunities to acquire specific soft skills. This would allow us to conclude that it is more efficient to identify the right strategy for acquiring skills for each period of life and depending on the acquisition environment: school, community group, university, workplace, etc. Moroccan universities and vocational training institutes have set up training called "personal development" that is, "soft skills" in areas such as communication, project management, entrepreneurship, collaborative learning and extracurricular activities. However, given the lack of basic skills in the case of students who have gone through a system dominated by traditional pedagogy and given the huge demand expressed by employers, it seems important to reflect on the type of skills to focus on and how to integrate them into educational experiences, training or professional activities.
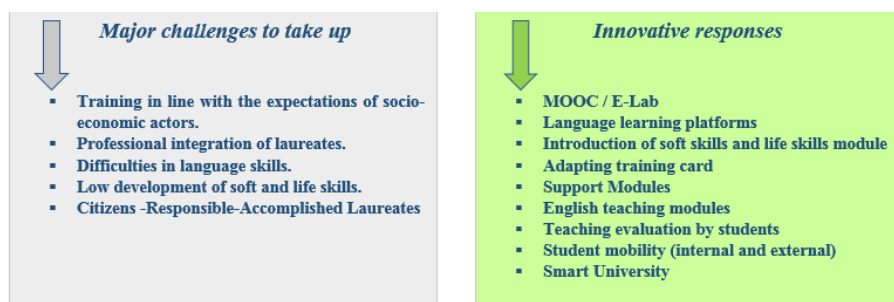

Major challenges to take up
- Training in line with the expectations of socio-economic actors.
- Professional integration of laureates.
- Difficulties in language skills.
- Low development of soft and life skills.
- Citizens -Responsible-Accomplished Laureates

Innovative responses
- MOOC / E-Lab
- Language learning platforms
- Introduction of soft skills and life skills module
- Adapting training card
- Support Modules
- English teaching modules
- Teaching evaluation by students
- Student mobility (internal and external)
- Smart University

Fig. 7. Introduction of soft skills modules

The development of personal skills and soft skills is not well established, as mentioned above, in the educational programs of the Moroccan public education system currently. They are rarely the subject of learning objectives or even specific modules clearly included in the programs (Figure 8). This does not include language and communication modules which remain a standard requirement in most programs and in fact affects all disciplines and courses of education especially at higher level [17]. Problems arise when their mandatory nature, quality and level of ownership by learners and the conditions of their acquisitions (methods, strategies, teacher proficiency level). There are certain institutions, such as Business Schools or Engineering Schools, which are distinguished by their openness to soft skills, thus following European concerns (particularly French) as to the needs for enriching professional profiles. Their pedagogical approaches are increasingly based on new training and coaching practices for students to help them improve their personal skills and prepare them for the world of work.
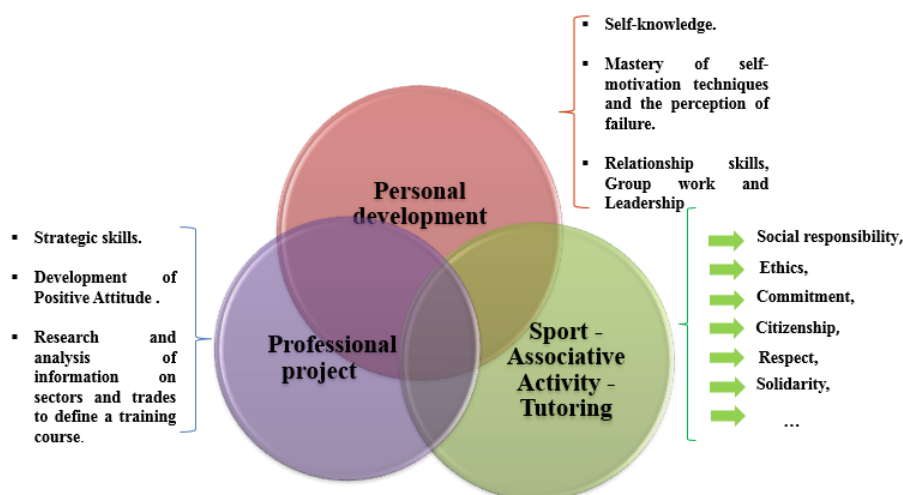

Fig. 8. Soft skills module content

8.2 The supply of key skills in higher education

National Schools of Business and Management are public schools with regulated access and under the jurisdiction of the university system. They specialize in business and management and represent a national network of 9 institutions in Casablanca, Marrakech and Tangier. The National Schools of Business and Management are among the most respected schools in Morocco. Their success is largely based on the close cooperation they have with the professional world and the business world. In these establishments, skills-called "soft" are integrated in the module group "Tools and Methodology". This group includes modules in several areas of personal and professional development. "Soft" skills are also reinforced through personal and professional projects, internships and extracurricular activities (including social skills and self-control) [18]. National

business and management schools generally offer dedicated services for the organization of internships and work placements. In some cases, there is also a new graduate tracking system to support them during the first six to twelve months after being hired. The job placement rate of graduates of national schools of Trade and management is high and the maximum period of job search is less than one year.

The National Schools Network of Applied Sciences has 11 institutions in Morocco. They provide training based on a 2-year preparatory course followed by 3 years of specialization. In these engineering schools, the main emphasis is on the "Basic and Specialized Scientific and Technical" modules. However, the pedagogical approach adopted is open to various teaching methods (Figure 9). These include projects, personal creations, teamwork and the use of Information and communication technologies for education and can be found in the "Management" and "Languages, Communication and Information and communication technologies for education" modules. These modules represent 20% to 40% of all training hours [19]. They are present in the programs of the National Schools of Applied Sciences in Marrakech and Tangier. As in national business and management schools, language, interpersonal, social and self-control skills are integrated into personal and professional projects, internships and extracurricular activities. Regarding support for graduates in job search, the National Schools of Applied Sciences in Tangier, for example, has signed an agreement with the National Employment Agency allowing it to help young graduates with job search training programs, simulations of interviews, Curriculum Vitae and cover letter. Graduate schools of technology are different from other schools and faculties in that they can select students based on the review of their application files, which allows them to take the best. There are thirteen higher technology schools in Morocco which form a network in various Moroccan cities [20]. The higher schools of technology are specialized in technical training, the duration of study is 2 years (4 semesters). There are higher schools of technology in several cities: Oujda, Agadir, Casablanca, Meknes, Sale… And so on. They provide technical and scientific training in several areas: chemistry, computer science, mathematics, biology, electronic engineering, industrial engineering, automatic electronics, etc. These schools train senior technicians in the various technical specialties. At the end of their diplomas, the laureates can continue their studies in the various Moroccan engineering schools or business schools. Public institutions with free access include the faculties of legal, economic and social sciences, the faculty of letters and humanities, the faculty of sciences and multidisciplinary faculties. Training in these faculties offers professional bachelor's, master's and doctoral degrees [21]. The training modules in these faculties are according to the teaching specializations, separated into two groups. The main modules represent 75-85% of the total hours, and the additional modules represent 15-25% of the total volume [22]. The Faculties of Legal, Economic and Social Sciences gather the largest number of students in Morocco, i.e. around 40% of all Moroccan university students. These faculties include several departments: economics, management, private law and public law. They offer several vocational training courses according to the needs of the labor sector. Due to the large number of students pursuing bachelor's degrees, modules to enhance soft skills Faculties of legal, economic and social sciences involve work experience and a level of mastery [23]. This means that they concern a very limited number of students who are already relatively well

disposed to this type of education. The Faculties of Letters and Human Sciences have the second highest number of students in Morocco. Their studies cover language, literature, Islamic studies, journalism, geography, history and civilization, sociology, philosophy, heritage of social development and many others. They also offer professional courses such as publishing, journalism, tourism, and more. The courses do not include dimensions other than disciplinary.
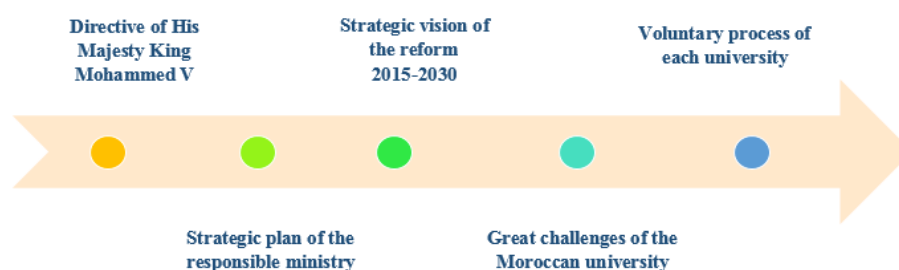

Fig. 9. Pillars and basic references

9   Conclusion

Moroccan scientists rely on their expertise to succeed in their professional life. However, without having developed their "soft skills", non-technical skills or interpersonal skills, they may not bring their full potential to their professional environment. Supporting scientists in the development of their soft skills allows them to adapt to changes in their environment, to increase their employability and, more generally, to contribute to the economic success of Moroccan society. Scientists can be supported in the development of their soft skills during their studies and their professional career, in particular through training, mentoring or coaching or even through platforms. This research paper presents the principles of each of these support methods as well as illustrations of programs successfully developed during studies or during professional life.

10   Origin of data

The data used for the study is an internal interministerial data belonging to the Moroccan administration. The data source is based on a benchmarking report of key competencies, in which international "soft skills" practices were emphasized. Developed countries like France and Germany were considered in the benchmarking process. In addition, the level of expertise regarding "soft skills" and "hard skills" in the Moroccan context as a developing country was assessed, based on which recommendations were made.

11 References

[1] Sara Riahi, Azzeddine Riahi,''The Pedagogy of Higher Education: How to Evaluate the Quality of Training in Morocco to Improve it. Int. J. Eng. Pedagog. 8(1): 92-108 (2018). https://doi.org/10.3991/ijep.v8i1.7984

[2] Sara Riahi, Azzeddine Riahi,'' Game theory for resource sharing in large distributed systems '', International Journal of Electrical and Computer Engineering IJECE, ISSN: 2088-8708, vol 9 No 2, April 2019. http://doi.org/10.11591/ijece.v9i2.pp1249-1257

[3] Riahi S., Riahi A. (2020) Self-optimization of Wireless Systems: An Approach by the Game Theory. In: Ezziyyani M. (eds) Advanced Intelligent Systems for Sustainable Development (AI2SD'2019). AI2SD 2019. Advances in Intelligent Systems and Computing, vol 1106. Springer, Cham. https://doi.org/10.1007/978-3-030-36677-3_15

[4] S. Riahi and A. Riahi, "Energy Efficiency Analysis in Wireless Systems by Game Theory," *2018 IEEE 5th International Congress on Information Science and Technology (CiSt)*, Marrakech, 2018, pp. 630-635. https://doi.org/10.1109/CIST.2018.8596488

[5] KUMAR, Sanjeev et HSIAO, J. Kent. Engineers learn "soft skills the hard way": Planting a seed of leadership in engineering classes. *Leadership and management in engineering*, 2007, vol. 7, no 1, p. 18-23. https://doi.org/10.1061/(ASCE)1532-6748(2007)7:1(18)

[6] *Integrating soft skills assessment through soft skills workshop program for engineering students at university of Pahang: an analysis*, International Journal of Research In Social Sciences, 2013 IJRSS & K.A.J. All rights reserved, Vol. 2, No.1, ISSN 2307-227X, pp: 33 – 46. https://core.ac.uk/download/pdf/159181367.pdf

[7] GIBB, Stephen. Soft skills assessment: Theory development and the research agenda. *International journal of lifelong education*, 2014, vol. 33, no 4, p. 455-471. https://doi.org/10.1080/02601370.2013.867546

[8] MAJID, Shaheen, EAPEN, Chithra Mary, AUNG, Ei Mon, *et al.* The importance of soft skills for employability and career development: Students and employers' perspectives. *IUP Journal of Soft Skills*, 2019, vol. 13, no 4, p. 7-39. https://www.semanticscholar.org/paper/The-Importance-of-Soft-Skills-for-Employability-and-Majid-Eapen/b227efe45c29d0cce176e11ad9df0f39413623a1

[9] Bandura, A. (2011). Social cognitive theory. In A. W. Kruglanski, E. T. Higgins, & P. A. M. Van Lange (Eds.), Handbook of Theories of Social Psychology: Volume One (p. 349). London: SAGE. https://doi.org/10.4135/9781446249215.n18

[10] HENDARMAN, Achmad Fajar et CANTNER, Uwe. Soft skills, hard skills, and individual innovativeness. *Eurasian Business Review*, 2018, vol. 8, no 2, p. 139-169. https://doi.org/10.1007/s40821-017-0076-6

[11] Tatyana Anisimova, Aigul Ganeeva, Landysh Sharafeeva,'' Development of Digital Skills and Engineering Thinking in Students as Part of the Digital Summer Project'', International Journal of Engineering Pedagogy (iJEP), iJEP – Vol. 11, No. 2, 2021. https://doi.org/10.3991/ijep.v11i2.17215.

[12] American Society for Training and Development (ASTD). (2012). Bridging the skills gap: help wanted, skills lacking: why the mismatch in today's economy. Available online at: https://www.nist.gov/sites/default/files/Bridging- the-Skills-Gap_2012.pdf

[13] SETIANI, Fani et RASTO, Rasto. Mengembangkan Soft Skill Siswa Melalui Proses Pembelajaran. *Jurnal Pendidikan Manajemen Perkantoran (JPManper)*, 2016, vol. 1, no 1, p. 160-166. https://doi.org/10.17509/jpm.v1i1.3272

[14] Nusrat, M. and Sultana, N. (2019), "Soft skills for sustainable employment of business graduates of Bangladesh", Higher Education, Skills and Work-Based Learning, Vol. 9 No. 3, pp. 264-278. https://doi.org/10.1108/HESWBL-01-2018-0002

[15] Salas Velasco, Manuel. "More than just good grades: candidates' perceptions about the skills and attributes employers seek in new graduates." Journal of Business Economics and Management 13, nº 3 (2012):499-517. https://doi.org/10.3846/16111699.2011.620150

[16] Mykhailo Poliakov, Sergii Morshchavka and Oksana Lozovenko,'' Developing Students' Skill to Identify Properties of Cognitive Control Systems'', iJEP – Vol. 8, No. 4, 2018. https://doi.org/10.3991/ijep.v8i4.8137

[17] DOLCE, Valentina, EMANUEL, Federica, CISI, Maurizio, *et al.* The soft skills of accounting graduates: perceptions versus expectations. *Accounting Education*, 2020, vol. 29, no 1, p. 57-76. https://doi.org/10.1080/09639284.2019.1697937

[18] Pamela A. Maher, Janelle M. Bailey, Allan M. Tucka,'' Teaching Process Skills to Pre-Engineers using Situated Learning—A Case Study'', International Journal of Engineering Pedagogy (iJEP), iJEP – Vol. 8, No. 5, 2018. https://doi.org/10.3991/ijep.v8i5.9036

[19] FINCH, David J., HAMILTON, Leah K., BALDWIN, Riley, *et al.* An exploratory study of factors affecting undergraduate employability. *Education+ Training*, 2013. https://doi.org/10.1108/ET-07-2012-0077.

[20] J. Bailey and R. B. Mitchell: "Industry Perceptions of the Competencies Needed by Computer Programmers: Technical, Business, and Soft Skills," Journal of Computer Information Systems, 2006, VOL 47; No 2, p. 28-33. https://www.tandfonline.com/doi/abs/10.1080/08874417.2007.11645951

[21] MORGAN, Gareth et ADAMS, Jean. Pedagogy first! making web-technologies work for soft skills development in leadership and management education. *Journal of Interactive Learning Research*, 2009, vol. 20, no 2, p. 129-155. https://www.learntechlib.org/primary/p/25256/

[22] Y. Sedelmaier and D. Landes, "A Research Agenda for Identifying and Developing Required Competencies in Software Engineering," International Journal of Engineering Pedagogy (iJEP), vol. 3, no. 2, pp. 30–35, 2013. http://dx.doi.org/10.3991/ijep.v3i2.2448

[23] Yvonne Sedelmaier and Dieter Landes, '' SWEBOS – The Software Engineering Body of Skills '', International Journal of Engineering Pedagogy (iJEP), iJEP – Volume 5, Issue 1, 2015. http://dx.doi.org/10.3991/ijep.v5i1.4047

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