RETHINKING THE ESP COURSE FOR ENGINEERING STUDENTS AT THE NATIONAL SCHOOL OF APPLIED SCIENCES TO SUPPORT THE POST-COVID ENTREPRENEURIAL INITIATIVE IN MOROCCO

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Abstract

Morocco adopted strong health security measures to confront early on the global outbreak of coronavirus. However, like other middle-income countries, the health emergency and lockdown strategy has resulted in substantial economic hardship and unemployment increase. To face this problem of higher unemployment rates, mainly among young graduates, Morocco has further promoted an already adopted strategy to create multiple investment opportunities to develop the "entrepreneurial spirit" among students. Higher education institutions have been called, hence, to respond to and support this post-Covid 19 initiative. In this respect, this paper aims to report the results of an action research project on the integration of entrepreneurial soft skills activities in the English curriculum to help engineering students of the National School of Applied Sciences of Fes acquire the essential skills they need for a better professional integration as future entrepreneurs and initiators of innovative projects. At the end of this study, the participants had to answer a survey questionnaire on their perceptions of this teaching/ learning program. The results reveal a positive attitude of the respondents and stress the importance of incorporating learning activities in English classes that enhance soft skills. The results also emphasize some

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recommendations on the need for students to take part in on-site training by mentors in the workplace during their internship to have a chance to learn from genuine first-hand experiences.

Keywords: active learning, entrepreneurial soft skills, ESP course, post-covid higher education, vocational education

Resumo

Marrocos adoptou fortes medidas de segurança sanitária para fazer face ao surto global de coronavírus. No entanto, tal como outros países de rendimento médio, a estratégia de emergência sanitária e de bloqueio resultou em dificuldades económicas substanciais e no aumento do desemprego. Para enfrentar este problema de taxas de desemprego mais elevadas, principalmente entre os jovens licenciados, Marrocos promoveu ainda mais uma estratégia já adotada para criar múltiplas oportunidades de investimento para desenvolver o "espírito empresarial" entre os estudantes. As instituições de ensino superior foram chamadas, portanto, a responder e a apoiar esta iniciativa pós-Covid 19. A este respeito, o objetivo deste documento é relatar os resultados de um projeto de investigação-ação sobre a integração de atividades de *soft skills* empresariais no programa de língua inglesa para ajudar os estudantes de engenharia da Escola Nacional de Ciências Aplicadas de Fes a adquirir as competências essenciais de que necessitam para uma melhor integração profissional como futuros empreendedores e promotores de projetos inovadores. No final deste estudo, os participantes responderam a um questionário sobre as suas perceções deste programa de ensino/aprendizagem. Os resultados revelam uma atitude positiva dos inquiridos e sublinham a importância de incorporar atividades de aprendizagem nas aulas de inglês que melhorem as competências transversais. Os resultados também enfatizam algumas recomendações sobre a necessidade de os estudantes participarem em formação no local de

trabalho conduzida por mentores, durante o seu estágio, para terem oportunidade de aprender com experiências autênticas em primeira mão.

Palavras-chave: aprendizagem ativa, *soft skills* empreendedoras, curso ESP, ensino superior pós-covid, ensino profissional

1. Introduction

As a result of globalization and the shift from a production and technology-enhanced economy to a knowledge-based economy, the criteria for job success have changed. Besides, the post covid economic crisis has revealed the need for a workforce that has the soft skills required to adapt to the challenges imposed by the new normal and promote the success of an organization.

In fact, with the increase in unemployment rates all over the world due to the coronavirus pandemic, entrepreneurship has become the object of all attention. It is perceived as being one of the solutions to economic recovery in the face of a crisis like the one experienced by the Covid-19 crisis. In Morocco, as well, entrepreneurship appears to be an energizing value in an economy already tired of market competition. Many initiatives have been further enhanced by the public authorities in Morocco to promote entrepreneurship, like in other countries (for example, the status of the auto-entrepreneur, the status of the student entrepreneur, the Moukawalati programme, etc.). The success of such a national initiative imposes several challenges to be overcome collectively. In line with this, higher education has been called to participate in this process.

Enhancing the employability of graduates within this new framework has become, therefore, one of the main concerns for higher education. Within this context, the national technical and vocational education and training (TVET) strategy has been adopted to

facilitate the integration of students into the workplace. This strategy aims to enhance the cooperation between TVET higher education institutions and employers to determine the skills needed in different work fields (WorldBank Document, 2020). In this respect, Engineering schools, like the National School of Applied Sciences of Fes, have to recognize the importance to equip future engineers in the 21st-century workplace with effective soft skills beyond technical knowledge. These are practical skills that can promote future engineers' employment perspectives and facilitate their social inclusion in the professional setting. In response, teachers are required to adapt their instruction models in a way that integrates the interpersonal skills that their students need to be successful leaders in a globalized, competitive vocational context.

In fact, most professors are aware of the importance of teaching soft skills as a paramount requirement for future graduates, especially those they have come across instances of students who used to be academically among the top achievers but failed to get a job. So, they are aware that though these skills are considered soft, these students had a hard time succeeding in the workplace without them. But the challenge for most professors is how to manage to teach them as an extra burden. Well, there are two schools of thought concerning the teaching and development of 'soft skills' (Moore, 2004): the generalists and the specificits. The generalists are for an autonomous approach to teaching soft skills. This means that a teacher should teach them separately from curriculum content. And this is the reason why teachers may feel it is an extra burden. By contrast, the specificits argue that attributes, such as the ability to think critically, cannot be separated from their disciplinary context (Moore, 2004). Therefore, the teaching of soft skills needs to be embedded into each course as an intermixed approach. In line with this approach, this paper describes a first-hand teaching experience using an active learning model to incorporate entrepreneurial soft skills in the English curriculum for engineering students at the National School of Applied

Sciences of Fes. This model outlines best teaching practices to instil in a systematic way the development of soft skills such as positive behaviour and attitudes, creativity, critical thinking, problem-solving, teamwork and communication skills in the daily teaching and learning activities with more student involvement. Interest in this active learning approach comes from the fact that there has been a growing demand in the literature for adopting an active learning approach to motivate students towards active, cooperative and autonomous learning (Harmin &Toth, 2006, p.3). According to Bonwell & Eison (1991), active learning as an approach to teaching actively engage students with the course material through discussions and problem-solving. Hence, this learner-centered approach to education enables students to learn more because they actively participate in the learning process.

2. Review of the literature

2.1 The importance of soft skills in higher education

There is recently a growing need for developing soft skills in higher education to increase the employability of future graduates. In the world of business and entrepreneurship, particularly, to be considered first-rate professionals, employees must have both technical and soft skills (Blesa & Ripollés, 2020, p. 99). In this respect, (Blesa & Ripollés, 2020, p. 99) assume that employees must have both technical and soft skills in order to be considered first-rate professionals in the world of business and entrepreneurship. Robles (2012, p.461) reports that the National Business Education Association's Policies Commission for Business and Economic Education noted the upcoming shortage of interpersonal skills in today's workplace and stresses the need for integrating soft skills in order to increase students' employment opportunities and professional development prospects in their future job positions.

According to Chamorro-Premuzic et al. (2010), soft skills are perceived as important in higher education. However, they are rarely included in the course curricula. Tsang (2009) emphasizes that students should be recognized as "evolving professionals". This approach advocates the formation of a professional identity. Embracing the "evolving professionals" concept implies that educators have to bring professionalism goals explicitly into their curricula by explicitly integrating soft skill development content.

2.2. Active learning: evidence of effectiveness

Active learning is different from traditional lecture-based learning where students are expected to be passive recipients of the teacher's instructions. By contrast, active learning involves an active role of the student in a research-based process of learning by doing (Dancy et al., 2016). This is because classroom activities are designed to engage students in their learning through solving problems, discussing content, critical thinking, and evidence-based instructional practices (Stains & Vickrey, 2017).

There is overwhelming evidence in the literature supporting the effectiveness of active learning. Proponents of this approach believe that activities that incorporate problem-based learning, project-based learning, inquiry-based learning and other forms based upon learning by doing, reflective and cooperative learning help students develop many soft skills required in the job market. In this respect, Malheiro et al. (2013) report the results of a one-semester project-based learning program designed for engineering students. The participants are challenged to solve real-world multidisciplinary problems. The project involves teamwork, seminars, critical thinking and self-evaluation activities aimed at enhancing both technical competencies and transversal skills. The results demonstrate that the participants

develop during this one semester project the necessary hard and soft skills to analyse, propose, implement and evaluate a solution for a multidisciplinary problem.

Another study reported by Urios et al. (2017) advocates the use of active learning to enhance student engagement and motivation to learn. This work documents the results of implementing a flipped-classroom methodology in a classroom of chemical and materials engineering students. This methodology is based on student-centered teaching, peer instruction, self-evaluation and active learning. The results show that adopting this classroom strategy promotes learner autonomy, motivation, and time management as well as improved learning outcomes.

In the 21st digital age, it has become a challenge to engage a generation of learners obsessed with the use of technology. Teachers are required, therefore, to design material that can keep learners active and involved. For instance, Barr and Gunawardena (2012) advocate the effective use of an innovative educational technology tool called Classroom Salon. It is an online social collaboration tool that allows students to be active participants in the teaching/ learning process. These students contribute actively to a social network by creating documents, evaluating content, answering questions and peer reviewing.

3. The study

3.1. Research questions

This study seeks to answer two main research questions:

- What are engineering students' perceptions of the importance of entrepreneurial soft skills for their future?

- What are students' perceptions of integrating active learning activities to help them acquire some key entrepreneurial soft skills?

The assumption is that students can be aware of the importance of soft skills for their future vocational prospects and performance in the business world. However, educators should not expect their students to develop the required professional soft skills and behaviours without guided instruction and practice. Therefore, the plan of action in this research project consists of designing and implementing some active learning activities in the English course for fourth-year engineering students at the National School of Applied sciences of Fes. Then, the study explores and describes the perceptions of these students of this learning plan of action.

3.2. Methodology of data collection

This research project aims to assess the effectiveness of an active learning approach to integrating soft skills in the English curriculum for Engineering students at the National School of Applied sciences of Fes. To this end, 84 participants answered two survey questionnaires. One before and one after the soft skills implementation program. The two questionnaires consist of multiple-choice questions and open-ended questions to elicit the participants' answers.

The pre-soft skills integration survey aims to get insights into students' perceptions of the importance of soft skills for their future job, the most required skills and their willingness to participate in a soft skills training program.

At the end of the soft skills implementation program, the respondents answered an evaluation survey questionnaire on their perceptions of the effectiveness of the activities incorporated into the English curriculum to help students develop some key entrepreneurial

soft skills. These are mainly: problem-solving activities, team debates, presentations, assignment tweaks, and simulations.

The choice of a survey questionnaire as a method of data collection in this study emerges from the fact that it is a reliable source of data. This is mainly because a questionnaire ensures anonymity to its respondents. Knowing that their responses will remain confidential and anonymous, respondents tend to be more open and truthful in their answers (Stringer, 2008).

Quantitative and qualitative approaches were used to analyse the data.

Concerning the respondents' profile, they are a group of both male and female engineering students aged between 20 and 21 years old. They make up a non-probability sample as they are assigned to be taught by the teacher researcher of this study. One limitation of non-probability samples, especially small samples, as is the case in this investigation, is that the selection of the subjects is non-random. So, they lack representativeness of the wider population and, thus, it may not be possible to generalise from their findings. However, Burton and Bartlett (2005, p.86) argue that this limitation does not put the effectiveness of an action research project at risk for two main reasons. First, action research is a small-scale investigation seeking to target an issue within a specific context and does not seek to extrapolate from the sample to the population. And second, there are sufficient similarities between people to make the findings from one study useful when seeking to understand others.

4. Findings

4. 1. Pre-soft skills integration survey

Item 1: Essential entrepreneurial soft skills for future engineers

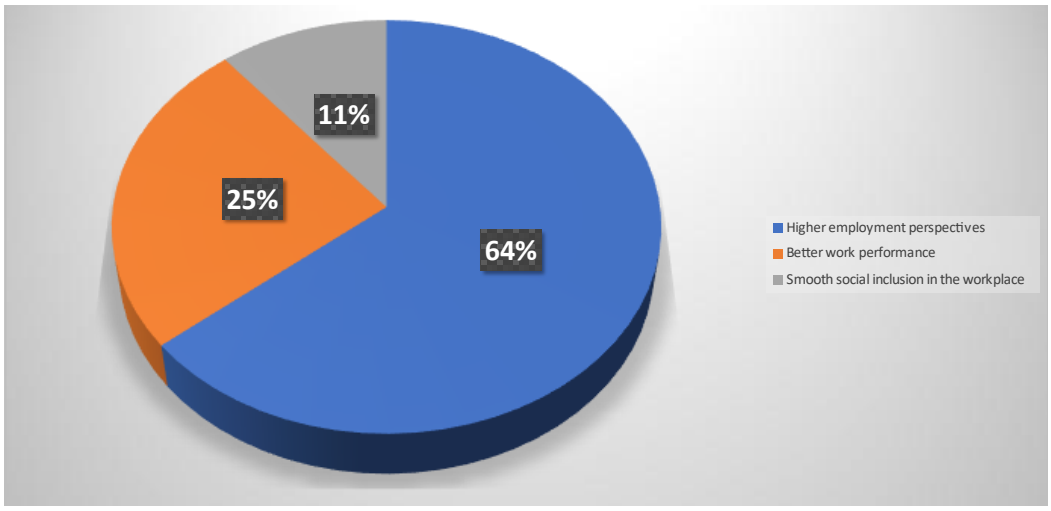
Table 1: Students' Ranking of Entrepreneurial Soft Skills

Soft skills	Ranking	Frequency (n=84)
Teamwork	1	82
Communication	2	77
Problem- solving	3	71
Creativity	4	68
Critical thinking	5	62
Adaptability	6	61
Time management	7	59

According to respondents, the top three essential soft skills for a future engineering entrepreneur are teamwork, communication and problem-solving (see table 1). However, creativity, critical thinking, adaptability and time management are perceived as less important.

Item 2: Why are entrepreneurial soft skills important for future engineers?

Figure1: Importance of entrepreneurial soft skills for future engineers



Concerning the importance of entrepreneurial soft skills, 64%of the participants believe that it's important for a future engineer to develop them for higher employment perspectives, 25% for better work performance and 11% think that soft skills are mainly important because they can facilitate their social inclusion in the workplace.

Item 3: Previous soft skills training experience

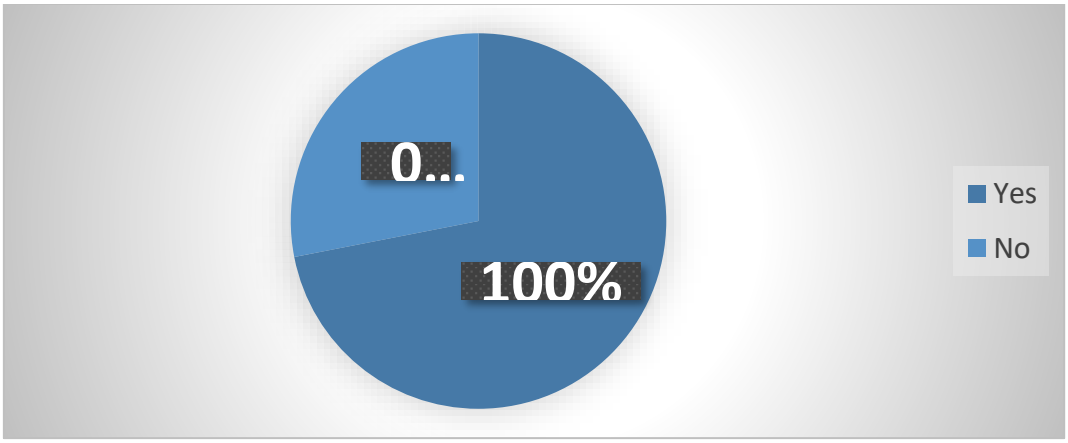
Table 2: Previous soft skills training experience

	Yes		No	
	n	%	n	%
Previous training in soft skills	0	0%	84	100%
Online training courses (MOOCs)	0	0%	0	0%
Workshops	0	0%	0	0%

Unfortunately, none of the participants had benefited before from any kind of training on soft skills in the form of workshops or online courses.

Item4: Students' willingness to participate in a soft skills training program

Figure 2: Students' willingness to participate in a soft skills training program



As said before, all the participants in this study had never taken part in any training workshop or online course on soft skills. This is the reason why all of them were willing to take the soft skills training program.

4.2. Post-soft skills integration questionnaire

Item1: task-based and problem-solving activities

Table 3: Students' perceptions of problem-solving activities

	Agree		Disagree	
Enhanced soft skills	**n**	**%**	**n**	**%**
They foster decision-making skills	74	88%	10	11%
They stimulate creativity and innovation	72	85%	12	14%
They develop time management skills	68	80%	16	19%

Regarding problem-solving activities, a majority of students, as these results (table 3) show, emphasises that they enhance soft skills related to decision-making (88%), creativity (85%), and time management (80%).

In fact, this type of collaborative work activity involves students working in small teams to provide a collaborative solution to a given task/problem which needs to be solved. As the activities require the students to work in a team and contribute ideas to solve a problem related to a real-to-life work situation, they enhance soft skills that involve decision-making, time management and team building (Permata, 2014).

According to (White et al., 2007), there are three main advantages of getting students to collaborate in group work to solve a problem: 1) group work is an active form of learning; 2) it enhances teamwork skills that companies require and value, and 3) it promotes good staff time management.

VanGundy (2008, p.23) adds that problem-solving tasks stimulate students' creativity. This is because the process of searching for a solution requires generating new ideas.

Item 2: team debates

The activities involve splitting students into competing teams that have to debate specific topics related to professional life, particularly specific situations which might emerge in a workplace (for instance conflicts). For each topic, there are two opposing views, and each team is required to defend one perspective. The purpose is to embed communication skills as well as responsibility, active listening, and empathy.

Concerning the perceptions of the participants, the majority of the participants feel that team debates promote their communication and active listening skills (95%), empathy for their teammates (72%) and critical thinking (79%).

Table 4: Students' perceptions of team debates

	Agree		**Disagree**	
Enhanced soft skills	**n**	**%**	**n**	**%**
Communication &active listening	80	95%	4	4.7%
Empathy for teammates	61	72%	23	27%
Critical thinking	67	79%	17	20%

Long (1990, p.100) cites five benefits of interactive group activities. These include increased quantities of students' language use; enhanced quality of the language that students use; more opportunities to individualize instruction; a less threatening environment in which to use the language; and greater motivation for learning. In addition, peer interaction gives students the opportunity to encounter ideas and perceptions that differ from their own as well as the opportunity to clarify, elaborate, reorganize, and reconceptualise information, express ideas, get feedback, and justify their claims.

Jacobs and Ball (1996, p.99) also suggest that the best types of activities are those that encourage cooperative learning through the negotiation of meaning, positive interdependence and individual accountability.

Item 3: Delivering oral presentations

Table 5: Students' perceptions of oral presentations

	Agree		Disagree	
Enhanced soft skills	**n**	**%**	**n**	**%**
Communication skills	81	96%	3	3.5
Active listening	65	77%	19	22
Self-confidence	79	94%	5	5
Creativity	70	83%	14	16

Preparing and delivering an oral presentation is perceived by many respondents as an opportunity to enhance learners' communication skills (96%), mainly expressing thoughts and arguments with clarity, active listening (77%), self–confidence (94%) and creativity (83%).

These results reflect the awareness of the participants that it is vital for them as future engineering entrepreneurs to develop presentation skills in order to succeed in the vocational and business world in general. In fact, presentations can help students develop a variety of communication skills mainly how to structure and present their ideas and arguments (Francis et al., 1995).

Fasano (2015, p. 82) clarifies that since business managers are required to communicate effectively in professional meetings with clients, partners and teams, future engineers who aspire to be business leaders should improve their public speaking skills. Crosling and Ward (2002) explain that there is a close relationship between technical knowledge and the ability to communicate that knowledge in the workplace. Therefore, an engineer may always be at a desk in a very mechanical role and never benefit from a

promotion to a higher management role just because he/she doesn't have the required public speaking skills. This is why Arun (2012, p.118) emphasizes the need for engineering education to re-examine curricular goals in response to the oral English communication and presentation needs of future engineers ambitious to carry out leadership positions in the current globalized business arena.

Item 4: Assignment tweaks

The pandemic has shown that the ability of a company to adapt is the new competitive advantage. Now more than ever, demand is growing for an employee who can adapt to an ever-changing workplace, who is open to new ideas, and who doesn't panic when things don't go according to plan. In the classroom, last minutes change of an assignment topic or deadline is one way to help students practice flexibility, resilience, and adaptability to change. This can also teach them that the workplace is the perfect context for dealing with the unexpected and as such it involves an opportunity for lifelong learning from new experiences.

Assignment tweaks are perceived positively by a big number of students as they allow them to build up the ability to work under pressure (90%) and adapt to unexpected situations in the workplace (95%) as the results in the following table demonstrate.

Table 6: Students' perceptions of assignment tweaks

	Agree		**Disagree**	
Enhanced soft skills	**n**	**%**	**n**	**%**
The ability to work under pressure	76	90%	8	9%
Personal qualities (adaptability, flexibility, resilience)	80	95%	4	4%

According to Walker (2004) enforcing strict deadlines for assignments achieves the goal of teaching students how to budget their time. Indeed, the professional practice requires a need for these future graduates to manage time effectively, as well as an ability to plan ahead and meet hard deadlines. Nordby et al. (2017) believe that higher institutions should recognize the need to consider time management as part of their curriculum objectives to prepare future graduates for a competitive business work context. In this respect, setting hard assignment deadlines can teach students responsibility that can hold them accountable in the future.

Item 5: Simulations

These activities include simulations of meetings, interviews, workplace discussions and situations which involve ethical issues and dilemmas, as well as providing feedback to colleagues, subordinates and supervisors.

As the statistics demonstrate, in table 7, most respondents emphasise that simulations of meetings, interviews and other work situations can help future engineers develop the ability to communicate effectively (84%), resolve conflicts (75%) and act well in a team (88%).

Table 7: Students' perceptions of simulations

	Agree		**Disagree**	
Enhanced soft skills	**n**	**%**	**n**	**%**
Ability to communicate effectively	71	84%	13	15%
Ability to resolve conflicts	63	75%	21	17%
Ability to act well in a team	74	88%	10	11

Also, Van der Merwe (2013) stresses the importance of business simulations as good learning tools that can help students acquire experiential learning of the skills to cope with

issues involved in managing a business. In line with this, Sawyer et al. (2000) clarify that involving students in simulations that replicate real work situations enables them to build soft skills. For instance, a simulation of a discussion trying to resolve a conflict between two employees requires the students to implement their interpersonal skills as well as critical thinking.

Moreover, Dyball et al. (2007) report that some business simulations are based on group work, where teams of students are assigned the roles of managing an organisation This type of cooperative learning enhances positive self-esteem, and team and interpersonal skill building advocated by the business profession. Weil, et al. (2001) further add that business simulations involve exposure to real to life practices that require a higher order of professional and critical thinking skills useful to students in their future employment.

5. Conclusion and Implications

The purpose of this study is to implement an active learning model that incorporates some entrepreneurial soft skills in the English curriculum designed for engineering students at the National School of Applied Sciences in order to assume leadership positions in the future. This teaching model involves teaching activities related to problem-solving, team debates, assignment tweaks, oral presentations and simulations. The results of the pre-soft skills integration program demonstrate the awareness of the participants that the job market requires graduates to have not only hard or technical skills but soft skills as well. The findings from the post-soft skills integration program reflect overall a positive perception of the respondents of the activities used to help them develop the target entrepreneurial soft skills required to perform a successful job in the workplace.

Some implications can be drawn from these findings. First, this study stresses the importance to equip future engineering entrepreneurs with effective soft skills. Fostering an early professional identity can empower students to work towards excellence in the workplace. In response, instruction models need to be adapted in a way that integrates the interpersonal skills that their students need to be successful leaders in the business vocational context.

This research also demonstrates that active teaching based mainly on group work, problem-solving, and projects motivates students to play an active, interactive role in the teaching/ learning process. These learning activities promote the critical thinking, analytical and communicative skills that 21st-century engineers need in order to meet the challenges of a globalized, competitive workplace.

Finally, these learning activities draw mainly on simulations of real-to-life work situations. On-site training by professional mentors during internship periods can help these students acquire the necessary soft skills through exposure to rather real work situations.

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