

Education in the spirit of entrepreneurship in Algeria: towards an innovative educational ecosystem



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Abstract

This manuscript addresses the integration of entrepreneurship into the Algerian education system, highlighting its potential for economic and social development. It examines the progress made and the obstacles encountered, enriches the analysis with international examples, and proposes a model adapted to the Algerian context. This model includes curriculum integration, incubation programs, and public-private partnerships while emphasizing the importance of adaptability and contextualization. The document concludes with strategic recommendations for policymakers, educators, and entrepreneurs aimed at optimizing the impact of entrepreneurship initiatives on Algeria's sustainable development..

Keywords: entrepreneurial education, educational innovation, economic diversification, skills development, Algerian context

. **Introduction** Entrepreneurship is increasingly recognized as an essential lever for economic growth and social innovation. In a world where economies are changing rapidly under the influence of globalisation, technology and demographic change, integrating entrepreneurship into education systems is crucial to prepare future generations to meet the challenges of the labour market and actively contribute to economic development. This integration aims not only to instill the skills necessary to create and manage businesses, but also to encourage a spirit of innovation and resilience essential in a constantly changing professional context.

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In Algeria, the importance of entrepreneurship in education has been clearly recognized as a strategic issue for economic diversification and the reduction of dependence on hydrocarbons. Aware of the challenges posed by high youth unemployment and the need for a more dynamic and diversified economy, the State has launched several initiatives to integrate entrepreneurship into the educational process. Among these initiatives, the "one degree, one startup" program, introduced by Ministerial Order No.1275 of September 27, 2022, stands out as a significant effort to transform the education system into an incubator of entrepreneurial talent and innovation. This program is designed to encourage students to develop their business ideas from the university stage and consider entrepreneurship as a viable career path.

However, despite these notable advances, Algeria faces persistent challenges, including the need to strengthen the support infrastructure for young entrepreneurs, the adaptation of school and university curricula to effectively include entrepreneurial education, and the lack of adequate funding for nascent start-ups. These barriers highlight the complexity of integrating entrepreneurship into education systems, requiring a coordinated approach that involves various actors in the education and economic system

1. Literature review

The literature on the integration of entrepreneurship into education systems is extensive and multidimensional, reflecting a growing recognition of its importance. Previous studies, covering various geographical and educational contexts, have amply demonstrated that entrepreneurial education can significantly improve students' skills, creativity, ability to take initiative, as well as their propensity to start and run businesses (Fayolle & Gailly, 2015; Bae, Qian, Miao & Fiet, 2014). This research supports the idea that entrepreneurship is not limited to the creation of businesses but also encompasses the development of transferable skills, beneficial in all aspects of professional and personal life.

In addition, several studies have highlighted the positive impact of entrepreneurship on the economy in general, arguing that entrepreneurship programs in education can contribute to job creation, innovation, and national competitiveness (Wilson, 2008). However, these studies also reveal challenges, such as the adequacy of entrepreneurship programmes to the needs of the labour market and the ability of educational institutions to provide practical and relevant teaching.

1.1. Theoretical models

1.1.1. LEARNING THEORY

This theory, developed by Cope (2005) and Politis (2005), postulates that entrepreneurial skills are not innate but can be acquired through experience and reflection. She emphasizes the importance of exposure to real-life situations and the ability to reflect on those experiences to learn and adapt. The practical implication is that entrepreneurship programs should be designed to offer active learning experiences, such as internships, business creation projects, and simulations.

1.1.2. On the internal labour market those measures are: overtime, short-time or part-time work, early retirement schemes, etc.

Introduced by Becker (1964), this theory directly links education and training to productivity and economic performance. In the context of entrepreneurship, she suggests that specific investments in entrepreneurial education can increase individuals' human capital and, therefore, improve their chances of entrepreneurial success. Human capital theory emphasizes the importance of teaching entrepreneurship-specific skills, such as financial management, business strategy, and opportunity recognition.

1.1.3. intention theory

According to Ajzen (1991), this theory explains that entrepreneurial intentions - the willingness to start and manage a new business - are influenced by personal attitudes, subjective norms, and perceived control. Education can play a crucial role in shaping these intentions by changing students' attitudes and perceptions towards entrepreneurship. This implies that educational programmes should not only teach practical skills but also work to shape positive perceptions towards entrepreneurship.

1.1.4. Open Innovation Theory

Proposed by Chesbrough (2003), this theory can be applied to educational entrepreneurship to explain how educational institutions can benefit from collaboration with businesses and other organizations. It encourages partnerships between educational institutions and the private sector to enrich entrepreneurship education and integrate practical innovations into curricula.

2. THE CONTEXT

In Algeria, the integration of entrepreneurship into the education system has become a key public policy to stimulate economic diversification and

reduce dependence on hydrocarbons. This strategic orientation is manifested from primary to higher education, where important pedagogical reforms are undertaken to raise students' awareness of the values of creativity, innovation and initiative. The government program "a diploma/a startup", initiated by the ministerial decree of September 2022, illustrates this commitment by transforming universities into innovation incubators and by actively supporting the development of entrepreneurial projects among students.

These initiatives are complemented by structural measures, such as the introduction of entrepreneurship modules in university curricula and the establishment of incubators that provide personalized support and coworking spaces. In addition, a financing mechanism has been established to support the most promising projects, with the collaboration of banks and private investors. In 2024, Algeria had 732 startups, positioning the country as the second largest continent for the creation of startups from universities.

Algerian universities, such as the École Nationale Supérieure d'Informatique (ESI) and the University of Tlemcen, draw on international best practices to offer specialized training and support in management, marketing and finance. Strategic partnerships, in particular with the National Agency for Support and Development of Entrepreneurship (ANADE), strengthen this framework, allowing students to turn their innovative ideas into viable startups. These collective efforts underscore the determination to forge a robust entrepreneurial ecosystem that prepares students to become dynamic innovators and entrepreneurs, thereby contributing to a more diverse and resilient Algerian economy.

2.1. Assessment of progress and persistent challenges

The progress made since the implementation of this program is notable. There is an increase in the number of startups created annually by young graduates, as well as increased awareness of the importance of entrepreneurship among students. Universities have begun to seriously integrate entrepreneurship into their curricula, with dedicated programs and regular events such as hackathons and innovation competitions, which encourage student creativity and initiative.

Despite the significant progress made in integrating entrepreneurship into education systems in Algeria, several major obstacles remain that hinder the full development of entrepreneurial initiatives:

- Lack of consistent resources: Funds allocated to support startups are often insufficient and erratic, severely limiting their ability to grow and survive in a competitive environment. This financial deficit prevents

many fledgling companies from reaching the crucial stages of their development.

- Cultural and institutional resistance: The incorporation of entrepreneurship into traditional educational settings sometimes encounters significant cultural resistance. In some circles, entrepreneurship is not perceived as a prestigious or viable career, especially in comparison with government positions or careers in large, well-established companies. This perception can deter many students from embracing entrepreneurial paths.
- Teacher training: Another major problem is the lack of specific entrepreneurship training for teachers. Many of them do not have the skills or experience to effectively accompany and guide students in their entrepreneurial projects, which can lead to students being insufficiently prepared for the real challenges of the business world.
- Monitoring and evaluation: Monitoring and evaluation mechanisms for entrepreneurship programmes are often weak, making it difficult to measure their real impact on the development of students' entrepreneurial skills and on the local economy. Without proper evaluation, it is complex to adjust and improve programs to effectively meet student and market needs.

To overcome these challenges, it is essential to improve the allocation of financial resources, promote a change in the cultural perception of entrepreneurship through awareness campaigns, invest in teacher training, and develop robust systems for monitoring and evaluating entrepreneurial initiatives. By addressing these issues in a systematic and coordinated manner, Algeria will be able to maximize the potential of its young entrepreneurs, thus promoting sustainable and diversified economic growth.

3. Case studies

The analysis of international initiatives offers a rich and varied overview of the approaches used to integrate entrepreneurship into education systems. Notable examples include programmes in Europe, North America, Asia, and other parts of Africa, each tailored to local economic and cultural realities.

- **Europe:** Europe, with initiatives like the European Union's Entrepreneurship 2020 Action Plan, focuses on promoting entrepreneurship at all levels of education. Organizations like JA Europe play a key role in instilling entrepreneurship in young people through programs that span from primary education to university.

- **North America:** In the United States, institutions like MIT and Stanford offer examples of entrepreneurship centers that not only teach the necessary skills, but also provide vital access to networks, mentors, and funding. These centres foster a culture of innovation and technology commercialization.
- **Asia:** Singapore and South Korea illustrate how national policies can encourage entrepreneurship from an early age. The Action Community for Entrepreneurship (ACE) program in Singapore and the Youth Startup Academy in South Korea are examples of how governments can actively support entrepreneurial education.
- **Africa:** In Rwanda, coworking spaces and incubators such as kLab foster a dynamic entrepreneurial environment, supporting young tech entrepreneurs.

3.1. Applicability of international case studies to the Algerian context

Each of these international initiatives provides valuable lessons that can be adapted and applied to the Algerian context:

- **Integrated approach:** The importance of an integrated strategy that combines education, mentorship, and access to finance, similar to the models used in Europe and North America, can be particularly beneficial for Algeria to create a coherent entrepreneurial ecosystem.
- **Government support:** As in Asia, government support in Algeria could be strengthened to establish national policies that promote entrepreneurship at all levels of education, ensuring a solid foundation from an early age.
- **Partnerships:** University-industry partnerships, exemplified by the Stanford and MIT model, can also be cultivated in Algeria to foster an environment where academic innovations can be rapidly transformed into viable business applications.
- **Entrepreneurial culture:** Encouraging an entrepreneurial culture through awareness campaigns and educational programs, similar to what is done in Europe, can help overcome cultural resistance to entrepreneurship in Algeria.
- **Targeted Programs:** Targeted programs, such as those developed in Africa to specifically support young technology entrepreneurs, could be adapted to support priority sectors in Algeria, such as agriculture, information technology, and renewable energy.

By adopting these strategies and adapting them to its national specificities, Algeria can significantly strengthen its entrepreneurial ecosystem and stimulate inclusive and sustainable economic growth.

4. A psychosocial model of stress

To meet Algeria's specific needs in terms of integrating entrepreneurship into its education system, it is crucial to develop a model that takes into account both the socio-economic and cultural context of the country. This model should aim to build entrepreneurial capacity at all levels of education, from primary to tertiary, while ensuring that initiatives are supported by adequate government policies and private sector engagement.

We suggest organizing the model along the following axes:

- **Curriculum integration:** Introduce entrepreneurship modules into curricula at all levels. This could start with basic concepts in primary and secondary cycles, evolving into more advanced and practical courses in higher education, including workshops, case studies, and business simulations.
- **Incubation programs:** Establish incubators in all major universities to turn ideas into concrete projects. These incubators would not only provide guidance and logistical support but also access to networks of mentors and investors.
- **Public-Private Partnerships:** Encourage collaborations between educational institutions and businesses to ensure that students have access to real-world experiences and networking opportunities.
- **Government and legislative support:** Ensure a legislative framework conducive to entrepreneurship, including financial support measures, tax breaks for startups, and simplifications of business creation procedures.

4.1. Principles of adaptability and contextualization

The principles of adaptability and contextualization are essential to ensure the effectiveness of the model for integrating entrepreneurship into Algerian education systems.

Flexibility is a central pillar of our model. It is imperative that the model is designed to adapt quickly to global and local economic developments. This means that curricula need to be regularly updated to reflect new trends and technologies, ensuring that students acquire relevant and current skills. In addition, contextualization requires that all programs and initiatives are deeply rooted in the Algerian reality. They must meet the specific challenges of the local market, satisfy the precise needs of

the industry, and integrate harmoniously into the developing entrepreneurial culture in Algeria.

4.1. Pedagogical strategies for teaching entrepreneurship

Experiential and action learning, centered on hands-on projects, case studies, and business simulations, is essential for developing the critical skills of entrepreneurship students. This approach prepares them to effectively navigate the business world with a focus on problem solving and strategic decision making. Corporate internships and mentoring enrich this experience by providing professional immersion and practical guidance, while hackathons and entrepreneurial contests stimulate innovation and creativity.

Innovative teaching methods, such as problem-based learning and interdisciplinary approaches, integrate entrepreneurship with other fields of study, thereby increasing the relevance and applicability of the skills acquired. The use of digital technologies and e-learning facilitates access to diverse resources and promotes remote collaboration.

In-service teacher training is also crucial; it ensures that educators stay up to date with best teaching practices and are equipped to effectively engage their students. These collective strategies aim to transform students into innovators and entrepreneurs who can contribute dynamically to the economy.

5. Discussion

5.1. Critical analysis of the opportunities and challenges associated with the implementation of the proposed model in Algeria

The introduction of a model for integrating entrepreneurship into the Algerian education system offers many opportunities while presenting some significant challenges that require careful management.

5.1.1. Opportunities offered by the Entrepreneurship Integration Model

- **Innovation and economic diversification:** The model aims to revitalize innovation and diversify the Algerian economy, which currently relies heavily on hydrocarbons. By encouraging a new generation of entrepreneurs, this model can catalyze the creation of new businesses in key areas such as technology, renewable energy and the digital sector.
- **Skills Development:** Applying this model could greatly improve students' cross-cutting skills, including critical thinking, problem

solving, and innovation. These skills are highly sought after by employers around the world and are crucial for competitiveness in the international marketplace.

- **Youth Employment:** With a focus on entrepreneurship, the model is likely to play a critical role in reducing youth unemployment, providing them with the tools and knowledge to create their own jobs and businesses.

5.1.2. Challenges to take on

The integration of entrepreneurship into the Algerian education system faces several significant challenges that require meticulous attention to ensure the success of the proposed model. Resistance to change is one of the major obstacles, often manifested by administrators, teachers, and sometimes parents, who may doubt the relevance of entrepreneurship as an essential component of education, preferring to adhere to traditional educational methods.

In addition, the initial funding required to set up incubators, develop adapted programs, and train teachers is a considerable challenge. Finding sufficient financial resources in a tight economic environment can restrict the ability to deploy this model at an appropriate scale. At the same time, developing effective systems to monitor and evaluate the impact of these initiatives on students and the wider economy can be complex and costly, requiring significant investments of time and resources.

In addition to these logistical and operational challenges, deep-rooted cultural and social barriers can also limit the success of entrepreneurship in Algeria. Often viewed negatively as a risky path and less prestigious than stable government jobs, entrepreneurship combats a cultural aversion to risk, which prioritizes short-term financial security. In addition, traditional social norms can discourage entrepreneurship, especially among women and some marginalized groups, where entrenched family expectations and gender roles can conflict with the demands of an entrepreneurial career.

To overcome these barriers, it is crucial to put in place targeted strategies such as awareness campaigns to change negative cultural perceptions, engagement of thought leaders to promote entrepreneurship, specific programs to empower marginalized groups, and regulatory reforms to simplify the business environment for emerging startups. These efforts require close collaboration among all stakeholders to ensure the success of the initiative to integrate entrepreneurship into education, thereby maximizing the potential of the educational entrepreneurship model to foster robust and inclusive economic growth in Algeria.

5.2. Reflection on implications for stakeholders

The government plays a fundamental role in facilitating a regulatory environment conducive to entrepreneurship and provides the essential financial support needed to implement innovative educational programs. To maximize the impact of these initiatives, it is also crucial for the government to conduct awareness campaigns that highlight the importance of entrepreneurship for the economic and social development of the country.

Within educational institutions, universities and schools need to revisit and adapt their infrastructure as well as their organizational culture to effectively integrate entrepreneurship into their curricula. This requires setting up new curricula, training teachers in entrepreneurship teaching methodologies, and creating dedicated spaces such as incubators to support and encourage student entrepreneurs.

Teachers, at the heart of this educational transformation, must not only understand the vital importance of entrepreneurship, but also acquire and master new teaching skills to effectively teach this discipline. Their continued commitment and professional development are crucial to the success of this educational model.

For students, adopting this model of entrepreneurship opens up new career opportunities and active participation in the economy. However, they must take a proactive approach to their learning and fully seize the opportunities offered by an enriched entrepreneurial education.

While the implementation of a model for integrating entrepreneurship into the Algerian education system has significant benefits, it requires careful analysis of challenges and strong engagement of all stakeholders. Such commitment is essential to realizing the full potential of this model and ensuring its long-term success.

6. Recommendations

We offer strategic recommendations for policy makers, educators and potential entrepreneurs to strengthen entrepreneurship in Algerian education and optimize its impact on the country's economic and social development.

6.1. Decision Makers.

It is essential that policymakers continue to develop and implement policies that strengthen entrepreneurship in education. This includes setting up grants and tax incentives to support fledgling startups, as well as allocating funds for the creation of specialized infrastructure such as incubators in schools and universities. At the same time, it is crucial to promote the importance of entrepreneurship through national awareness

campaigns. These initiatives aim to cultivate a positive entrepreneurial culture, change the public perception of entrepreneurship, and stimulate young people's interest in pursuing entrepreneurial careers.

6.2. Events For Educators

It is crucial to encourage and facilitate continued access to vocational training for educators, by integrating workshops, seminars and courses that focus on best practices in entrepreneurship education. This will allow teachers to stay on top of the latest methods and technologies. At the same time, there is a need to integrate elements into curricula that meet the demands of the modern marketplace, including critical thinking, innovation, and digital technology skills. Such an educational approach enriches students' preparation and equips them better for entrepreneurial success.

6.3. Safety Certificate

Utilizing the resources available in incubators and entrepreneurship centers is key to building strong networks with other entrepreneurs and industry professionals. Mentoring, in particular, can play a key role in providing practical advice and support, helping new entrepreneurs navigate the challenges of the business world. At the same time, it is crucial to focus on the continuous development of management, leadership and technological innovation skills. This will enable entrepreneurs to remain competitive in a rapidly changing market, equipping them with the tools necessary to succeed and innovate.

6.4. Strengthening Partnerships

To maximize the impact of entrepreneurship in education, it is essential to develop strong partnerships between educational institutions and the private sector, implementing targeted strategies that foster fruitful and sustainable collaboration.

- **Creating partnership programs:** Establish formal programs that facilitate collaboration between educational institutions and businesses. This can include internships, capstone projects, and mentoring opportunities that allow students to gain meaningful hands-on experience.
- **Co-Innovation Initiatives:** Encourage co-innovation projects where students, teachers and companies work together to develop new solutions or products. This can not only provide practical experiences for students but also benefit companies in terms of innovation.
- **Forums and events:** Host regular forums, conferences, and networking events that bring together education and private sector

stakeholders to discuss challenges, share ideas, and explore new opportunities for collaboration.

- **Development Funds:** Encourage companies to invest in entrepreneurial education through development funds that support educational initiatives and provide resources for the expansion of existing programs.

By implementing these recommendations, Algeria can significantly strengthen its entrepreneurial ecosystem and create a productive synergy between education and the private sector, thus fostering an environment conducive to innovation and economic growth.

Conclusion

The integration of entrepreneurship into the Algerian education system represents a strategic opportunity to catalyze the country's economic and social transformation. The proposed model offers a way to innovate and diversify the Algerian economy, while developing the essential skills of the younger generations to become dynamic players in the global economy. However, there are substantial challenges to implementing this model, including resistance to institutional and cultural change, the need for adequate funding, and the importance of rigorous program evaluation. Policy recommendations for policy makers, educators and potential entrepreneurs highlight the importance of legislative and financial support, continuing professional development, and building strong partnerships between educational institutions and the private sector. These collaborative efforts are key to ensuring that entrepreneurial initiatives not only survive but thrive, contributing to a more robust and diversified economy.

For Algeria to succeed in these endeavours, a well-thought-out approach and close collaboration among all stakeholders will be crucial. If the challenges are well managed and the opportunities seized, the integration of entrepreneurship in education can become a key driver of sustainable development, promoting not only economic growth but also improving social cohesion and creating a promising future for young Algerians.

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