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Developing Students' Entrepreneurial Communication Skills: New Directions for ESP Pedagogy in the Era of Innovation

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ABSTRACT: *In recent years, higher education has witnessed important transformations due to globalisation, innovation and the need for qualified graduates who effectively engage in professional careers. In response to these changes, Algeria has introduced major reforms to its higher education systems, aiming at fostering employability, entrepreneurship, and internationalisation. These reforms have reshaped university missions, particularly in technical and scientific fields, where innovation plays a fundamental role. Despite these developments, English for Specific Purposes (ESP) pedagogy has not developed at the same rate. In many universities, ESP continues to focus primarily on learning technical vocabulary, academic reading and writing, with limited attention to entrepreneurial and innovation-oriented communication skills that represent one of the current national priorities. This shows the need to reconsider ESP practices in light of current educational and professional demands. The present study aims to explore the integration of entrepreneurship-oriented communication activities into an ESP course and to examine students' perceptions of this pedagogical innovation. The study was conducted with second-year biotechnology students, for whom an instructional unit was dedicated to scientific communication and entrepreneurship. The activities implemented in this unit included listening activities, vocabulary building, role play and presentation of innovative biotechnology projects and start-ups. Quantitative and qualitative data were collected using a questionnaire to examine students' attitudes and perceptions of integrating entrepreneurship in the English course. The obtained results indicated that students positively perceived the entrepreneurship activities, reporting increased engagement and improved communication skills. To conclude, ESP pedagogy should continuously progress in response to global changes in order to equip learners with the skills required for their future careers. Therefore, expanding ESP instruction to include entrepreneurship, innovation, and real-world problem-solving is both necessary and relevant to today's students' professional needs.*

KEYWORDS: Entrepreneurship, ESP pedagogy, innovation, communication, language skills.

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Introduction

Recently, higher education has been reshaped mainly by globalisation, the continuous development of technologies, and the emergence of innovation. Nowadays, universities no longer focus only on transmitting knowledge. They are also working on equipping students with multiple skills to prepare them to think critically, innovate, and transform ideas into practical solutions that address real-world challenges (Constantinou 2026). Impressively, the job market is witnessing revolutionary changes with some traditional jobs disappearing and new ones appearing (Vall-llosera Casanovas et al. 2022). Therefore, traditional teaching methods are no longer efficient in providing 21st century learners with the skills they require to meet the demands of the economic and industrial market. In other words, in a highly competitive professional environment, academic qualifications alone are not enough. Students need to develop a range of competencies, including effective communication, teamwork, negotiation, problem-solving, creativity, and entrepreneurial skills. These skills enable them not only to secure employment, but also to initiate and manage innovative projects.

English has become an essential tool for academic, scientific and professional communication. To access scientific research and various innovative resources, English proficiency is highly needed. Besides, it provides students with more opportunities to excel internationally such as participating in international events, collaborating with people from different countries, and sharing innovative ideas with a global audience. Özdemir (2015) clearly states that in an increasingly complex and demanding world, young people need a wide range of skills to succeed, particularly English proficiency and an entrepreneurial mindset. A similar view is shared by Alapati et al. (2023) who believe that English proficiency enhances career prospects and employability. As English is the lingua franca of business, a strong command of the language is essential for professional success, they further add. Considering the importance of English and recognising its potential, many countries, including Algeria, have introduced educational reforms promoting English as a medium of instruction (EMI) for the sake of enhancing the quality, competitiveness, and internationalisation of higher education (Ouarniki 2023). In Algeria, the promotion of English has become a national priority, particularly in technical and scientific disciplines. Recent reforms encouraging the gradual implementation of EMI reflect the country's commitment to strengthening international visibility and collaboration, improving graduates' global competitiveness, and facilitating access to scientific knowledge. These developments also place new linguistic and communicative demands on students, who are expected not only to understand scientific content in English, but also to use the language effectively in academic, professional, and most importantly, innovative-oriented contexts.

Since English is a lingua franca, ESP has grown as a field that helps learners develop their professional skills for various purposes (Assassi and Rouaghe 2024). English for specific purposes has played a crucial role in preparing students to communicate effectively within their academic and professional disciplines by developing specialised vocabulary and discipline-specific skills. However, engineering education usually focuses more on technical skills rather than on creativity and entrepreneurial thinking. In reality, heavy course workloads leave little time for exploration and creativity, making the design of relevant curricula for engineers a challenging task (Ahmad et al. 2026). With the development of the job market and changes in students' needs, following classical ESP teaching methods may be insufficient. Moreover, many studies highlight that teaching ESP in Algeria already presents many challenges (Nedjari 2025). Thus, rethinking ESP pedagogy to meet the learners' expectations in the innovation era is an urgent matter. Consequently, this study aims to revisit ESP instruction by including novel and updated aspects related to the real-world challenges and the job market's demands: entrepreneurship and employability. In doing so, it intends to investigate ESP learners' perceptions of integrating entrepreneurial communication skills into ESP courses by answering the following research questions:

1. What are ESP students' perceptions of integrating entrepreneurial communication skills into the English course?
2. Which entrepreneurship activities do students perceive as useful for developing entrepreneurial communication skills?

3. What are the implications for future development of ESP instruction and entrepreneurship-oriented activities?

This study contributes to ESP research by providing evidence on students' views of integrating entrepreneurial communication skills into the English course within science and technology education. It also suggests a set of pedagogical implications for ESP teachers and curriculum designers by highlighting some effective entrepreneurship activities that can improve students' communicative competence in innovative professional environments.

1. Literature Review

1.1. ESP: Current Practices and Challenges

ESP pedagogy is affected by the latest technological advancements and societal changes leading to major shifts in higher education (Constantinou 2026). However, ESP continues to struggle to keep up with this evolution and educational shifts in Algeria. Currently, ESP instruction focuses on developing students' linguistic competencies, particularly technical and scientific vocabulary (Gouabi 2023). Considered as an ever-evolving area of study and practice, Assassi and Rouaghe (2024) view ESP as a field that gives more attention to methods of teaching and assessment of different teaching approaches. Given the status of English and the job market demands, ESP should go beyond teaching methods and syllabus design. This study focuses on ESP with particular attention to the Algerian context.

Algeria has adopted ESP to prepare students to meet the evolving demands of the job market with appropriate academic and professional skills. Nevertheless, teaching ESP remains stressful and challenging, as ESP practitioners, usually general English teachers, face problems in addressing discipline-specific areas without specialised training. This results in failing to fully equip students' with competencies appropriate to their field of study (Gouabi 2023). In the same vein, Mebitil (2014) asserts that the lack of specialised training and expertise negatively affects ESP practitioners' teaching performance to better meet their learners' needs. As most ESP courses are taught by general English teachers who lack specific-domain knowledge, a mismatch between teaching materials and students' actual academic and professional requirements is created, often leading to ESP instruction's failure (Nedjari 2025).

In addition to teachers' insufficient training, several challenges hinder the effectiveness of ESP instruction such as: limited teaching hours, the absence of syllabi and adequate teaching materials, the lack of collaboration between ESP teachers and subject-content teachers, the heterogeneity of students' level and the limited English practice opportunities outside the classroom (Gouabi 2023). Another challenge that ESP teachers often face is the uncertainty about whether to teach specialised English related to a particular discipline such as biology, economics, engineering, or to teach disciplinary content in English (Benabed 2022).

In Algerian educational institutions, traditional teaching methods of English usually fail to address learners' communicative needs, leading to low English proficiency and communication problems (Messaoudi and Elachachi 2017). With numerous anomalies, reconsidering ESP teaching strategies is now a necessity. As Algeria is undergoing a massive transformation of the educational system, it is time for ESP practitioners and syllabus designers to create more adequate teaching materials that cover 21st century students' actual needs.

1.2. Higher Education Reforms in Algeria

In the last few years, Algeria has witnessed several changes in higher education. These changes, including EMI integration and the creation of incubators, entrepreneurship centres and AI hubs, reflect the country's vision to enhance its economy, internationalisation, and employability rates. The authorities strive to provide graduates with better opportunities nationally and internationally. The major reforms that Algerian higher education (HE) has witnessed lately are illustrated in Figure 1.

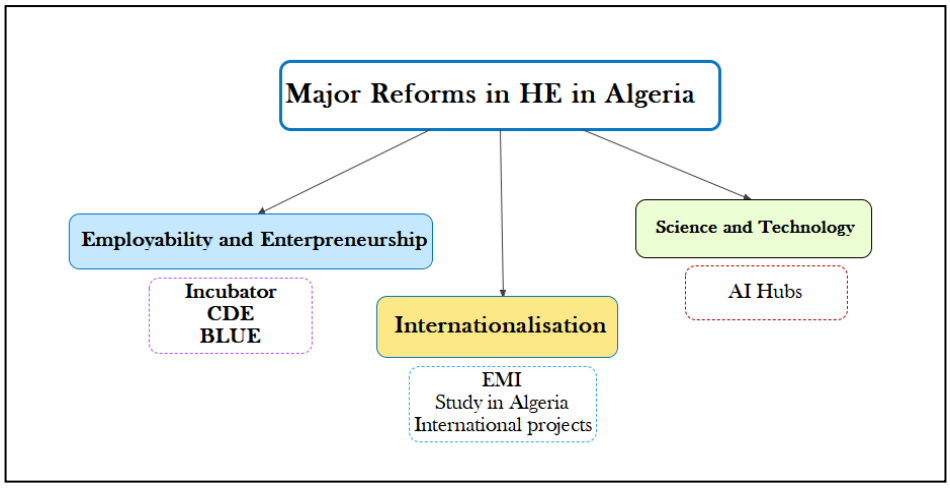


Figure 1: Higher Education Reforms in Algeria

1.2.1. EMI Integration in HEIs

In fact, French has traditionally dominated educational, professional and administrative domains in Algeria for many years. However, there is a growing interest in learning English among teachers and students. This is supported by the Algerian authorities through programmes promoting a shift from French to English, notably the EMI integration project that initially trained subject teachers and language teachers on EMI in collaboration with Columbia University's Teachers College (Assassi and Rouaghe 2024; Benabed 2022; Nedjari 2025). EMI is also one of the aspects that seek to improve internationalisation in Algeria. In fact, Algeria launched the "Study in Algeria" programme to solidify its connection to the world and raise its impact at different levels, especially economic. Nonetheless, the programme can be successful only if EMI is fully applied. Moreover, EMI is expected to enhance educational quality, international visibility of Algerian universities and to improve graduates' competitiveness in the global labour market (Ouarniki 2023). However, according to Ouarniki (2023), the successful implementation of EMI depends on several factors, particularly effective teacher training, availability of adequate resources, and the commitment of stakeholders to support the EMI transition phase.

It is undeniable that English, as the international language of communication, plays a crucial role in providing students, researchers and professionals with access to a wide array of scientific resources. Before EMI, English had been integrated into higher education through ESP programmes in different disciplines such as industry, tourism, and finance. However, current ESP courses are still inadequate in meeting learners' needs (Gouabi 2023). In other words, Algerian universities seek to strengthen English education by focusing on linguistic competence and the development of practical skills required in the global market (Benabed 2022). Within the transition towards EMI, ESP instruction seems to be at a crossroad between responding to students' needs via appropriate teaching materials and avoiding overlap with EMI. As previously seen, many studies reveal that most ESP courses are based on technical terminology. However, with the rise of EMI in Algeria, technical vocabulary can be easily acquired in the subject content. Hence, updating ESP courses to align with the Algerian national priorities is vital.

According to Özdemir (2015), authorities in many non-English speaking countries are supporting learning English and entrepreneurship at early stages. Algeria, like many other countries, has introduced English education at earlier stages. English is now taught from primary school. Moreover, initiatives to equip tertiary education with linguistic and entrepreneurial skills required in the modern world are being implemented via EMI and Entrepreneurship Development Centre (CDE).

1.2.2. Entrepreneurship and Business Incubators

Introducing entrepreneurship in Algeria is not recent. In response to the financial crisis caused by the drop in hydrocarbon prices, Algeria introduced liberalisation policies in 1990 to promote private enterprise and support entrepreneurial culture in the country (Belgoum 2020). However, introducing entrepreneurship concepts in higher education within all the disciplines is recent and aims to enhance the country's economy by raising employability rates. This was officially established by the Ministerial Decision order No. 1275 in 27th September 2022, modified and completed by Decision No. 008 in 23rd February 2025 for the "University-Degree-Startup/microenterprise" mechanism that encourages entrepreneurship and innovative business projects by providing financial, management and administrative support (Benali Reguieg 2025).

Entrepreneurship training in Algerian higher education institutions is supported by many mechanisms that focus on developing students' entrepreneurial skills. Business incubators, on the one hand, assist project holders throughout the entire project preparation and submission process. This involves specialised training, mentoring, guidance, and administrative support. On the other hand, university Entrepreneurship Houses, now referred to as CDE, maximise entrepreneurial awareness, coordinate different training sessions with experts from the socio-economic sector, and provide guidance to students throughout the entire business creation process (Belgoum 2020). CDEs work in collaboration with the National Entrepreneurship Support and Development Agency (NESDA), which is an Algerian government body that supports project holders in the creation and expansion of their own micro-enterprises, aiming to ensure sustainable employment opportunities (NESDA, n.d.). Unlike other entrepreneurship training programmes, university training endeavours to develop students' entrepreneurial skills and prepare them for successful professional careers in start-ups or organisations. The training usually emphasises risk management, opportunity identification, innovation, teamwork, leadership, communication, business model development, project governance and management skills (Belgoum 2020). In addition to entrepreneurship houses or CDEs, Algerian universities are incorporating entrepreneurship education into their curricula (Chaib and Djilani 2023).

1.2.3. Artificial Intelligence Hubs

Another notable reform in the Algerian higher education system concerns artificial intelligence (AI). Recent advances in AI are transforming the world at different levels, and education is no exception. Due to concerns related to ethics and privacy, the use of AI in education has been subject of controversial debate. Yet, it is undeniable that AI offers many opportunities to higher education in all fields including ESP, such as adaptive learning, the creation of authentic materials, and assistance with curriculum design (Bouguerba 2025). To promote AI education and research, Algeria has established specialised institutions such as the National School of Artificial Intelligence and AI research hubs in almost all Algerian universities. The primary objective of these institutions is to provide training on AI uses and applications. AI hubs also organise study days, workshops and different events that support AI learning to contribute to national technological and economic development (Algeria Research Hub, n.d.; Chelghoum and Chelghoum 2025).

1.3. Entrepreneurship Education

By definition, entrepreneurship is the process of transforming innovative ideas into ventures, by investing different resources, to achieve specific objectives (Chaib and Djilani 2023). In simple terms, entrepreneurship education is a concept that promotes entrepreneurial knowledge and venture creation (Chang, Alam, and Taylor 2025). It has evolved from a focus on small business to the development of entrepreneurial skills and attitudes. Its effectiveness depends on teachers' understanding of entrepreneurship concepts and their ability to use methods that foster confidence, initiative, leadership, and adaptability among students (Miço and Cungu 2023). Given its huge importance, entrepreneurship is universally known as a driving force of innovation, job creation, and economic growth. In Algeria, it plays an important role in reducing unemployment, stimulating innovation, and strengthening economic competitiveness (Ferdj 2024). According to Belgoum (2020), collaboration between universities and socio-economic partners is essential for developing skills and competencies that benefit both individuals and

society. Hence, preparing graduates with the necessary skills of entrepreneurship is not only the university's role, but it also involves socio-economic professional partners.

Furthermore, entrepreneurship education is increasingly recognised as an important driver of sustainable economic development. It no longer focuses solely on small business management. Nowadays, it serves as a key element of higher education strategies in promoting innovation, employability, and sustainability (Akram and Hye 2026). This requires transforming ideas into value, with regard to labour markets, in which graduates are expected to have certain soft skills, technical expertise and the ability to adapt to different professional environments (Bacigalupo et al. 2016;Gerasimova and Oblova 2025). This viewpoint is reinforced by Chaib and Djilani (2023) who argue that entrepreneurship education has gained increasing attention in universities, including in Algeria, due to its role in developing students' skills, entrepreneurial mindsets, and sense of sharing and initiative. By encouraging innovation and investment, it contributes to economic growth and highlights the importance of integrating entrepreneurship into higher education to prepare future entrepreneurs.

Entrepreneurial skills represent transversal competencies that can be applied in all areas of life. These competencies support employability and self-employment, personal development, social and cultural participation, and the creation of commercial ventures' (Bacigalupo et al. 2016). The "EntreComp" framework, as shown in Figure 2, provides a reference for developing entrepreneurship education and training programmes that help bridge the gap between education and the workplace (Bacigalupo et al. 2016:11). Additionally, in the innovation era, entrepreneurial skills, including creativity, adaptability and problem-solving are becoming essential competencies for developing a successful career (Prüfer and Prüfer 2020; Vall-llosera Casanovas et al. 2022).

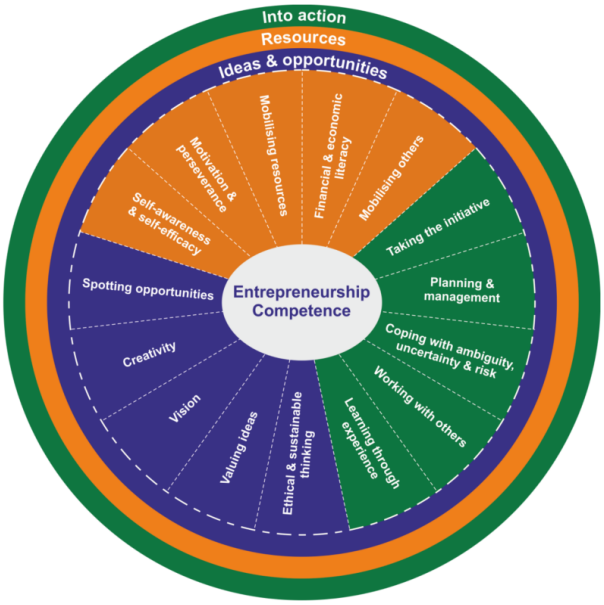


Figure 2 Entrepreneurship Competence Conceptual Model (Bacigalupo et al. 2016:11).

Many studies show the effectiveness of entrepreneurship education in human development, economic growth and job creation opportunities, as it promotes entrepreneurial intentions, supports business creation, and contributes to skills development and reducing unemployment (Parker et al. 2026). In the same vein, Altan (2019) explains that entrepreneurship education is essential for promoting innovation and sustainable development, but its efficacy relies on practical educational reforms through adequate curricular integration and effective entrepreneurial teaching approaches.

In essence, education and training promote human capital development by enhancing knowledge and skills that improve productivity and employability. However, a gap often exists between academic training and industry needs, limiting the value of graduate talent. Key employability skills commonly include

communication, problem-solving, decision-making, teamwork, integrity and a positive attitude despite cultural, societal and sector differences (Alapati et al. 2023). To achieve this, effective entrepreneurship education is needed with appropriate teaching approaches and teacher training in entrepreneurship methodologies (Miço and Cungu 2023). A similar view is shared by Elpisah et al. (2024) who stress the importance of providing students with practical experiences that strengthen their understanding of entrepreneurship. In their turn, Wardani et al. (2025) emphasise the advantages of incorporating project-based learning, mentoring, and digital tools.

It is worth mentioning that the concept of entrepreneurship has evolved to incorporate sustainability, leading to the emergence of "sustainable entrepreneurship" as a key approach. Sustainable entrepreneurship focuses on creating goods, services, and processes that lead to economic growth and social and environmental benefits (Chaib and Djilani 2023). As Algeria continues to implement entrepreneurship reforms, greater attention should also be given to sustainability to ensure long-term economic, social and environmental development.

1.4. English for Entrepreneurship

Integrating entrepreneurship into language education has recently gained increasing interest, aiming at improving students' competences and interdisciplinary learning in higher education. Beyond developing language proficiency, ESP is a branch that aims to equip students with necessary skills that support their academic, professional, and personal development, including entrepreneurial skills. In this context, project-based learning (PBL) offers an effective approach by engaging students with real-world challenges and practical problem-solving (Constantinou 2026). According to Benali Reguieg (2025), successful business achievement is highly associated with good language command, since English is connected to international business and investment. Similarly, Heckadon and Tuzlukova (2022) highlight the importance of effective English writing in entrepreneurship and business. They further add that writing remains a major challenge for business students who recognise its importance for their academic and professional success. In fact, writing is one of the most challenging skills for many students regardless of their field due to its complexity. Yet, for business and entrepreneurial success, both speaking and writing are essential.

Altan (2019) clearly states that English proficiency and an entrepreneurial mindset are increasingly important for professional career success, and language education can play a key role in developing both competencies. Integrating entrepreneurship into EFL curricula through carefully designed activities can simultaneously improve English proficiency and foster entrepreneurial skills and mindsets. Activities such as problem-solving tasks, role plays, presentations, discussions, and project-based learning help learners develop communication, critical thinking, creativity, leadership, and risk-taking abilities that are essential for entrepreneurship. This approach views entrepreneurship not only as content to be taught but also as a teaching philosophy that promotes active learning and innovation (Altan 2019). Ahmad and Yusof Khan (2023), likewise, assert that a major limitation of many entrepreneurship education programmes is the insufficient integration of English communication skills, particularly oral proficiency. Given the role of English as the global language of business, effective communication skills are essential for presentations, negotiations, networking, and international business interactions. Integrating English language training into entrepreneurship education can enhance students' confidence, motivation, and ability to operate successfully in global entrepreneurial environments.

According to Özdemir (2015), career success is closely related to entrepreneurial mindset and strong English proficiency. In this regard, EFL classes provide valuable opportunities to foster entrepreneurial thinking alongside language skills through diverse and interactive learning activities. Concerning employability and English language, Alapati et al. (2023) firmly maintain that English proficiency is linked to employability and has become a highly valued skill in the global economy. As the lingua franca of international business, English facilitates communication, collaboration, and business success across borders. Consequently, employers increasingly consider English communication skills alongside education, technical expertise, and personal attributes when evaluating candidates.

English communication skills and ESP training are essential for helping Algerian entrepreneurs participate effectively in international business and global markets. For instance, the success of Algerian start-up founders increasingly depends on their ability to communicate effectively in international business contexts. This highlights the need for tailored ESP and Business English programmes based on learners' specific needs, proficiency levels, and professional objectives, as general English courses often fail to address entrepreneurial communication requirements (Benali Reguieg 2025; Messaoudi and Elachachi 2017). To this end, Benali Reguieg (2025) recommends tailoring ESP programmes that support Algerian start-up founders by focusing on practical skills such as business planning, investor pitching, and networking. Moreover, flexible delivery formats, including online courses and workshops, together with supplementary resources and mentoring opportunities, can further enhance the development of both language and entrepreneurial competencies (Benali Reguieg 2025).

Finally, a sustainable entrepreneurship curriculum should be considered to ensure long-term effectiveness. It should combine subject knowledge, employability skills, supportive learning environments, and consideration of intercultural and learning challenges (Kotla and Bosman 2023). A similar opinion is shared by Gerasimova and Oblova (2025) who believe that beyond technical expertise, engineering students, for example, need both language and employability skills, especially in a context where entrepreneurship contributes to sustainable economic development. Therefore, designing sustainable ESP courses, as illustrated in Figure 3 is advocated. In the Algerian context, adopting this framework to national priorities, precisely entrepreneurship, is key to successful ESP instruction.

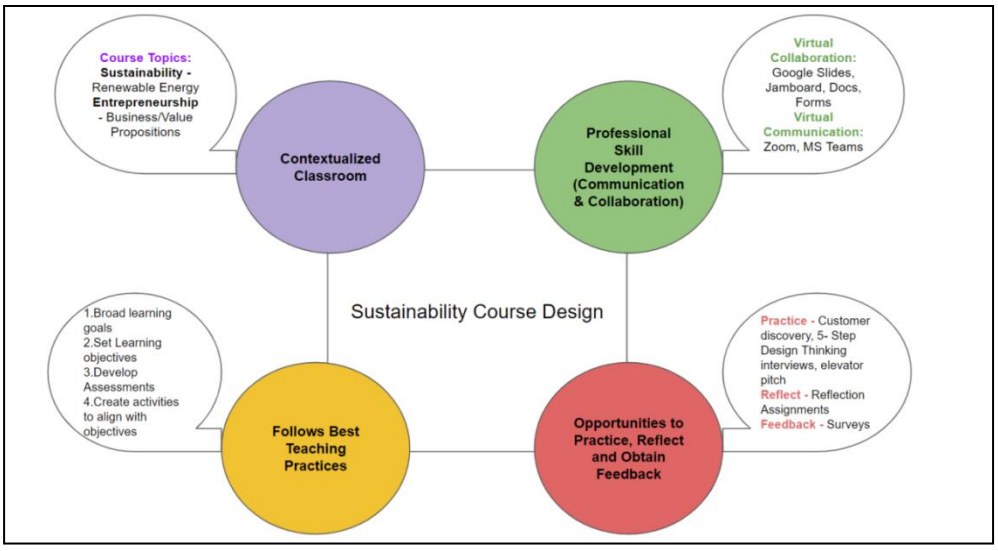


Figure 3: Sustainability Course Design (Kotla and Bosman 2023:503)

2. Methodology

The present study adopted a mixed methods descriptive research design combining quantitative and qualitative approaches to explore students' perceptions of integrating entrepreneurship-oriented communication activities into an ESP course. The quantitative components aimed to identify students' attitudes and levels of satisfaction, whereas the qualitative components provided a deeper understanding of their experiences and opinions regarding the implemented activities.

2.1.Participants

The study was conducted with second-year biotechnology students enrolled at the Higher National School of Biotechnology, Constantine, Algeria (ENSB). The participants were selected through convenience sampling as they were enrolled in the ESP course taught by the researcher. A total of 78 students participated in the study and completed the questionnaire. The participants' English proficiency levels

varied, as the population was highly heterogeneous with students from diverse backgrounds. However, the vast majority of the participants had an intermediate English level.

2.2. Teaching Materials

The study was implemented within an ESP course designed for biotechnology students in response to current national priorities related to innovation, entrepreneurship and employability. One instructional unit was dedicated to scientific communication and entrepreneurship. It is worth mentioning that the unit was created to investigate new programmes proposed for second-year training. In other words, different training programmes at the ENSB are being revised, including the English programme. Therefore, this study was carried out to pilot the new suggested programme and evaluate the effectiveness of including entrepreneurship skills and communication in English for biotechnology course. The training, involving this unit, was conducted for only six weeks, as the remaining weeks were devoted to other units about English competencies and biotechnology.

The unit introduced students to basic entrepreneurial concepts and communication practices relevant to biotechnology and innovation. The implemented activities included listening comprehension and writing tasks based on entrepreneurship-related materials, vocabulary building exercises focusing on business and innovation terminology, games and role-play activities to stimulate professional communication situations, and oral presentations of innovative biotechnology projects and start-up ideas. These activities intended to promote both language development and entrepreneurial awareness, while encouraging students to use English in a realistic professional context. Since students are still beginners in entrepreneurship and in order to protect their own ideas from being appropriated, the students were asked to bring only existing innovative ideas to share with their classmates instead of sharing their own innovative ideas. The purpose of the unit was to improve students' entrepreneurial skills and, at the same time, their language and communication skills. Consequently, the idea of the project was not as important as the way the idea was presented. Students in this unit were requested to share different innovative projects with their classmates to improve their skills of effective communication with stakeholders, negotiation, risk management, and various scenario-based situations.

2.3. Data Collection and Analysis

Data were collected using a questionnaire administered at the end of the instructional unit. The questionnaire consisted of seven closed-ended items used in a Likert scale (from strongly agree to strongly disagree) to measure students' attitudes, perceptions, and levels of engagement and satisfaction with the integrated entrepreneurship-oriented activities. In addition, three open-ended questions were included to gather qualitative data, allowing participants to freely share their experiences and the challenges they encountered. The questionnaire was created using Google Forms and was distributed online via the Moodle platform of learning at the end of the unit. Participation was completely voluntary and students were informed about the purpose of the study right at the beginning. Responses were collected anonymously to encourage honest and unbiased feedback, especially since the researcher was the participants' teacher. Besides, informed consent and assurance that participation did not affect grades were given to the students. Quantitative data obtained from the closed-ended questions were analysed using descriptive statistics, whereas qualitative data from the open-ended questions were analysed using thematic analysis, in which responses were gathered and organised into recurring themes reflecting students' attitudes towards the integration of entrepreneurship into the ESP course.

3. Results

As previously mentioned, this study deployed an online questionnaire to gather data about students' perceptions of the integration of entrepreneurship in the English course for biotechnology. The questionnaire consists of two sections. The first section is devoted to quantitative data, while the second is devoted to qualitative data.

3.1. Quantitative Results: Students' Perceptions of Entrepreneurship-Oriented ESP Activities

The collected data from the participants' responses to the questionnaire items are displayed in this section.

a) The entrepreneurship unit made the English course more interesting and engaging.

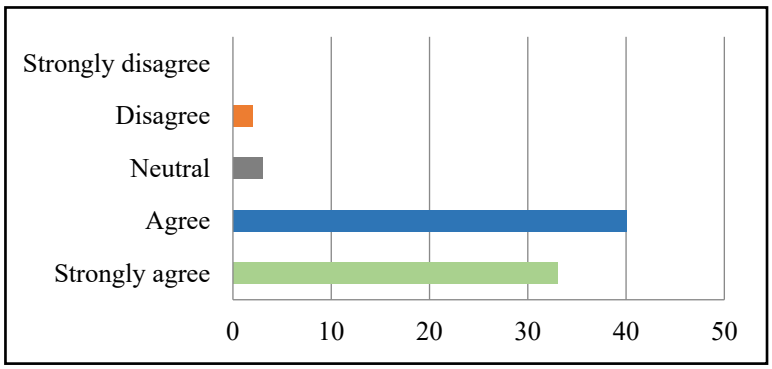


Figure 4 Students' Perceptions of the Course and their Engagement

As shown in Figure 4, the overwhelming majority of the participants strongly agreed (42.30%), or agreed (51.28%) that integrating the entrepreneurship unit made the English course engaging and interesting. This can be explained by the fact that the entrepreneurship unit was something new and different compared to the classical ESP course that focuses on technical vocabulary and linguistic skills.

b) The entrepreneurship-oriented activities were relevant to my field of study.

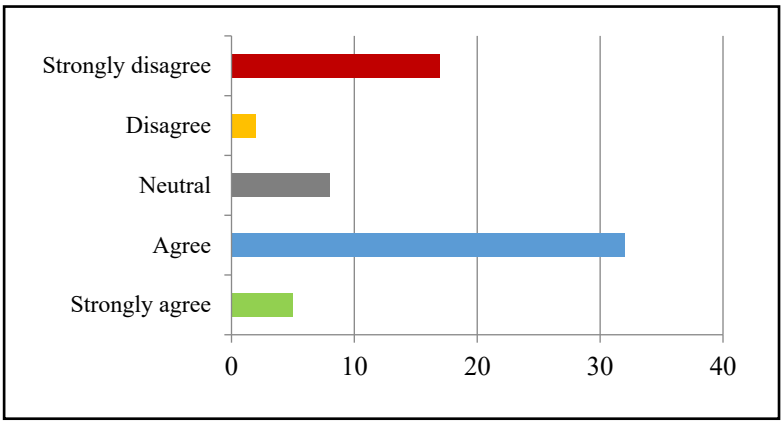


Figure 5 Course Relevance to Students' Field of Study

Figure 5 shows that a considerable number of participants (41.02%) reported that the course was relevant to their study field. However, some of the participants (29.79%) believed it was not relevant to biotechnology. In fact, the unit involved biotechnology themes from an entrepreneurial perspective, to keep the students engaged. This explains why many students consider it relevant. Nevertheless, some participants still view entrepreneurship a field relevant only to business studies.

c) The unit improved my ability to communicate ideas confidently in English.

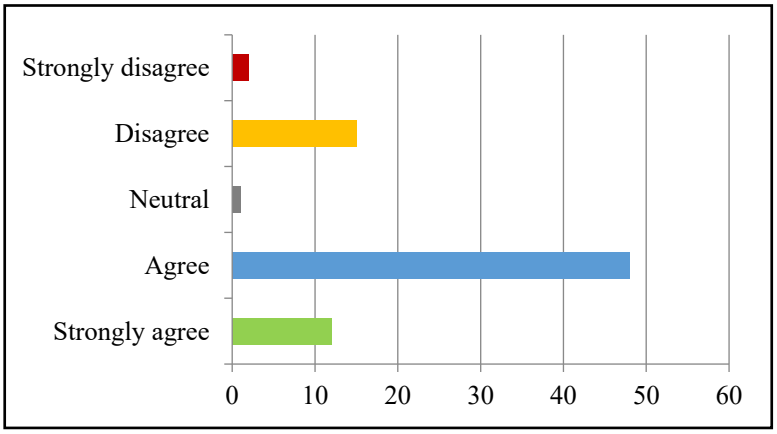


Figure 6 Students' Improved Communication Skills in English

One of the main objectives of including entrepreneurial activities in the course is to improve students' communication skills. Figure 6 displays that the majority of the participants (61.54%) agreed that the course enabled them to enhance their communication skills in English. This can be explained by the use of various speaking activities that encouraged the learners to participate in the classroom activities.

d) The presentation activities improved my entrepreneurial communication skills.

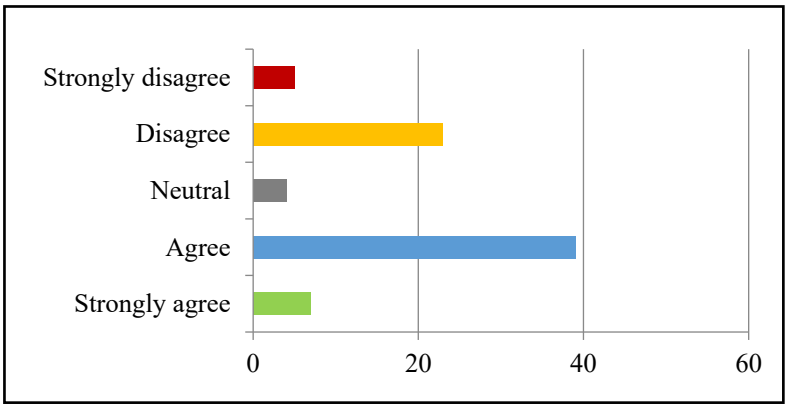


Figure 7 Students' Improved Entrepreneurial Communication Skills

In addition to communication in English, another objective of this study is to improve students' entrepreneurial communication skills. This includes negotiation, persuasion, project presentation, etc. The obtained results, as shown in Figure 7 indicate that half of the participants (50%) were able to improve their entrepreneurship communicative competence, while some participants (29.49%) disagreed with that. This might be due to the duration of the unit which was only six weeks. These participants might need more time to be able to enhance their level significantly.

e) The entrepreneurship unit increased my awareness of innovation and entrepreneurship.

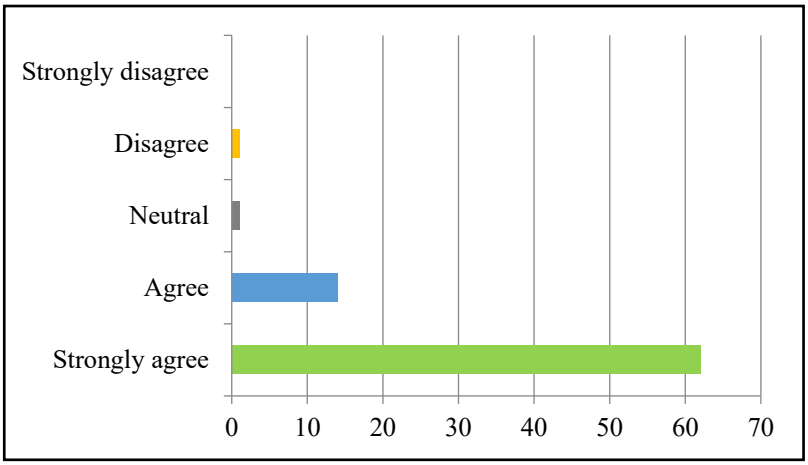


Figure 8 Students' Awareness of Innovation and Entrepreneurship

As far students' awareness of innovation and entrepreneurship is concerned, the unit equipped the participants with sufficient information to get a basic idea about the concepts of innovation and entrepreneurship. A glance at Figure 8 shows that almost 80% (62) of the participants strongly agreed with this statement.

f) The activities helped me understand how English can be used in professional and entrepreneurial contexts.

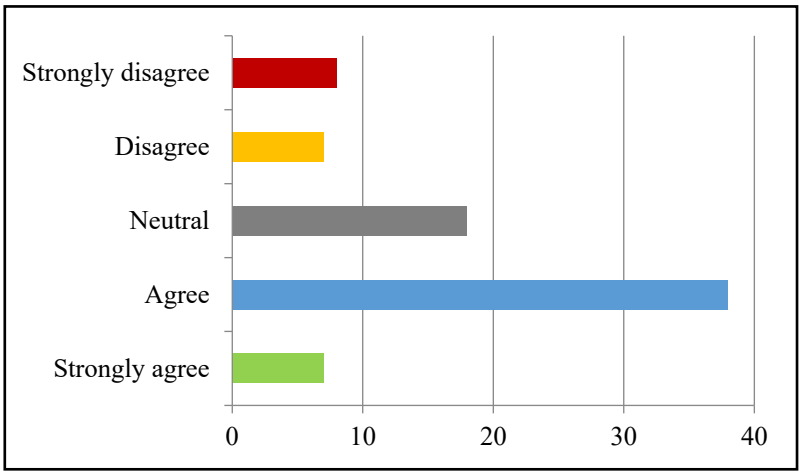


Figure 9: English Use in Entrepreneurship Contexts

Since the implemented course is about English, the focus was on developing the students' use of English language in various contexts and scenarios of entrepreneurship. In this item, the largest group (48.72%) reported improving their skills of using English in entrepreneurship situations effectively. Few responses reported inability to perform efficiently in English. These students usually struggle even with general English. More training might help these students in developing their language skills.

g) Entrepreneurship-oriented communication activities should be integrated into future ESP courses

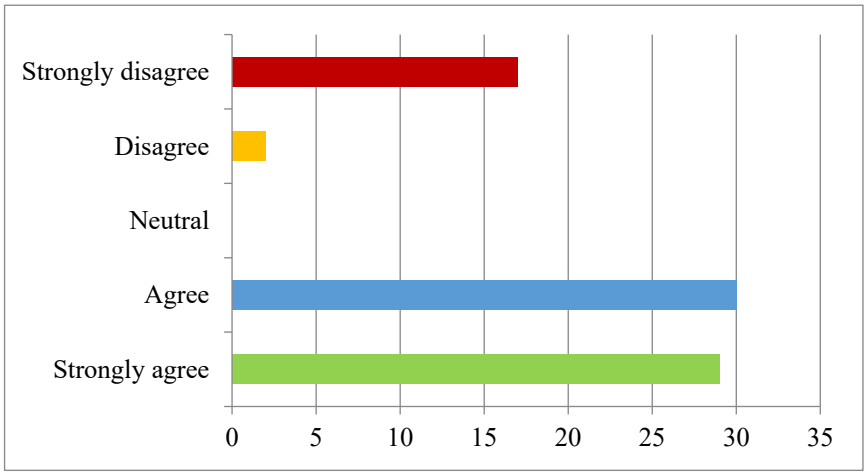


Figure 10: Integrating Entrepreneurship Communication Activities in Future ESP Courses

The last item seeks to gauge students' interest in incorporating entrepreneurship communication activities in the ESP course. It is quite noticeable in Figure 10 that responses to this item vary. For instance, 37.18% strongly agreed with incorporating more activities about entrepreneurship in the future. Similarly, 38.46% agreed with this statement. Nonetheless, 29.79% strongly disagreed with the integration of entrepreneurship in ESP course. They might be the ones who view entrepreneurship as irrelevant to their field of study.

3.2. Qualitative Results: Students' Views and Final Thoughts

In the second section of the questionnaire, students were asked the following questions:

1. Which activity did you find most useful for developing your entrepreneurial communication skills? Why?
2. What do you think you gained from the entrepreneurship unit?
3. What suggestions would you make to improve this entrepreneurship unit or future ESP courses?

The qualitative data collected from the open-ended questions were analysed using thematic analysis. The findings are presented according to three main themes: perceived benefits of the entrepreneurship-oriented ESP unit, preferred learning activities, and students' suggestions for improvement.

3.2.1. Perceived Benefits of the Entrepreneurship-Oriented ESP Unit

Students generally expressed positive perceptions regarding the impact of the entrepreneurship-oriented ESP unit on their learning experience. A dominant theme that emerged from the data was the improvement of communication confidence in English. Several participants explained that the presentation-based tasks helped them overcome the fear of speaking in front of others and increase their fluency. A student reported that "*my big problem is speaking. I was afraid to speak in English, but presenting the idea of my project made me feel more confident*", while another added "*I felt more comfortable speaking because we were talking together in the classroom, and having fun. I used to feel shy even to ask a question, but during the project presentations, we were all talking and sharing our ideas. All the ideas were interesting".*

In addition to confidence building, students praised their ability to organise and express ideas in English. Many participants indicated that the unit helped them structure their speech more effectively and use appropriate vocabulary when discussing their ideas in English.

Another recurring theme was the development of awareness regarding entrepreneurship and innovation. Students reported that the unit allowed them to better understand how scientific knowledge can be

transformed into real-world projects. A participant clearly stated, "*I discovered new things about biotechnology and how it can be used to create start-ups for the future*", while another one stated that *"This is the first time I understood what entrepreneurship really means..."*

3.2.2. Preferred Entrepreneurship-Oriented Activities

When asked about the most useful learning activities, most students' responses consistently highlighted the importance of presentation tasks. Many participants emphasised that presenting biotechnology start-ups and innovative projects provided them with an authentic opportunity to use English in a professional-like context. A student reported "*presentation was my favourite activity, I wish we can have more activities like this to learn and practice speaking*". Listening activities related to entrepreneurship were also mentioned by several students as beneficial for improving comprehension skills. These tasks help them understand how entrepreneurs communicate and present their ideas. One participant stated *"the listing [listening] activities were useful because we learned English and projects at the same time".*

Group discussions and collaborative tasks were also identified, although less frequently, as valuable learning experiences. Students explained that these activities allowed them to exchange ideas and practise English in a more interactive way. A student, for instance, mentioned that "*working in groups helps me share ideas and progress in English with my classmates without fear".* Surprisingly, games were the least frequently mentioned activity. Students usually prefer games in learning speaking skills; however, when it comes to the entrepreneurship unit, they showed more interest in presentation and listening activities compared to games. Although the integrated games were fun and students really enjoyed them during classes, based on their answers to the questionnaire, the majority seemed to be more interested in learning how to share ideas and projects in real life rather than just improving their communicative skills in a friendly atmosphere.

3.2.3. Students' Suggestions for Improvement

Students were finally requested to give their feedback to help us improve the entrepreneurship-oriented ESP unit. A common suggestion was the need to increase the number of presentation activities. Many participants felt that speaking tasks were particularly beneficial for communication development. To illustrate, one student stated that "*we need more presentations because they help us learn speaking*".

Another theme was the desire to include more authentic materials and organise more role-plays and simulations. Yet, few participants found that the unit seemed more connected to disciplines other than biotechnology. They believed that entrepreneurship should be taught to students in economics and commerce rather than biotechnology students. Some of them explained that, in their future careers, they would become biotechnology engineers and would not need to run their own businesses or be involved in entrepreneurial activities in the future. Therefore, they requested keeping the usual ESP course that focuses on biotechnology and English communication. It should be noted that entrepreneurship is not only about running one's own business, but a skill that is important in all areas of life. Therefore, ESP courses for entrepreneurship should be varied, tackling different life scenarios to develop learners' skills for any domain, and any future direction.

Some of the participants suggested having more tutorials and practical work in language laboratories in which they do listening activities instead of studying entrepreneurship oriented-activities in lecture halls. These students loved the experience of studying in language laboratories and found that trying it with this unit can be beneficial and more engaging.

Finally, several students recommended extending the duration of the entrepreneurship unit and incorporating more interactive activities such as debates, simulations and workshops. One of the participants stated "*the unit should be longer because we enjoyed these activities and we need speaking*". A similar opinion is shared by another participant who reported "*we can do debates and practice more speaking*". However, other participants viewed the duration of the unit as quite acceptable and preferred to keep the usual activities in addition to this one. Despite the importance of entrepreneurship and its worthiness in the global market, ESP instruction should strike a balance between students' linguistic needs

and their field particularities. In other words, entrepreneurship skills should be included in ESP courses, along with other activities related to the learners' field of study.

4. Discussion of the Results

The present study investigated ESP students' perceptions of integrating entrepreneurial communication skills into an English course, the types of activities they considered most effective, and the pedagogical implications for ESP instruction. The findings provide important insights into how ESP can respond to evolving educational and professional demands in the context of innovation and entrepreneurship.

The results revealed that students showed generally positive perceptions of the entrepreneurship-oriented ESP unit. They reported increased engagement, improved communication confidence, and greater awareness of entrepreneurship and innovation. This aligns with a study conducted by Constantinou (2026) who highlights the positive impact of learning entrepreneurship on students' communicative competence, critical thinking, digital literacy, and even environmental sensitivity. The improvements in students' speaking, confidence and willingness to communicate suggest that entrepreneurship-oriented tasks created a more engaging and friendly atmosphere. This supports the view that learners perform better when they are encouraged to express ideas rather than merely reproduce linguistic forms. These findings are consistent with studies emphasising the motivational potential of involving English activities within real-world activities like entrepreneurship such as Altan (2019) and Özdemir (2015).

Furthermore, some of the students' positive attitudes towards the relevance of the unit highlight the importance of aligning ESP content with learners' disciplinary and future professional needs. Basically, entrepreneurship-oriented communication appears to function as a bridge between academic English and professional communication demands. The findings also indicate that students perceived improvements in their ability to organise ideas, present projects, and communicate innovative concepts in English. Presentation-based tasks were particularly valued, as they stimulated authentic professional communication situations, in addition to other activities like group discussion and listening. This aligns with project-based learning theory, which emphasises the role of meaningful, goal-oriented tasks in developing both language proficiency and transferable skills. The results are also in accordance with a study conducted by Ahmad and Yusof Khan (2023) about English and entrepreneurship effective activities and Wardani et al. (2025) who emphasise integrating project-based learning activities and digital tools.

In the current study, nonetheless, students were required to present biotechnology start-ups and innovative projects, which encouraged them to use English for purposeful communication rather than isolated linguistic practice. The integration of entrepreneurship-related content further contributed to the development of what can be described as "entrepreneurial communication competence", involving not only linguistic accuracy but also soft skills. These findings align with the concluding remarks provided by Bhaska et al. (2025) about the importance of developing the learners' soft skills. Also, entrepreneurship education can foster entrepreneurial skills and ventures by using challenges, competitions, and continuous feedback (Joensuu-Salo 2022).This expands the traditional scope of ESP, which has often focused primarily on reading comprehension and technical vocabulary acquisition. In other terms, effective entrepreneurship education requires experiential learning and real-world problem-solving rather than relying solely on traditional lecture-based teaching, as similarly asserted by Akram and Hye (2026). Besides, the qualitative findings highlighted presentation tasks as the most effective learning activity, followed by listening exercises and group discussions. Students particularly preferred tasks that stimulate real-world activities and speaking skills like presenting innovative projects.

The findings of this study have important implications for ESP course design. First, ESP instruction should evolve to include entrepreneurship-oriented communication tasks that reflect the changing demands of professional environments. This allows students to develop not only their linguistic competence but also transferable skills such as creativity, collaboration, and idea presentation. Second, the results indicated that ESP courses can benefit from adopting project-based learning approaches, particularly those involving real-

world situations and problem-solving and innovation tasks. These approaches encourage active learning and provide students with opportunities to use English efficiently as a lifelong skill. Finally, the study highlights the need to rethink ESP pedagogy in a way to respond to evolving global trends, including innovation, entrepreneurship, and employability.

Conclusion

This study investigated ESP students' perceptions of integrating entrepreneurship-oriented communication skills into an English course and examined the pedagogical relevance of embedding entrepreneurship-based activities within ESP instruction in a science education context. The findings revealed that students generally held positive perceptions of the intervention, highlighting increased engagement, improved confidence in English communication, and enhanced ability to express and present innovative ideas. Students particularly preferred presentation-based tasks and authentic, real-world activities, which they perceived as the most effective for developing their communicative and entrepreneurial skills. The results indicate that entrepreneurship-oriented communication tasks can enrich ESP learning by making it more interactive and closely aligned with students' future academic and professional needs. In this sense, the current study supports the view that ESP should not remain limited to traditional linguistic and disciplinary objectives, but should evolve to incorporate competencies required in innovation-driven environments and keep up with the global market evolution.

This study, however, has several limitations. First, the sample was limited to a single group of biotechnology students, which restricts the generalisation of the findings. Second, the results are interpreted based on self-reported data, which may be influenced by subjective perceptions and learner bias. Finally, the study was conducted in a short period and focused on immediate post-intervention perceptions without measuring long-term effects on language development or entrepreneurial skill acquisition. Further research, therefore, could expand this study by involving larger and more diverse samples across different scientific and technical disciplines and examine long-term effects of introducing entrepreneurship activities in ESP courses.

References

Ahmad, Ali, Dwitya Amry, Zixuan Chen, and Yubei Hu. 2026. 'Building Entrepreneurial Self-Efficacy in Engineering Students: Towards a New Methodological Framework'. *Entrepreneurship Education* 9(1):21–56. doi:10.1007/s41959-025-00156-7.

Ahmad, Ismail Sheikh, and Zarinah Jan Yusof Khan. 2023. 'English Language Skills and Becoming a Global Entrepreneur: Lessons for Entrepreneurship Education'. *International Journal of Learning, Teaching and Educational Research* 22(6):195–211. doi:10.26803/ijlter.22.6.11.

Akram, Hafiz Wasim, and Mohammad Nazmuzzaman Hye. 2026. 'Entrepreneurship Education as a Moderating Mechanism in the Formation of Entrepreneurial Intentions: A Systematic Integrative Review with Implications for Sustainability in Emerging Economies with Special Reference to Oman'. *Administrative Sciences* 16(2):105. doi:10.3390/admsci16020105.

Alapati, Purnachandra Rao, Vijaya Lakshmi Mandava, Rupajhansirani Ch., and Naga Raju B. 2023. 'Enhancing Employability Skills Through Communication in the ESP Classroom'. *Theory and Practice in Language Studies* 13(11):2898–2909. doi:10.17507/tpls.1311.21.

Altan, Mustafa Zülküf. 2019. 'EFL Classes for Cultivating Entrepreneurial Mind-Set'. *Language Teaching Research Quarterly* 11:20–30.

Assassi, Tarek, and Fouzia Rouaghe. 2024. 'Contemporary Trends in ESP Research within the MENA Region: A Scoping Review'. *Language Teaching Research Quarterly* 42:259–79. doi:10.32038/ltrq.2024.42.15.

Algeria Research Hub. (n.d.). Retrieved March 28, 2025, from Improving Research Capability in Algeria: https://www.algeria-research-hub.org/

Bacigalupo, Margherita, Panagiotis Kampylis, Yves Punie, and Godelieve Van den Brande. 2016. *EntreComp: The Entrepreneurship Competence Framework.* LU: Publications Office.

Belgoum, Farid. 2020. 'Entrepreneurship Education in Algeria: Between the Perspectives of the University and the Accompanying Partners'. *Advanced Research in Economics and Business Strategy Journal* 1(01):15–22. doi:10.52919/arebus.v1i01.7.

Benabed, Ammar. 2022. 'Investigating ESP Present-Day Thorny Shortcomings at Ibn Khaldoun University of Tiaret in Algeria'. *Technium Social Sciences Journal* 31:742–60. doi:10.47577/tssj.v31i1.6405.

Benali Reguieg, Nacera. 2025. 'ESP for Algerian Startup Holders under the Ministerial Decision 1275: Boosting Language Skills for Business Success'. الكلم 10(1):290–305. https://asjp.cerist.dz/en/article/266979

Bhaska, Vijaya C., Sujatha Priyadharshini P.R., Prabha Govindharaj, and Praveen Sam D. 2025. 'The Role of Group Projects in Enhancing Soft Skills'. *Humanities and Social Sciences Communications* 12(1):506. doi:10.1057/s41599-025-04807-x.

Bouguerba, Karima Manel. 2025. 'Artificial Intelligence in the Service of English for Specific Purposes'. *Studies in Linguistics and Language Education* 1(2):153–66. https://asjp.cerist.dz/en/article/285690

Chaib, Widad, and Djahida Djilani. 2023. 'The Entrepreneurship House's Efforts in Activating Innovation in Students Case Study: University of Laghouat (2015–2018)'. *Journal of El-Maqrizi for Economic and Financial Studies* 7(2):394–415.

Chang, Frances Y. M., Muhammad Aftab Alam, and Murray Taylor. 2025. 'The Mediating and Moderating Roles of Entrepreneurship Education in the Perceived Acquisition of Entrepreneurial Learning and Knowledge'. *Journal of Innovation & Knowledge* 10(1):100645. doi:10.1016/j.jik.2024.100645.

Chelghoum, H., & Chelghoum, A. (2025). Artificial Intelligence in Education: Opportunities, Challenges, and Ethical Concerns. *Journal of Studies in Language, Culture, and Society (JSLCS)*, 8(1), 01-14 https://asjp.cerist.dz/en/article/266929

Constantinou, Elis Kakoulli. 2026. 'English for Specific Purposes in Higher Education: Integrating Entrepreneurial and Sustainability-Oriented Practices'. *Social Sciences & Humanities Open* 13:103025. doi:10.1016/j.ssaho.2026.103025.

Elpisah, Elpisah, Suarlin Suarlin, Latang Latang, and Amir Pada. 2024. 'Indonesian Higher Education's Entrepreneurial Curriculum: A Literature Review'. *Journal of Education Culture and Society* 15(2):815–33. doi:10.15503/jecs2024.2.815.833.

Ferdj, Younes. 2024. 'Entrepreneurship and Territorial Economic Development in Algeria'. *Management and Entrepreneurship: Trends of Development* 1(27):8–18. doi:10.26661/2522-1566/2024-1/27-01.

Gerasimova, Irina, and Irina Oblova. 2025. 'Sustainable Development of Soft Skills with the Purpose of Enhancing the Employability of Engineering Students'. *Sustainability* 17(6):2426. doi:10.3390/su17062426.

Gouabi, Khadam. 2023. 'ESP and Business English for Postgraduate Students in the Department of Economics, Tahri Mohamed University, Bechar, Algeria'. *Arab World English Journal* 14(1):476–85. doi:10.24093/awej/vol14no1.30.

Heckadon, Peter, and Victoria Tuzlukova. 2022. 'Becoming a Business Writer: Omani ESP Students' Self-Perceived Writing Challenges, Needs and Wants'. *Journal of Teaching English for Specific and Academic Purposes* 753. doi:10.22190/JTESAP2104753H.

Joensuu-Salo, Sanna. 2022. 'The Role of Motivation and Entrepreneurial Role Models in Shaping Entrepreneurship Competence of Higher Education Students'. *European Conference on Innovation and Entrepreneurship* 17(1):290–96. doi:10.34190/ecie.17.1.341.

Kotla, Bhavana, and Lisa Bosman. 2023. 'Redefining Sustainability and Entrepreneurship Teaching'. *Trends in Higher Education* 2(3):498–513. doi:10.3390/higheredu2030030.

Lamri, Chams-Eddine. 2019. 'E-Learn Platform to Teach Legal English for Law Professionals'. *Arab World English Journal* (1):97–108. doi:10.24093/awej/Chief1.9.

Mebitil, Nawal. 2014. 'Teaching EST in Algeria: Training or Retraining Language Teachers?' *Mediterranean Journal of Social Sciences*. doi:10.5901/mjss.2014.v5n20p2381.

Messaoudi, Nouria, and Hafida Elachachi. 2017. 'An Analysis of Algerian Manufacturing and Engineering Master's Students' Needs'. *Arab World English Journal* 8(4):268–79. doi:10.24093/awej/vol8no4.18.

Miço, Heliona, and Jonida Cungu. 2023. 'Entrepreneurship Education, a Challenging Learning Process towards Entrepreneurial Competence in Education'. *Administrative Sciences* 13(1):22. doi:10.3390/admsci13010022.

Nedjari, Mounya. 2025. 'From Classroom to Workplace: An Investigation of the ESP Students' Readiness for Language-Based Professional Tasks in Algeria'. *ALTRALANG Journal*, 7(2):270–82. https://asjp.cerist.dz/en/article/280788.

NESDA. (n.d.). Retrieved June 26, 2026, from National Entrepreneurship Support and Development Agency NESDA: https://www.nesda.dz/

Ouarniki, Ouafa. 2023. 'Exploring Teachers' Perspectives on the Implementation of English as a Medium of Instruction (EMI) in Algerian Higher Education Institutions: Challenges and Opportunities'. *Afak for Sciences Journal* 8(3):176–92. https://asjp.cerist.dz/en/article/223062

Özdemir, Pınar. 2015. 'A Combined Approach to Teaching English and Entrepreneurship'. *Procedia - Social and Behavioral Sciences* 199:293–97. doi:10.1016/j.sbspro.2015.07.547.

Parker, Deborah, David A. Turner, Frederick Kwame Yeboah, Enoch Mensah-Williams, and David Anim Mante. 2026. 'Does Entrepreneurial Education Influence the Entrepreneurial Outcomes of University Students in Developing Economies? Evidence from Ghana'. *Higher Education* 91(2):543–70. doi:10.1007/s10734-025-01429-9.

Prüfer, Jens, and Patricia Prüfer. 2020. 'Data Science for Entrepreneurship Research: Studying Demand Dynamics for Entrepreneurial Skills in the Netherlands'. *Small Business Economics* 55(3):651–72. doi:10.1007/s11187-019-00208-y.

Vall-llosera Casanovas, Laura, Gemma Renart Vicens, Carme Saurina Canals, and Laura Serra. 2022. 'Entrepreneurial Skills in University Degrees'. *Intangible Capital* 18(2):182. doi:10.3926/ic.1542.

Wardani, Ika, Murni Sapta Sari, Sulisetijono Sulisetijono, Abdul Gofur, Zainuddin Bin Hassan, and Hardianto Hardianto. 2025. 'Mapping the Definition and Development Strategy of Entrepreneurship Self-Efficacy in Biology Learning: A Systematic Literature Review'. *Salud, Ciencia y Tecnología* 5:1735. doi:10.56294/saludcyt20251735.