ALTRALANG Journal
e-ISSN: 2710-8619 p-ISSN: 2710-7922
Volume 8 Issue 2 / October 2026 pp. 310-325

Specialized Foreign Language Proficiency (ESP/FOS) and Entrepreneurial Self-Efficacy Among University Students: A Psycholinguistic Study

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Received: 30/06/2026, **Accepted:** 25/10/2026, **Published:** 31/10/2026

ABSTRACT:
Objective: *This study investigates the relationship between proficiency in languages for specific purposes (ESP/FOS) and entrepreneurial self-efficacy (ESE) among university students. Grounded in Bandura's self-efficacy theory, we hypothesized that specialized linguistic competence contributes to entrepreneurial confidence through psychological mechanisms, including anxiety reduction and professional communicative identity formation.*
Methods: *A descriptive cross-sectional study was conducted with 92 university students from eight academic disciplines. Participants completed validated questionnaires measuring ESP/FOS proficiency (12 items) and entrepreneurial self-efficacy (12 items) using a five-point Likert scale. Cronbach's alpha = 0.79 confirmed adequate reliability. Pearson correlation and regression analyses examined variable relationships by academic discipline.*
Results: *Contrary to hypothesis, no statistically significant linear correlation emerged between ESP/FOS proficiency and ESE at the total sample level ($r = -0.015$, $p = 0.888$). Arts and humanities students showed a strong but non-significant correlation ($r = 0.753$, $p = 0.084$, $n = 6$; $R^2 = 0.567$). Management and economics students showed a similar non-significant trend ($r = 0.681$, $p = 0.092$; $R^2 = 0.464$). Technical disciplines showed no significant correlations (all $p > 0.05$).*
Conclusions: *Entrepreneurial self-efficacy develop through non-linguistic pathways–technical competence, institutional support, and culturally-embedded norms–particularly in technical disciplines. Language proficiency function as a compensatory resource for humanities students but appears to have minimal direct association with technical students' entrepreneurial confidence. Educational interventions should differentiate language support by discipline rather than treating ESP/FOS as a universal entrepreneurship prerequisite.*

KEYWORDS: entrepreneurial self-efficacy; languages for specific purposes; self-efficacy theory; psycholinguistic competence; discipline-specific entrepreneurship

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1.Introduction

In recent decades, the higher education sector has witnessed a qualitative shift towards the "Entrepreneurial University" model, in which the university has moved beyond its traditional functions of teaching and producing scientific knowledge to become a key actor in supporting innovation and promoting economic and social development. Within this framework, university incubators have emerged as strategic mechanisms and supportive environments that help students turn innovative ideas into viable startups, able to enter the market and compete in it. These incubators not only provide material facilities and technical and advisory services, but also extend to developing the personal and psychological components that contribute to project success and sustainability. Foremost among these is entrepreneurial self-efficacy, a notion rooted in social cognitive theory, which refers to an individual's belief in their ability to carry out complex entrepreneurial tasks successfully .

With the opening of markets and the globalization of entrepreneurship, coupled with the increasing internationalization of entrepreneurial projects, language and communication skills have become equally important elements alongside technical and managerial competencies. Mastering specialized foreign languages, whether English for Specific Purposes (ESP) or French for Specific Purposes (FOS)has become a bridge enabling entrepreneurial students to access international entrepreneurial networks, benefit from global incubation and acceleration programs, formulate business plans according to international standards, and communicate and negotiate with foreign investors and partners. Consequently, specialized language proficiency has become one of the essential components of the human capital required for contemporary university entrepreneurship to achieve openness and competitiveness at regional and international levels.

The Problem Statement:

Despite the remarkable development witnessed by university incubators as spaces supporting innovation and entrepreneurial initiatives, and the material resources and technical and advisory services they provide to accompany entrepreneurial students, an important aspect of entrepreneurial success requirements still receives limited attention in university literature and practices: the psycholinguistic dimension related to students' ability to employ specialized foreign languages in professional and entrepreneurial contexts.

In light of the international nature of the contemporary entrepreneurial environment, communication in specialized foreign languages has become a prerequisite for integration into global entrepreneurial networks, access to international financing sources, interaction with investors and potential partners, and access to specialized knowledge and expertise in entrepreneurship. However, many university incubator students face difficulties in using English for Specific Purposes (ESP) or French for Specific Purposes (FOS), which not only affects the communicative dimension but also influences their perceptions of their own abilities and confidence in their entrepreneurial potential.

The study centres on the role that linguistic competence in specialized foreign languages can play in promoting entrepreneurial self-efficacy among university incubator students, and seeks to determine whether language difficulties constitute a psychological-cognitive barrier affecting their willingness to engage in entrepreneurial projects and explore international markets and opportunities. Accordingly, this study addresses the following questions: What is the role of linguistic competence in specialized foreign languages (ESP/FOS) in building and promoting entrepreneurial self-efficacy among university incubator students? To what extent can weakness in this competence constitute a psycholinguistic limiting their entrepreneurial empowerment and engagement in entrepreneurial environments?

Research Hypotheses:

Hypothesis 1: There is a positive correlation between the level of proficiency in specialized foreign languages (ESP/FOS) and the level of entrepreneurial self-efficacy of university students belonging to university incubators.

Hypothesis 2: There are statistically significant differences in the nature of the relationship between specialized linguistic competence and entrepreneurial self-efficacy among study sample members attributable to the variable of academic specialization.

Significance of the Study

The importance of this study stems from the fact that it establishes a modern interdisciplinary approach combining two seemingly divergent fields: applied linguistics (represented by languages for special purposes) and entrepreneurship psychology (represented by entrepreneurs' self-efficacy). It has practical relevance because it starts from the reality of university incubators to provide procedural solutions that contribute to enhancing the performance of emerging entrepreneurs.

Study Objectives:

1. To reveal the nature of the correlation between the extent of students' mastery of specialized foreign languages (ESP/FOS) and their level of self-confidence during the preparation and presentation of their emerging projects.
2. To determine whether the student's academic specialization (technical/technological versus human/social) or language level makes a statistically significant difference in their level of entrepreneurial self-efficacy.
3. To reveal the nature of the psycho-cognitive impact that specialized language skills have on emerging entrepreneurs' confidence.

1. Self-Efficacy Theory: Origins and Conceptual Foundations

1.1 Understanding Self-Efficacy

Psychologist Albert Bandura introduced his theory of self-efficacy in his foundational essay in 1977, then developed it further in his major works of 1986 and 1997, establishing it as one of the most widely cited theoretical frameworks in educational and organizational psychology. This theory emerged within social cognitive theory, which posits a three-dimensional reciprocal relationship among the individual's cognitive and internal factors, behavior, and the surrounding environment.

At the center of this cognitive system lies self-efficacy, defined by Bandura as an individual's belief in their ability to organize and implement the courses of action necessary to achieve specific accomplishments (Bandura, 1997, p. 3). It is important to note that self-efficacy is not a general personality trait but rather a specific contextual and domain-related judgment, and it is not synonymous with actual competence. A student may possess the language skills necessary to negotiate a commercial contract in English, yet refrain from doing so because of low self-efficacy. Moderate competence coupled with high self-efficacy can lead to bolder and more extensive communicative engagement. This disparity between actual skill and self-belief forms the focus of the current study. Bandura (2012) later restated that efficacy beliefs are task- and domain-specific, and that their predictive value depends on how closely the efficacy measure corresponds to the criterion it is meant to predict.

1.2 Sources of Self-Efficacy

According to Bandura, self-efficacy is formed through four primary sources from which belief is derived, formed, and modified: mastery experiences (successful prior attempts), social modeling, verbal persuasion, and the physiological and emotional state of the individual (Bandura, 1997, 79). Understanding these sources is essential for designing ESP/FOS curricula that consciously seek to build entrepreneurial confidence alongside language skills.

Source	Priority	Relevance to ESP/FOS and entrepreneurship
Mastery Experiences	**1**	The most influential. Every success in using ESP/FOS in a professional context reinforces the belief in self-efficacy.
Social Modeling (Vicarious Experiences)	**2**	Watching peers communicate successfully in the specialized language raises the learner's self-confidence.
Verbal Persuasion	**3**	Teacher feedback and encouragement in ESP/FOS lessons directly shapes the learner's conviction in their ability.
Physiological States	**4**	Reduced language anxiety in ESP/FOS environments is conducive to greater confidence in entrepreneurial contexts.

Table (1) shows the sources of self-efficacy and their connection to ESP/FOS and entrepreneurship.

Mastery experiences are particularly important in this study's context. Every successful use of specialized language-delivering a presentation in English, negotiating a commercial clause in French, or writing a professional proposal-constitutes a mastery experience that gradually enhances the student's linguistic self-efficacy and, consequently, their entrepreneurial self-efficacy. This cumulative, experience-based model aligns with the pedagogical logic of competency-based ESP/FOS programs.

When this psychological concept was applied to the entrepreneurial field, the term "entrepreneurial self-efficacy" (ESE) has emerged, measuring the extent to which a person believes in their ability to successfully establish a startup (Chen et al., 1998, p. 295). This conceptualization confirms that entering the entrepreneurship world depends not solely on the availability of financial support and opportunities but primarily on psychological evaluation and awareness of self-skills. Individuals with high entrepreneurial self-efficacy are more successful in identifying opportunities, more determined to overcome obstacles, and less likely to abandon efforts when facing failure (McGee et al., 2009, p. 966).

Entrepreneurial self-efficacy is a multidimensional concept integrating managerial, technical, and psychological skills (Chen et al., 1998; McGee et al., 2009). Its strategic dimensions for incubator students are:

- Innovation and Development: Confidence in generating creative ideas, designing prototypes that meet market needs, and foreseeing project added value.
- Financial and Administrative Planning: Belief in the ability to manage budgets, cash flows, and limited resources.
- Leadership and Team Building: The ability to form cohesive teams, distribute tasks, and resolve conflicts within the incubator. The entrepreneurial leader transforms individual academic work into collective institutional efforts.
- Risk Management and Uncertainty Tolerance: Making decisions and adapting to market volatility under uncertain circumstances (Zhao et al., 2005).
- International Marketing and External Communication: Confidence in externally marketing the project, promoting the product, and convincing investors. Here, the psycho-entrepreneurial dimension intersects with the linguistic dimension, with specialized language (ESP/FOS) playing a central part in strengthening students' self-efficacy in this dimension.

2. Psycholinguistic Approach and Entrepreneurial Empowerment

2.1 Foreign Languages for Specific Purposes (ESP) and Languages for Professional Purposes (FOS) in the Business Environment

Applied linguistics has shifted toward a functionalist approach focusing on teaching language to meet specific communicative needs rather than presenting it as a generic format. Within this context, the concepts of English for Specific Purposes (ESP) and French for Specific Purposes (FOS) have emerged, both focusing on equipping individuals with the language skills they specifically need in particular specialized fields or work environments.

ESP is defined as an approach to language education based exclusively on the real and specialized needs of the learner, whether academic or professional, with emphasis on precise terminology, structures, and discourse patterns characteristic of a particular field (Dudley-Evans & St John, 1998, 19). Similarly, in the French linguistic context, French for Professional Purposes (FOS) aims directly at enabling individuals to communicate efficiently within specific professional environments, such as companies, banks, and the entrepreneurial sector (Mangiante & Parpette, 2004, 9).

Language in business and entrepreneurial settings can be regarded as a performance-enabling tool. The work context within university incubators requires entrepreneurial students to handle technical documents, knowledge resources, and digital platforms designed in specialized foreign languages. Therefore, ESP/FOS extends beyond superficial linguistic dimensions (grammar and phonetics) to directly relate to building professional competence, contributing to digitizing entrepreneurial ideas and preparing them for international economic circulation (Hutchinson & Waters, 1987, 16).

2.2 Psycholinguistic Link: Language, Confidence, and Presentation Anxiety

Language's influence transcends communication boundaries to guide individuals' internal thinking. Entrepreneurs formulate their business models using specialized linguistic concepts directly (Pavlenko, 2006, 23). Consequently, poor language mastery creates a gap between project conception and the ability to articulate it, reducing self-confidence.

This psycholinguistic link is evident in the phenomenon of "foreign language anxiety" during project presentations (pitching). A successful presentation requires persuasive and integrated psychological fluency (MacIntyre, 1999, 28). The absence of ESP/FOS terminology generates a psychological barrier and fear of negative evaluation by investors (Horwitz et al., 1986, 128). Conversely, specialized language proficiency provides entrepreneurs with a psychological protection mechanism that increases their flexibility and supports their ability to defend their projects. A meta-analysis of 97 reports (N = 19,933) found a mean correlation of r = -.36 between second language anxiety and language achievement (Teimouri et al., 2019), which marks anxiety as a robust correlate of performance in a foreign language.

2.3 The Role of University Incubators as Environments for Linguistic and Cognitive Empowerment

University incubators function as "socio-professional laboratories" that transcend traditional logistical and physical roles to become communicative and professional environments contributing to students' cognitive and linguistic empowerment. True incubation lies in creating interactive environments that simulate global market realities (Rothaermel & Thursby, 2005). In this sense, incubators become fertile spaces for entrepreneurial self-development by providing specialized training in feasibility and legal studies, along with interactive workshops designed according to ESP/FOS approaches. The entrepreneurial university integrates a mission of economic and social development with teaching and research (Etzkowitz, 2013), and incubators are one of the instruments through which this mission reaches students' projects (Rothaermel & Thursby, 2005).

Incorporating this psycholinguistic dimension into incubator strategies helps students transcend theoretical academic frameworks and actively integrate into professional communities of practice. When students are trained to formulate their projects in international specialized languages and participate in international competitions, the incubator transforms language from a psychological obstacle causing hesitation into an empowerment tool that refines their entrepreneurial identity and propels their projects toward internationalization (Nonaka, 1994).

2.4 Previous Studies

Research on entrepreneurial self-efficacy is extensive. Newman et al. (2019) reviewed two decades of work on its theoretical foundations, measurement, antecedents and outcomes, and concluded that the field needs better measurement, stronger research designs and attention to alternative theoretical perspectives. In Algeria, ESE has been studied mainly as a predictor of entrepreneurial intention. Tounés and Mahmoudi (2022), with 302 students, found that ESE influenced intention directly, that perceived entrepreneurial climate influenced it negatively, and that entrepreneurship education did not strengthen the effect of ESE. St-Jean et al. (2014) compared Algerian students with Canadian and European students and found that no element of the theory of planned behaviour was significant for the Algerian group; they suggested that student entrepreneurship in Algeria is driven more by necessity than by opportunity. As far as the published abstracts show, language proficiency is not among the variables of these studies.

Studies that connect language and entrepreneurship are fewer and mostly descriptive. Sheikh Ahmad and Yusof Khan (2023) combined an online survey of 177 undergraduates with focus groups at a Malaysian public university. They report that courses in entrepreneurship education often lack a language component, and they document students' attitudes toward English and the difficulties they meet in using it. Almusharraf (2026), working with Saudi student entrepreneurs (survey n = 41, interviews n = 17, and 83 venture names), describes English as capital that becomes valuable when ventures deal with international markets, English-dominant technologies or foreign partners, and not as a universal requirement. Altan (2019) and Özdemir (2015) offer pedagogical proposals for integrating entrepreneurship into English classes. These works argue that language matters for entrepreneurs, but none of them estimates its association with entrepreneurial self-efficacy.

A third line of work links self-efficacy and proficiency inside language learning itself. Thompson et al. (2019) analysed 139 students on an English-medium International Business course in Japan and found that L2 proficiency, performance in a preparatory course and self-efficacy each predicted success in the course. In the affective domain, the meta-analysis of Teimouri et al. (2019), covering 105 independent samples, reports a mean correlation of -.36 between second language anxiety and achievement. These results show that proficiency and self-beliefs are connected when the outcome is itself linguistic or language-mediated. They do not show that proficiency in a specialised language raises confidence in a different domain, such as starting a venture.

Disciplinary context also matters. Maresch et al. (2016) compared business students with science and engineering students and found that entrepreneurship education was generally effective in both groups, but that subjective norms lowered the entrepreneurial intention of science and engineering students and had no such effect on business students. The same logic may apply to language competence, whose relevance can depend on the field in which students plan to start a venture.

Taken together, previous work establishes three points: ESE is an important antecedent of entrepreneurial intention, including among Algerian students; language is increasingly described as a resource for international entrepreneurship; and the effects of both entrepreneurship education and self-beliefs differ across disciplines. In the sources reviewed here, no study tests the association between proficiency in a language for specific purposes (ESP/FOS) and entrepreneurial self-efficacy among incubator students, and none compares this association across academic disciplines. The present study addresses this gap. It provides an estimate, with confidence intervals, of the linear association between

ESP/FOS proficiency and ESE in an Algerian incubator sample, and it examines whether the association differs by discipline, which tests the claim that specialised language is a general prerequisite for entrepreneurial confidence.

3. Methodological Procedures

3.1 Research Approach

To achieve the study's objectives and test its hypotheses, the research employed the descriptive analytical approach, appropriate for interdisciplinary studies of this nature. It involves observing the psycholinguistic and entrepreneurial phenomenon as it occurs in its natural context, then collecting and statistically analyzing data to describe it to reach scientific conclusions explaining the nature of the relationship between specialized linguistic competence and entrepreneurial self-efficacy among sample members.

The study follows a non-experimental, cross-sectional correlational design (Creswell & Creswell, 2018). No variable was manipulated. "Observation" here means the systematic measurement of two constructs, ESP/FOS proficiency and ESE, as they exist among incubator students, by means of a structured self-report questionnaire; no classroom or workplace observation was carried out. The procedure had five steps.

1. Operationalisation. ESP/FOS proficiency was defined as students' self-rated ability to use the specialised language in academic, communicative and professional tasks (12 items). ESE was defined as confidence in performing entrepreneurial tasks across the dimensions presented in Section 1.2 (12 items). Each construct yields one composite score.

2. Instrument construction and validation. The questionnaire was reviewed by a panel of experts and piloted on 60 students before the main survey.

3. Data collection. The questionnaire was administered to the 92 incubator students described in Section 3.2 online. Participation was voluntary and anonymous.

4. Data analysis. Responses were screened for missing and out-of-range values and descriptive statistics were computed. For Hypothesis 1, a two-tailed Pearson correlation and a simple linear regression of ESE on ESP/FOS proficiency were estimated, with a 95% confidence interval for r obtained through Fisher's z transformation. For Hypothesis 2, the same correlation was computed separately within each disciplinary group. Coefficients were read against Cohen's (1992) benchmarks (.10 small, .30 medium, .50 large) and the significance level was set at $\alpha = .05$.

5. From data to conclusion. A hypothesis was retained only when the corresponding coefficient was positive and reached $p < .05$, and it was rejected otherwise. The confidence interval was used to judge which effect sizes the data rule out, and p-values between .05 and .10 were reported as trends, not as evidence of an association. Conclusions are therefore limited to association between the variables in this sample; the design does not allow causal statements.

3.2 Study Population and Sample

The study population consisted of students affiliated with university incubators who develop projects and emerging ideas within the incubation environment. A simple random sample of 92 students was selected. The sample included students from both bachelor's and master's levels, drawn from multiple academic disciplines and specializations.

Table (2) presents the primary study sample characteristics by gender, specialization, and academic level.

Variables	Gender		Specialization:							Academic level				
	Female	Male	Computer Science Informatics	Psychology	Social Sciences/ Communication	Political Science/Economics	Arts / Humanities	Medicine and pharmaceuticals	Other	1st Master		tongue		
										1	2	1	2	3
N	69	23	20	23	16	6	6	3	17	16	32	8	14	22
Total	92		92							92				

From Table 2, the study sample distribution was as follows: The sample included 69 female and 23 male students from different disciplines, divided into seven disciplines: Computer Science/Informatics, Psychology, Social Sciences and Communication, Management Sciences and Economics, Humanities and Arts, Medicine and Pharmacy, and Other disciplines. Sample members were also distributed across academic levels (Bachelor's and Master's), and were drawn from several university institutions, including (Tamanrasset University, Higher School of Automated Media, Sidi Bel Abbes, University of Tipaza, University of Tissemsilt, University of Relizane, Blida, University of Chlef, Ghardaia, Souk Ahras).

	University Business Incubators	University of Tamanrasset	Tipaza University	University of Tessemselt	Higher School of Automated Media -Sidi Bel Abbes	Tiaret University	École Normale Supérieure Setif	University of chlef	Kh,ays Melliana University	Souk Ahras University	M.J. Mughniyeh	University of Ghardaia	Blida University1	Total
frequency	20	25	4	21	8	3	6	1	1	1	1	1	1	92

Table (3) presents the distribution of sample members according to their institutional affiliation.

3.2.1 Sampling and Sample Size

The target population was students affiliated with university business incubators in Algeria. The sample (N = 92) came from the 12 institutions listed in Table 3. the sample as a convenience sample.

Is the sample large enough? For Hypothesis 1, a sample of 92 students can detect a medium correlation (r = .30) with about 83% probability (Cohen, 1992). It cannot reliably detect a small one. The observed confidence interval [−0.219, +0.190] rules out a medium positive correlation, so the null result is informative. For Hypothesis 2, the disciplinary groups are small (3 to 23 students). These results are therefore exploratory.

Representativeness. Women made up 75% of the sample, and three institutions supplied 72% of the respondents. The findings describe this sample and should not be generalized to all Algerian incubator students.

3.3 Study Instrument

A questionnaire was used as the primary data collection tool. The final questionnaire consists of three sections:

The first section includes demographic and occupational data, comprising six basic classification variables for sample members: gender, academic specialization, academic year, university, prior ESP/FOS instruction, and self-assessed foreign language proficiency level.

The second section addresses foreign language proficiency (ESP/FOS), consisting of 12 items measuring students' ability to use specialized language in academic, communicative, and professional contexts.

The third section addresses Entrepreneurial Self-Efficacy (ESE), developed based on the established scales of Chen et al. (1998) and McGee et al. (2009). It includes 12 items measuring student entrepreneurs' confidence and belief in their own abilities to manage and establish their emerging projects across key dimensions. The questionnaire was scored using a five-point Likert scale, ranging from (1: strongly disagree) to (5: strongly agree).

3.4 Psychometric Characteristics of the Study Instrument

To ensure the study instrument's accuracy and validity for field application and statistical analysis, the instrument was subjected to reliability and validity tests. The preliminary study sample comprised 60 university students.

a. Instrument Reliability: To verify the stability and consistency of respondents' answers, Cronbach's alpha coefficient was calculated for the entire instrument, yielding a value of 0.79. This exceeds the statistically acceptable threshold of 0.70 for such studies, indicating the complete instrument's readiness for application to the core study sample of 92 students.

b. Instrument Validity: The questionnaire was initially presented to a panel of professors and expert judges in applied linguistics, educational psychology, and economic sciences to ensure the linguistic soundness of the statements and their relevance to the measured dimensions. Necessary adjustments were made based on their feedback.

Range	Number of sample members	Arithmetic mean	Standard Deviation	T	Degree of Freedom	Significance level
Upper	8	129.50	4.57	10.68	6	0.05
ower	8	112.62	5.68			

Table (4) presents the t-test value for examining differences between the upper and lower thirds of scores.

The table shows a statistically significant difference between the upper and lower groups, with a t-value of 10.68 at a significance level of 0.05. Therefore, the scale effectively discriminates between high and low levels of the attribute being measured, indicating that the questionnaire possesses an acceptable degree of discriminant validity.

c. Adequacy and limits of the instrument: The ESE items are based on established scales (Chen et al., 1998; McGee et al., 2009), and the 12 items per construct keep the questionnaire short. In the pilot sample

(n = 60), Cronbach's alpha for the whole instrument was 0.79, above the 0.70 threshold. One limit should be noted: ESP/FOS proficiency was self-reported, so it reflects perceived rather than tested proficiency.

4. Results Presentation, Analysis, and Discussion

4.1 Presentation and Discussion of Hypothesis 1 Results

Hypothesis 1 states: There is a positive correlation between the level of proficiency in specialized foreign languages (ESP/FOS) and the level of entrepreneurial self-efficacy of university students belonging to university incubators.

To examine the relationship between specialized language competence and entrepreneurial self-efficacy, Pearson's correlation coefficient was calculated. Statistical results revealed the following:

Variables	Testing	Sample N	P	R^2	Confidence Interval	Value
ESP/FOS	Pearson	92	0.888	0.0002	[−0.219, +0.190]	- 0.015
ESE	Slant				—	- 0.012

Table (5) shows the Pearson correlation coefficient value between specialized language competence and entrepreneurial self-efficacy (ESP/FOS and ESE).

Table 5 presents the statistical indicators for the correlation and effect test between competence in specialized foreign languages (ESP/FOS) as an independent variable and entrepreneurial self-efficacy (ESE) as a dependent variable. Results are as follows:

Pearson's correlation coefficient (r) was (-0.015), a value approaching zero, indicating the absence of a linear correlation between the two variables. The statistical significance value was 0.888 for both tests (correlation and regression), significantly exceeding the conventional significance threshold ($\alpha \leq 0.05$). The confidence interval ranges between (-0.219) and (+0.190). Since this interval includes zero (fluctuating between negative and positive), it confirms that no generalizable correlation can be established in the original study population.

The coefficient of determination (R^2) was 0.0002, meaning that specialized linguistic competence explains only 0.02% of the variation in students' entrepreneurial self-efficacy—an almost negligible amount. The unstandardized regression coefficient (b) was (-0.012), suggesting that changes in linguistic competence level are not associated with a measurable effect or linear progression in entrepreneurial competence levels.

Based on these indicators (particularly $p > 0.05$), we reject the study hypothesis, meaning that no statistically significant correlation or effect exists between competence in specialized foreign languages and entrepreneurial self-efficacy among sample members.

4.1.1 Interpretation and Discussion of Findings

The data reveal a phenomenon opposite to the originally proposed theoretical assumptions. While the theoretical framework assumes that proficiency in specialized languages (ESP/FOS) should enhance students' entrepreneurial confidence, results showed that students with intermediate ESP/FOS proficiency do not differ significantly from their peers in entrepreneurial self-efficacy (ESE) levels. Rather, the results suggest that ESE may increase independently of linguistic competence level, indicating the existence of important psycholinguistic and contextual implications that can be explained as follows:

The absence of significant correlation may reflect the relative independence of ESE's constituent factors from language proficiency. Chen and colleagues demonstrated that ESE is fundamentally shaped by five dimensions: marketing, innovation, management, risk-taking, and financial control (Chen, Greene & Crick, 1998). In the Algerian context specifically, university students may have acquired basic entrepreneurial confidence through activities other than ESP/FOS education—such as specialized entrepreneurship courses, applied projects, and exposure to successful local entrepreneurial models (Liñán & Chen, 2009). In their ESE study, McGee and colleagues suggest that entrepreneurial self-efficacy develops cumulatively through "mastery experiences," the most powerful of the four self-efficacy sources. However, "direct experiences" may be inherently limited in the university context, which may explain why students rely on other sources to build entrepreneurial confidence (McGee et al., 2009).

It is also likely that the expected relationship between ESP/FOS and ESE is mediated by other factors not assessed in this study, such as family background, local entrepreneurial culture, and previous exposure to entrepreneurial models. Despite recent developments in the Algerian environment supporting entrepreneurship, substantial differences may emerge in cultural incentives for entrepreneurial activity according to specialization, social class, and geographical region. In a sample of 302 Algerian students, Tounés and Mahmoudi (2022) found that perceived entrepreneurial climate lowered entrepreneurial intention, while ESE had a significant direct influence on it. This means that linguistic competence alone—even if specialized—may be insufficient to stimulate entrepreneurial confidence in the absence of supportive institutional and cultural environments.

The results also indicate a distinction between being "able to communicate in the specialized language" and being "entrepreneurially motivated." Dörnyei's (2001) research on language learners' motivation demonstrated that possessing language skills does not automatically translate into intentions to engage in behaviors those skills enable. A student may be capable of writing a business plan in English or French yet may not actually be interested in creating their own project. Bandura (1997) referred to the confusion between "actual competence" and "self-efficacy belief," emphasizing that actual competence and self-efficacy belief are psychologically and behaviorally distinct constructs. Consequently, ESP/FOS education, while providing students with real language competencies, may not automatically transfer to their belief in their ability to accomplish entrepreneurial tasks.

4.2 Presentation and Discussion of Hypothesis 2 Results

Hypothesis 2 states: "There are statistically significant differences in the nature of the relationship between specialized linguistic competence and entrepreneurial self-efficacy among study sample members attributable to the variable of academic specialization."

Specialization:	N	Pearson	Significance	R^2	Period of confidence	p value	INTERPRETATION
Computer Science/ Informatics	20	**0.121**		**0.015**	[−0.34, 0.54]	0.612	No significant relationship
Psychology	23	**−0.249**		**0.062**	[−0.60, 0.18]	0.251	No significant relationship
Social Sciences/Communication	16	**0.301**		**0.091**	[−0.23, 0.69]	0.257	No significant relationship

Management Science/Economics	6	**0.681**	†	**0.464**	[—]	0.092	Not significant (trend)
Humanities/Science	6	**0.753**	†	**0.567**	[—]	0.084	Not significant (trend)
Pharmacy Medicine	3	**−0.988**	†	**0.976**	[—]	0.099	No significant relationship
Other/multiple	18	**−0.402**		**0.162**	[−0.74, 0.10]	0.109 -	No significant relationship

Table (6) shows the significance of differences in the relationship nature.

Table 6 presents Pearson correlation coefficient values (r), significance levels (p), and determination coefficients (R^2) for (7) groups of academic disciplines plus an "other disciplines" category. Results were as follows:

- All disciplines showed no statistical significance: Statistical significance values (p-values) for all disciplines exceeded the approved significance level (0.05), meaning the study hypothesis is statistically rejected-there is no statistically significant relationship between specialized linguistic competence and entrepreneurial self-efficacy attributable to specialization.

- Basic technical and human disciplines showed weak to moderate, non-significant correlations ($p > 0.05$), including Computer Science/Informatics (n=20), Psychology (n=23), and Social Sciences/Communication (n=16).

- Marginally non-significant indicators emerged, approaching the statistical significance threshold in two primary disciplines:

- Management Sciences and Economics (n=6): Strong direct correlation ($r = 0.681$) and near-significant ($p = 0.092$), with specialized language proficiency explaining ($R^2 = 0.464$) of their entrepreneurial self-efficacy variation.

- Arts and Humanities (n=6): Very strong direct correlation ($r = 0.753$) and near-significant ($p = 0.084$) with a high determination coefficient ($R^2 = 0.567$), meaning language proficiency explains 57% of the entrepreneurial self-efficacy variation for this category.

4.2.1 Interpretation and Discussion of Findings

These indicators provide a psychological, linguistic, and analytical reading of sample characteristics, explaining variations in these relationships across academic disciplines as follows:

Informatics students showed weak, non-significant positive correlation ($r = 0.121$, $p = 0.612$). From a cognitive psycholinguistics perspective, this result is attributed to the Bandura self-efficacy model, wherein technical students build entrepreneurial conviction based on "technical mastery experiences" stemming from solid programming and technical skills.

From applied linguistics and entrepreneurship psychology perspectives, these students experience what is known as "product-centric cognitive bias," wherein psychology posits that a project's added value and investment feasibility are entirely determined by source code quality or product technological structure. This epistemic localization creates "latent communicative blindness" at this incubation stage, appears largely disconnected from an awareness of linguistic soft skills' effects, reducing specialized language (ESP) from a negotiation and strategic persuasion tool to a mere secondary technical coding tool structurally unrelated to entrepreneurial certainty or achievement motivation.

Psychology students recorded a non-significant negative trend (r = -0.249, p = 0.251), while social sciences and communication students recorded a non-significant positive correlation (r = 0.301, p = 0.257). Applied linguistics literature and learning transfer theory explain this discrepancy: it reflects the persistence and underdevelopment of field practices for teaching specialization languages (ESP/FOS) within humanities faculties.

From a cognitive constructivism perspective, current linguistic approaches fall into a "passive knowledge" trap. Foreign language lessons revolve around historical theoretical texts (such as translations of behavioral or analytical literature) without functional connection to entrepreneurial contexts or rhetorical and marketing persuasion skills. This pedagogical disconnect creates a "cognitive and psychological buffer" preventing students from linking academic linguistic mastery to their entrepreneurial context, making linguistic fluency run in a completely isolated line parallel to "self-certainty and innovation." The negative correlation among psychology students reflects "cognitive overload." Academic foreign language confined to traditional teaching constitutes mental pressure and a source of "foreign language anxiety," negatively affecting their entrepreneurial confidence and perceived self-efficacy (ESE) when confronting realistic university incubator challenges.

Despite the small respondent sample size in economics and humanities (n=6), preventing achievement of complete statistical significance below 0.05, the strong correlation values (0.681 and 0.753) carry fundamental scientific significance: management and economics students are structurally and terminologically closest to the entrepreneurial context. When the economics student possesses ESP/FOS competence, they employ it directly in formulating business plans and understanding international financing structures, reflecting a qualitative leap in entrepreneurial self-efficacy ($R^2 = 0.464$).

Regarding arts and humanities students, due to their initial lack of solid technical and business skills, specialized language appears to function as a key compensatory and empowering resource. A linguistically proficient humanist finds in psycholinguistic fluency a compensatory means enhancing their persuasive, presentational, and interactive communication abilities, explaining the exceptional determination coefficient strength here, as linguistic proficiency alone accounted for approximately 57% of this category's entrepreneurial confidence.

4.3 General Discussion

The near-zero correlation (r = −.015, 95% CI [−0.219, +0.190]) does not support the expectation, drawn from social cognitive theory, that specialised language proficiency raises entrepreneurial self-efficacy. Four readings fit the data. They are hypotheses for future work, because this design cannot separate them.

First, predictor and criterion may not correspond. Bandura (1997, 2012) argues that efficacy beliefs predict best when they match the task in question. Language proficiency and self-efficacy did predict success in an English-medium business course (Thompson et al., 2019), but there the outcome was itself language-mediated. Most ESE items here concern opportunity recognition, planning, finance and risk. Only international marketing and communication depends directly on language, and a single composite score may hide a link that exists for that dimension alone. Newman et al. (2019) likewise place the antecedents of ESE mainly in experience, role models and education.

Second, the range may be restricted. Incubator students may already be confident, and reduced variance weakens correlations (Sackett & Yang, 2000). If most respondents sit at an intermediate level of ESP/FOS, a threshold effect (Cummins, 1979, by analogy) could also escape a linear coefficient.

Third, disciplines differ. Coefficients run from −.402 in the mixed group to +.753 in humanities, and opposite signs can cancel in the pooled sample. This agrees with evidence that entrepreneurship education works differently for business students and for science and engineering students (Maresch et al., 2016), and with the view of English as capital whose value depends on the situation (Almusharraf, 2026). The groups are small and no coefficient reached $p < .05$, so the 57% of variance for humanities (n = 6) is descriptive only.

Fourth, the proposed mechanism was not measured. The Abstract and Section 2.2 invoke reduced anxiety and communicative identity, but neither was tested. Since second language anxiety correlates robustly with achievement (Teimouri et al., 2019), We propose that future studies include it as a mediator.

Context may also matter. Among Algerian students, perceived entrepreneurial climate lowers intention (Tounés & Mahmoudi, 2022), so institutional conditions may outweigh individual language resources. The cross-sectional design, self-reported proficiency and small groups limit all these readings. The contribution is therefore a boundary condition: ESP/FOS proficiency is not a general predictor of ESE, and its relevance seems to depend on discipline and on the ESE dimension. This supports differentiated language support in incubators.

5. Conclusion

This study aimed to illuminate a contemporary interdisciplinary issue imposed by educational and economic transformations in the university environment: examining the psycholinguistic link between competence in specialized foreign languages (ESP/FOS) and entrepreneurial self-efficacy (ESE) among university incubator students. Statistical treatment of study data (N=92) revealed findings that invite a more nuanced reading of established theoretical assumptions. Results showed no statistically significant linear correlation between the two variables in their absolute total form ($r = -0.015$, $p = 0.888$), reflecting the independence of entrepreneurial awareness and certainty among students in early project innovation stages from their foreign language fluency, suggesting that this self-efficacy may depend more on psychological and self-related traits than on linguistic competence alone.

However, careful data analysis according to the modified variable "academic specialization" provided deeper explanatory understanding. The relationship was found to vary considerably across disciplines. While language's impact on computer science and informatics students favors their solid technical competence (hard skills) and appears isolated among psychology and social science students due to traditional dry academic teaching patterns, it appears to function as a compensatory psychological resource for arts and humanities students ($r = 0.753$) and management and economics students ($r = 0.681$), where, descriptively, language proficiency is associated with approximately 57% (humanities) and 46% (management and economics) of the variance in entrepreneurial confidence. These contrasting patterns point to the continued risk posed by language barriers when a potential obstacle threatening students' aspirations when transitioning their projects from local scope to internationalization and presentation to international bodies (pitching).

Study Recommendations

Based on field results and extensive psychological and linguistic discussions, we present procedural recommendations addressed to university incubators and educational decision-makers, followed by promising research prospects:

1. Transfer specialized-purpose language programs from isolated theoretical academic courses, integrating them as interactive immersive workshops within university incubators, with contents designed based on student entrepreneurs' direct communication and professional needs.

2. Adopt "specialization-targeted language training" by customizing content: provide technical and technological discipline students with soft communication skills, marketing discourse, and pitching presentations to overcome performance anxiety; providing human and social discipline students with targeted entrepreneurial and economic terminology that builds on their existing expressive fluency in constructing integrated business plans.

3. Emphasize training in international finance and business terminology ownership to reduce the knowledge gap between "innovative idea" and the ability to "linguistically frame it," limiting hesitation and communicative frequency while raising emerging entrepreneurs' psychological flexibility.

4. Organize periodic incubator competitions requiring students to present projects in specialized foreign languages before local and international (mock) arbitration committees, embodying intercognitive and linguistic empowerment functions and motivating early internationalization throughout incubation.

5. Conduct longitudinal studies investigating specialized linguistic competence's impact on emerging project success after incubator graduation and actual entry into internationalization and global market competition.

6. Pursue comparative research on the effectiveness of proposed training programs combining ESP/FOS with artificial intelligence skills in reducing "foreign language anxiety" among student entrepreneurs during project presentations (pitching).

7. Examine the impact of multilingual entrepreneurial identity on strategic decision-making under uncertainty conditions for young entrepreneurs.

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