

The Impact of Modern Teaching Strategies "Problem-Solving as a Model" on Fostering Entrepreneurial Spirit Among University Students: A Case Study of a Sample of LMD Students.

Farid SALMI *¹, Djoudi SATOURI ²

¹ Mohamed El Bachir El Ibrahimi University (Bordj Bou Arréridj), Algeria, farid.salmi@univ-bba.dz

² Mohamed El Bachir El Ibrahimi University (Bordj Bou Arréridj), Algeria, djoudi.satouri@univ-bba.dz

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Abstract :

This research intends to study the effect of adopting and persuading creative and active teaching methods—in particular, problem-solving methods—on the development of entrepreneurial spirit of university students at the University Martyr Sheikh Larbi Tebessi Tebessa. To achieve the objectives of the study, a descriptive and analytical approach was used, and an electronic questioner was constructed to collect data from a sample of 384 university students. The data were collected, coded and analyzed by the software Statistical packaged for the Social Sciences (SPSS). The results of the study showed that creative teaching strategies, particularly through problem-solving, are adopted to a very acceptable extent, and need to be valued and increased by the removal of barriers to its wider usage, and the study also indicated that there was tangible activity to move towards developing an entrepreneurial spirit amongst higher education students faced with current changes, and there was a significant statistically relationship (at a confidence level of $\alpha \leq 0.05$) between the dimensions of problem-solving strategy and the developing of students' entrepreneurial spirit significance of a connection between these qualities through the educational approach being adopted.

Keywords : Creative Teaching, Active Learning, Problem-Solving Strategy, Entrepreneurship, Entrepreneurial Spirit

JEL Classification Codes: (obligatory).

* Corresponding Author

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1. Introduction:

The modern global economy has come to revolve around the production of new ideas and the development of innovative applications and strategies rooted in creativity and innovation. This shift has placed investment in human resources among the top priorities for any nation, as it is considered the foundation of development across the world and the most effective means of ensuring an institution's continuity and sustainability. This is achieved by identifying opportunities, mobilizing the necessary—especially human—resources, and empowering individuals with the skills, knowledge, and convictions required for success. These factors contribute to making them more competent and efficient. Among the most important tools for developing human capital—alongside healthcare and well-being—is education. An educated individual has the capacity to transform resources and generate ideas that contribute to the optimal use of limited resources, which lies at the core of economics and represents its primary challenge.

There is no doubt that education plays a central and effective role in fostering individuals' entrepreneurial mindset. This is achieved through the adoption of appropriate pedagogical approaches aimed at developing individuals' entrepreneurial readiness, competencies, and behaviors, enabling them to realize their talents and creativity in real-life contexts, confront and address problems, and attempt to solve them based on the essential knowledge and skills they have acquired. The ultimate goal is to equip them to face future challenges and issues.

Much of the global growth and rise in these countries economic standing can be attributed to education in the past century, particularly to educating their populations to achieve levels of productivity that allow them to compete as advanced countries even when they were considered developing countries as recently as the mid-20th century. South Korea serves as a specific example and other countries in Southeast Asia (the so-called Asian Tigers) also serve as expanding examples.

The significance of the present study stems from recognizing the importance of investing in education, as it yields future returns when properly guided by a forward-looking vision based on a well-defined strategy. Such a strategy must take into account the major transformations occurring in the labor market, particularly as advanced economies shift toward knowledge-based production of goods and services. This change requires skills and expertise that are very different than those needed in traditional economies. Thus, Algeria has embraced a policy of promoting and creating small and medium-sized enterprises, using various measures and institutions to try and overcome obstacles to their development.

Research Problem: Based on the above, the research problem of this study can be stated in the following question:

"To what extent does entrepreneurial education shape the development of the entrepreneurial spirit in university students?"

Since there are many different models of entrepreneurial education, the research study will consider one of the most common and applied strategies—the problem-solving strategy—because problem-solving strategy aligns itself "cleanly" with the creative teaching model. Therefore, the main research question will be reframed as:

"To what extent does education by means of the problem-solving strategy shape the development of the entrepreneurial spirit in students in higher education?"

From this research main question we can consider the following sub-questions:

- Do higher education institutions use education by means of the problem-solving strategy?
- Do higher education institutions endeavour to develop the entrepreneurial spirit in their students?

Is there a relationship between the problem-solving strategy and the entrepreneurial spirit in students in higher education?

Research Hypotheses:

This study is based on the following hypotheses:

- First Hypothesis: Higher education institutions adopt the problem-solving strategy.
- Second Hypothesis: Higher education institutions work to develop the entrepreneurial spirit among their students.
- Third Hypothesis: There is a statistically significant correlation at a confidence level of ($\alpha \leq 0.05$) between the problem-solving strategy and the entrepreneurial spirit among higher education students.

Significance of the Study:

This study has significant importance because of its topicality and relevance, as: This research is valuable as it expands on enterprising education and creative teaching, which are two fundamental components for developing the personality of university students.

The study aligns with global trends and responds to national efforts and political leadership in Algeria to promote entrepreneurship, which is clearly reflected in recent legislation, particularly Law 22-22 amending and supplementing Ordinance 06-03.

Objectives of the Study:

This research is intended to improve our understanding of the relationship between active and creative teaching in higher education institutions, and the development of an entrepreneurial spirit, by:

- Analyzing the conceptual and theoretical framework associated with creative and active learning, and entrepreneurial spirit.
- Investigating the current state of active and creative teaching in higher education institutions.
- Highlighting the importance of entrepreneurship and its role in addressing the challenges, problems, and obstacles faced by the Algerian economy in general.
- Striving, as much as possible, to present a study characterized by scientific objectivity.

Study Methodology:

In order to answer the research problem and verify its hypotheses, we adopted the descriptive and analytical approach, as it is the most suitable method for conducting this study.

Study Limitations:

The limitations of the study are as follows:

- **Spatial limitation:** This study was conducted at the University of Martyr Sheikh Larbi Tebessi, located in the Wilaya of Tebessa, Algeria.
- **Temporal limitation:** This study was carried out during the month of May 2025.

Previous Studies:

A study by *Mohammed Hadi Ali Al-Shahri* and *Hamada Khalifa Fahmy Khalifa* (2016), entitled: *"The Employment and Practice of Modern Teaching Strategies in Light of Education Quality Standards by Faculty Members at the College of Science and Arts in Sharurah Governorate."*

This study aimed to identify the modern teaching strategies used at the College of Science and Arts in Sharurah Governorate, determine the correct practices for selecting and implementing those strategies, and reveal the extent to which faculty members at the college adhere to these practices.

To achieve this, a research instrument was developed in the form of a survey that included the teaching strategies used and their associated practices. The survey targeted male and female faculty members, as well as male and female students. The study sample included 64 faculty members (31 males and 33 females) and 161 students (including 97 female students).

The results showed that many teaching strategies were indeed employed, with varying degrees of quality in their proper application. The degree of utilization ranged from high to moderate for most

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strategies and practices. Furthermore, the study found that the highest levels of strategy employment, from the perspective of both students and faculty members, leaned towards traditional strategies and their associated practices, such as lectures, discussions, and dialogue.

The study also revealed statistically significant differences between faculty members and students in their responses to the survey in relation to the two main themes of the study: the use of teaching strategies and the quality of their instructional practices. (Al-Shahri & Fahmy Khalifa, 2016, pp. 139–140).

Belmouhoub Khadidja and Ben Genzoua Nour El Houda (2022) conducted a study "The Impact of Entrepreneurial Higher Education on the Entrepreneurial Behavior of University Students: A Case Study of a Sample of Students from the Faculty of Economic, Commercial and Management Sciences, University of Setif 1," which aimed to investigate the role of entrepreneurial higher education in the entrepreneurial behavior of students, assess what specific elements of behavior such as creativity, leadership, flexibility, planning, risk-taking, opportunity recognition and self-efficacy, were activated in the sample students. The researchers developed a questionnaire and used a sample of 94 students from the Faculty of Economic, Commercial and Management Sciences at the University of Setif 1, for which the data was analyzed using Smart PLS 3. On the basis of the authors' analyses, the results found that out of the two aspects of entrepreneurial behavior, entrepreneurship education had the greatest effect on opportunity perception and self-esteem, with moderate level. Opportunities perceptions and self-esteem were followed by adaptability, planning and design, and risk-taking that were characterized as a weak effect, while no effect was reported for leadership and creativity from entrepreneurial education for students in the study sample according to their results (Belmouhoub & Ben Genzoua, 2022, P.285).

A study by Ben Kattaf Ahmed (2021), entitled "The Role of Entrepreneurship and Its Contribution to Promoting Entrepreneurial Spirit in Universities – An Evaluative Study of the Entrepreneurship House at the University of Bordj Bou Arréridj", aimed to shed light on the role played by entrepreneurship houses in universities in enhancing and stimulating the entrepreneurial spirit among university students. These houses act as a vehicle to engage students with the range of support and aid provided by the state to support young people's business start-ups and particularly through the National Agency for Youth Employment Support (ANSEJ), which is the official partner of entrepreneurship houses in universities. The research reveals that the role of the entrepreneurship houses is mostly limited to the promotion of the variety of schemes created by ANSEJ, delivering some training of the mechanics of starting a business, and organizing events aimed at getting students acquainted with the support and assistance mechanisms linked to startup projects (Ben Kattaf, 2021, p. 185).

2. Theoretical Literature:

2.1 Problem-Solving Strategy:

Problem-solving is defined as “an organized behavior aimed at achieving a specific goal through thinking and using strategies and methods that help individuals overcome their problems. Problem-solving is a cognitive mental activity that requires precise mental processing and involves various forms of thinking, with the level of thinking increasing as the complexity of the problem grows” (Al-Atoum, 2004, p. 338).

Nawal Mohamed Saleh Anani defines problem-solving as: “The discovery of relationships among existing elements and their rearrangement leads to the identification of missing elements, which usually represent the solution” (Anani, 2001, p. 293).

Researchers Krulik and Rudnick (1980) define problem-solving as: “A thinking process in which an individual uses previously acquired knowledge and skills to respond to the demands of a situation unfamiliar to them. The response involves undertaking an action aimed at resolving the contradiction, ambiguity, or confusion presented by the situation. The contradiction may take the form of a lack of logical coherence, a gap, or a flaw in the components of the situation” (Badrina, 2016, p. 14).

2.2. Steps of the Problem-Solving Strategy:

Problem-solving is the desired outcome when facing challenges; however, this solution does not emerge suddenly but unfolds in several key stages:

- **Sensing the problem**
- **Defining the problem**
- **Collecting data and information:** using sources to gather, classify, and organize information to reach key ideas
- **Identifying appropriate solutions**
- **Testing possible solutions** (through experimentation or discussion, collecting, interpreting, and organizing data)
- **Choosing a solution to the problem**
- **Drawing conclusions and evaluating** (Hamdan, 2018, pp. 165–166)

2.3 The Concept of Entrepreneurial Spirit:

The concept of **entrepreneurial spirit** has garnered increasing interest among youth due to its relevance to the issue of unemployment. It is closely tied to initiative and action—individuals with an entrepreneurial spirit possess the willingness to try new things or do things differently, in ways that align with their capacity to adapt to change. This is achieved through presenting ideas and acting with openness and flexibility (Salami, 2008, p. 6).

The entrepreneurial spirit refers to a set of qualifications and abilities that define the entrepreneurial personality and reflect entrepreneurial behavior and conduct. Although researchers have not reached a consensus on a definitive list, the following traits can be inferred:

- **Recognizing and seizing opportunities** (Masdour, 2009, p. 26)
- **Creating value:** reflecting the entrepreneur's creative ability to develop new combinations based on available resources and specific conditions, such as producing new goods or services, introducing new working methods, opening new markets, identifying new funding sources, or devising new organizational methods
- **Generating innovative ideas that allow one to rise to challenges**
- **Making sound decisions** (Lefkir, 2009, p. 18)
- **Embracing ambiguity**
- **Initiating and pioneering efforts**
- **Extracting and analyzing information carefully**
- **Achieving optimal goals under adverse conditions**
- **Handling uncertainty in the surrounding environment**
- **Acting based on calculated expectations**
- **Taking risks without fearing failure**
- **Introducing change that enables new gains**
- **Acting flexibly**
- **Demonstrating dynamism and critical thinking** (Catherine Léger-Jarniou, 2008, p. 168)

Accordingly, **entrepreneurial spirit** is a broad concept rich in meanings and implications. It goes beyond the mere creation of individual enterprises to encompass the development of competencies and abilities that foster openness to change. It also involves acquiring skills and knowledge through engagement in the scientific field and experimentation with new ideas. As a result, it helps break the fear barrier toward change and promotes flexibility in dealing with emerging developments (Fneit & Bourma, 2018, p. 224).

3. Applied Aspect of the Study:

3.1. Study Population:

The study population consisted of higher education students at the University of Martyr Sheikh Larbi Tebessi in the Wilaya of Tébessa, Algeria. The final study sample comprised **384 individuals**.

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3.2. Study Instrument:

To collect the study data, we relied on the following:

- **In the theoretical section:** We reviewed articles and reports related to the study topic by accessing official institutions' websites to examine various reports. Additionally, we consulted Arabic scientific articles—especially Algerian ones—and foreign scientific articles published on platforms such as **Google Scholar**, **Scopus**, and **ASJP**, using the following keywords: *creative teaching*, *active learning*, *problem-solving*, *entrepreneurship*, *entrepreneurial spirit*.
- **In the fieldwork section:** We designed a questionnaire consisting of three parts.
 - The **first section** was dedicated to personal and demographic data (gender, age, level of study).
 - The **second and third sections** were allocated to the study variables:
 - First, to measure the overall degree of implementation of the **independent variable**, *Problem-Solving Strategy*, in higher education institutions, we included **40 items**, evenly distributed across the five dimensions of the strategy—**8 items per dimension**.
 - Second, for the **dependent variable**, *Entrepreneurial Spirit*, we used **25 items** for measurement.

Responses to each item were rated using a **five-point Likert scale**, as follows:

Table 1. Five-Point Likert Scale

Classification	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Score	5	4	3	2	1

Source: Prepared by the researchers.

To determine the scale's category ranges, the length of each category is calculated as follows:

Category Length = Range / Number of Scale Points

$$= (5 - 1) / 5 = \mathbf{0.80}$$

Accordingly, the scale categories are defined as shown in the following table:

Table 2. Five-Point Likert Scale Categories and Their Interpretation

Category Range	Classification	Interpretation
1.00 to 1.79	Strongly Disagree	Very High Level of Disagreement
1.80 to 2.59	Disagree	High Level of Disagreement
2.60 to 3.39	Neutral	Moderate Level
3.40 to 4.19	Agree	High Level of Agreement
4.20 to 5.00	Strongly Agree	Very High Level of Agreement

Source: Prepared by the researchers based on the Five-Point Likert Scale.

3.3. Description of the Study Sample:

Table (03) below presents the statistical description of the study sample according to gender, age, and level of study.

Table 3. Statistical Description of the Study Sample

Variables	Frequency	Percentage (%)
Gender		
Male	234	60.9%
Female	150	39.1%
Age		

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Under 20	118	30.7%
20–25	215	56%
Over 26	51	13.3%
Level of Study		
Bachelor's	166	43.2%
Master's	187	48.7%
Doctorate	31	08.1%

Source: Prepared by the researchers based on Google Forms outputs.

As shown in Table (03), the percentage of male participants is 60.9%, compared to 39.1% female participants. The majority of respondents belong to the youth age group. The largest proportion of participants were bachelor's students at 43.2%, followed by master's students at 48.7%, while doctorate students represented 8.1% of the total participants who responded to the questionnaire.

3.4. Validity and Reliability of the Study Instrument:

3.4.1. Validity of the Study Instrument:

Validity refers to the degree that the instrument measures what you intend it to measure. The validity of the instrument is based on content validity. Internal consistency of the questionnaire items was computed using a study sample of 65 participants, by calculating the correlation coefficients between each item and total score of its respective axis.

1. Internal validity of the items in the second axis.

Table 4. Internal Validity of the Items in the Second Axis (Problem-Solving Strategy)

Item No.	R	SIG	Item No.	R	SIG
1	0.470**	.000	21	0.744**	.000
2	0.258**	.000	22	0.668**	.000
3	0.430**	.000	23	0.756**	.000
4	0.485**	.000	24	0.696**	.000
5	0.501**	.000	25	0.667**	.000
6	0.343**	.003	26	0.460**	.000
7	0.525**	.000	27	0.627**	.000
8	0.515**	.000	28	0.678**	.000
9	0.366**	.000	29	0.416**	.000
10	0.562**	.000	30	0.367**	.000
11	0.356**	.000	31	0.339**	.000
12	0.591**	.000	32	0.627**	.000
13	0.362**	.000	33	0.543**	.000
14	0.416**	.000	34	0.431**	.000
15	0.465**	.000	35	0.460**	.000
16	0.559**	.000	36	0.398**	.000
17	0.619**	.000	37	0.385**	.000
18	0.448**	.000	38	0.406**	.000
19	0.595**	.000	39	0.457**	.000
20	0.620**	.000	40	0.366**	.000

Source: Prepared by the researchers based on the outputs of SPSS V.28.

From the table above, we observe that the correlation coefficients between each item of the second axis and the overall average of its items are positive and statistically significant at the 0.05 level of significance.

Internal Validity of the Items in the Third Axis:

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Table 5. Internal Validity of the Items in the Third Axis (Entrepreneurial Spirit)

Item No.	R	SIG	Item No.	R	SIG
41	0.533**	.000	54	0.387**	.000
42	0.502**	.000	55	0.359**	.000
43	0.483**	.000	56	0.357**	.000
44	0.460**	.000	57	0.651**	.000
45	0.541**	.000	58	0.433**	.000
46	0.587**	.000	59	0.366**	.000
47	0.400**	.000	60	0.359**	.000
48	0.552**	.000	61	0.382**	.000
49	0.496**	.000	62	0.326**	.000
50	0.327**	.000	63	0.503**	.000
51	0.513**	.000	64	0.418**	.000
52	0.479**	.000	65	0.567**	.000
53	0.312**	.000			

Source: Prepared by the researchers based on the outputs of SPSS V.28.

From the table above, we observe that the correlation coefficients between each item of the third axis and the overall average of its items are positive and statistically significant at the 0.05 significance level. Accordingly, all items of the third axis are considered valid and internally consistent with what they were intended to measure.

3.4.2 Reliable Questionnaire:

When we consider questionnaire reliability, we refer to the questionnaire's results' consistency; the questionnaire will provide the same results if readministered multiple times under the same conditions. Reliability in the case of the questionnaire was estimated on the optional sample with Cronbach's Alpha coefficient since the purpose of this method is to measure reliability based on the internal consistency present among the study participants' responses.

A Cronbach's Alpha value is considered statistically acceptable if it reaches 60% or higher, which indicates the degree of homogeneity of the measurement tool as one of the indicators of its reliability and the dependability of its items. This test is one of the most commonly used methods to verify the internal consistency and coherence of a research instrument.

In this test, the Cronbach's Alpha coefficient will be calculated for the items of the questionnaire.

Table 6. Reliability Coefficient of the Questionnaire Axes (Cronbach's Alpha)

Axis No.	Dimensions and Axes	Number of Items	Cronbach's Alpha
Second	General Orientation	08	0.648
	Problem Definition	08	0.682
	Generation of Alternatives	08	0.753
	Decision-Making	08	0.721
	Evaluation	08	0.635
	Second Axis: Problem-Solving Strategy	40	0.725
Third	Third Axis: Entrepreneurial Spirit	25	0.724
All Axes	Total Questionnaire	65	0.906

Source: Prepared by the researchers based on the outputs of SPSS V.28.

We see from the table above that, based on the calculation of Cronbach's Alpha coefficient, the total reliability of the questionnaire was 90.6%, which is well above the acceptable reliability value of 60%. This suggests that the measurement tool is very reliable and consistent overall.

As for the individual axes of the study, the second axis recorded a reliability coefficient of 72.5%, while the third axis recorded 72.4%. These values demonstrate that both the questionnaire and its axes possess a high degree of internal consistency and reliability.

3.5 Testing the Study Hypotheses and Analyzing the Results:

3.5.1. Results Related to the First Hypothesis:

"Higher education institutions adopt the problem-solving strategy."

To answer this question, the arithmetic means for each item of the questionnaire were calculated.

A. General Orientation Dimension:

Table 7. Responses of the Study Sample to the Items of the "General Orientation" Dimension

Item No.	Always	Often	Sometimes	Rarely	Never	Mean	Std. Dev.	Response Degree
1	122	198	64	00	00	4.1510	0.6802	Agree
2	58	84	141	95	06	2.7578	1.0377	Neutral
3	147	168	47	21	01	4.1432	0.8536	Agree
4	218	116	41	06	03	4.4063	0.8024	Strongly Agree
5	126	201	45	12	00	4.1484	0.7414	Agree
6	56	52	142	118	16	2.9635	1.0929	Neutral
7	226	125	21	12	00	4.4714	0.7399	Strongly Agree
8	155	156	61	09	03	4.1745	0.8354	Agree
All Items						3.9020	0.3636	Agree

Source: Prepared by the researchers based on the outputs of SPSS V.28.

It is evident from Table (07) that the overall arithmetic mean of the items related to the "General Orientation" dimension is 3.9020, indicating that the respondents generally agree with the statements in this domain. This result suggests that the majority of students in higher education institutions possess the ability to deal with everyday life problems. Moreover, they actively work on developing their abilities and strive to think of new solutions with a high probability of success.

B. Problem Definition Dimension:

Table 8. Responses of the Study Sample to the Items of the "Problem Definition" Dimension

Item No.	Always	Often	Sometimes	Rarely	Never	Mean	Std. Dev.	Response Degree
09	120	184	68	12	00	4.0729	0.7815	Agree
10	21	44	184	108	27	3.1979	0.9267	Neutral
11	155	167	53	09	00	4.2188	0.7675	Strongly Agree
12	38	74	144	119	09	2.9661	0.9968	Neutral
13	188	171	19	06	00	4.4089	0.6599	Strongly Agree
14	172	150	47	15	00	4.2474	0.8167	Strongly Agree
15	63	102	127	89	03	2.6536	1.0333	Neutral
16	63	76	108	105	32	2.9141	1.2072	Neutral
All Items						3.5850	0.4254	Agree

Source: Prepared by the researchers based on the outputs of SPSS V.28.

According to Table (08), the overall average of the items concerning the "Problem Definition" dimension is 3.5850, which means that the respondents were in agreement with the statements related to this principle. This outcome is likely a result of the participants' ability to utilize a systematic method when confronting problems. Moreover, they were able to consider the various components of the problematic situation and they attempted to anticipate the results of the suggested solutions as well.

C. Alternative Generation Dimension:

Table 9. Responses of the Study Sample to the Items of the "Alternative Generation" Dimension

Item No.	Always	Often	Sometimes	Rarely	Never	Mean	Std. Dev.	Response Degree
17	17	61	203	100	03	3.0286	0.7927	Neutral
18	161	179	41	03	00	4.2969	0.6858	Strongly Agree
19	13	57	137	148	29	3.3203	0.9332	Neutral
20	23	53	154	137	17	3.1875	0.9373	Neutral

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21	33	53	132	145	21	3.1771	1.0244	Neutral
22	31	43	118	144	48	3.3516	1.0905	Neutral
23	34	44	135	143	28	3.2266	1.0413	Neutral
24	67	66	138	106	07	2.7917	1.0855	Neutral
All Items						3.2975	0.5952	Neutral

Source: Prepared by the researchers based on the outputs of SPSS V.28.

It is clear from Table (09) that the overall arithmetic mean of the items related to the **"Alternative Generation"** dimension is **3.2975**, which indicates a **neutral** response from the sample regarding this dimension. This suggests that while participants demonstrate some effort in searching for various pieces of information related to the problem in order to think of possible solutions, a significant portion of the sample appears to struggle with organizing their thoughts at the moment of facing a problem. Moreover, they often experience **feelings of frustration and irritability** when the solutions they come up with fail.

D. Decision-Making Dimension:

Table 10. Responses of the Study Sample to the Items of the "Decision-Making" Dimension

Item No.	Always	Often	Sometimes	Rarely	Never	Mean	Std. Dev.	Response Degree
25	51	42	100	150	41	3.2292	1.1872	Neutral
26	193	144	38	09	00	4.3568	0.7546	Strongly Agree
27	16	48	114	191	15	3.3672	0.9014	Neutral
28	46	44	125	145	24	3.1484	1.0965	Neutral
29	185	148	46	05	00	4.3359	0.7363	Strongly Agree
30	159	169	52	04	00	4.2578	0.7252	Strongly Agree
31	145	166	64	09	00	4.1641	0.7827	Agree
32	29	65	149	114	27	3.1172	1.0190	Neutral
All Items						3.7471	0.4906	Agree

Source: Prepared by the researchers based on the outputs of SPSS V.28.

It is evident from Table (10) that the overall arithmetic mean of the items related to the **"Decision-Making"** dimension is **3.7471**, which indicates an **agreement** from the respondents regarding this principle. This result can be attributed primarily to the fact that the majority of the sample possess the ability to understand the short- and long-term consequences of the chosen solution. Furthermore, they are capable of identifying the most appropriate solution from among the available alternatives.

E. Evaluation Dimension:

Table 11. Responses of the Study Sample to the Items of the "Evaluation" Dimension

Item No.	Always	Often	Sometimes	Rarely	Never	Mean	Std. Dev.	Response Degree
33	46	41	131	140	26	3.1536	1.0958	Neutral
34	185	163	36	00	00	4.3880	0.6527	Strongly Agree
35	48	52	122	140	22	3.0938	1.1061	Neutral
36	108	155	96	13	12	3.8698	0.9661	Agree
37	104	99	95	78	08	2.4453	1.1503	Rarely
38	162	167	46	06	03	4.2474	0.7841	Strongly Agree
39	134	173	62	15	00	4.1094	0.8101	Agree
40	150	190	44	00	00	4.2760	0.6558	Strongly Agree
All Items						3.9679	0.3782	Agree

Source: Prepared by the researchers based on the outputs of SPSS V.28.

It is clear from Table (11) that the overall mean score for the statements under the "Post-Evaluation" dimension is **3.9679**, which indicates that the respondents **agree** with the statements of this dimension. This result particularly reflects their ability to **identify the nature of the problem**,

develop a plan to implement an appropriate solution, and handle various everyday life problems.

On the other hand, a noticeable lack was recorded in the respondents' ability to reflect on the negative aspects of their proposed solutions (self-criticism), which should be addressed. This ability is considered one of the key characteristics that should be present in individuals with an entrepreneurial mindset.

F. Results of Testing the First Hypothesis:

Table 12. Respondents' Answers to the "Problem-Solving Strategy" Axis

No.	Dimensions of the Problem-Solving Strategy	Mean Score	Standard Deviation	Level of Response
01	General Orientation	3.9020	0.3636	Agree
02	Problem Definition	3.5850	0.4254	Agree
03	Generating Alternatives	3.2975	0.5952	Neutral
04	Decision-Making	3.7471	0.4906	Agree
05	Evaluation	3.9679	0.3782	Agree
Axis	Overall	3.6459	0.3483	Agree

It is clear from Table (12) that the overall mean score for the "Problem-Solving Strategy" axis is **3.6459**, which indicates that respondents **agree** with the statements of this axis, particularly those related to the principles of **general orientation** and **evaluation**.

3.5.2 Results Related to the Second Hypothesis:

Higher education institutions foster entrepreneurial spirit among their students.

To answer this question, the **mean** and **standard deviation** were calculated for each item in the questionnaire related to the "Entrepreneurial Spirit" axis.

Table 13. Respondents' Answers to the "Entrepreneurial Spirit" Axis

Item No.	Level of Agreement					Mean	Std. Deviation	Response Level
	Always	Often	Sometimes	Rarely	Never			
41	120	161	61	36	06	3.9193	0.9947	Agree
42	51	218	66	43	06	3.6901	0.8940	Agree
43	84	161	69	51	19	3.6250	1.1124	Agree
44	100	215	36	27	06	3.9792	0.8818	Agree
45	146	165	31	27	15	4.0417	1.0463	Agree
46	93	187	44	45	15	3.7760	1.0629	Agree
47	63	159	59	91	12	3.4427	1.1133	Agree
48	113	178	39	42	12	3.8802	1.0502	Agree
49	100	200	42	42	00	3.9323	0.8971	Agree
50	103	231	32	15	03	4.0833	0.7567	Agree
51	102	208	41	33	00	3.9870	0.8472	Agree
52	112	207	17	39	09	3.9740	0.9772	Agree
53	52	75	120	115	22	2.9479	1.1252	Neutral
54	29	60	133	105	57	3.2630	1.1223	Neutral
55	84	183	51	42	24	3.6797	1.1190	Agree
56	58	160	68	83	15	3.4245	1.1028	Agree
57	95	172	56	39	22	3.7266	1.1151	Agree
58	86	150	69	58	21	3.5781	1.1512	Agree
59	78	107	91	90	18	2.6432	1.1787	Neutral
60	125	204	19	36	00	4.0885	0.8626	Agree
61	145	211	19	09	00	4.2813	0.6655	Strongly Agree
62	36	76	125	93	54	3.1380	1.1670	Neutral
63	91	217	16	51	09	3.8594	1.0018	Agree
64	64	200	44	49	27	3.5859	1.1208	Agree
65	92	195	34	48	15	3.7839	1.0658	Agree
All items						3.6932	0.4415	Agree

Source: Prepared by the researchers based on SPSS V.28 output.

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This table shows that the **overall mean** for the “Entrepreneurial Spirit” axis is **3.6932**, indicating **agreement** among respondents. Despite some neutral responses for a few items (e.g., items 53, 54, 59, and 62), the general trend suggests that students perceive higher education institutions as contributing positively to the development of their entrepreneurial mindset.

It is clear from Table (13) that the overall mean score for the items related to the **"Entrepreneurial Spirit"** axis is **3.6932**, which indicates that the respondents **agree** with the statements within this axis. This agreement is particularly evident regarding their ability to **embrace challenging ideas**, their **commitment to completing any task they have started**, and their **dedication to presenting their work in the best possible manner**.

3.5.3. Results Related to the Third Hypothesis:

There is a statistically significant correlational relationship at a confidence level ($\alpha \leq 0.05$) between the problem-solving strategy and the entrepreneurial spirit among higher education students.

To test this hypothesis, multiple regression analysis was used in order to determine the significance of the effect of the independent variable—with its six components—on the dependent variable. The decision rule was based on the calculated significance level (Sig.).

In addition, the coefficient of determination (R^2) was employed as a key indicator in assessing the relevance and explanatory power of the relationship between the dependent and independent variables. It reveals the percentage of variance in the dependent variable that can be explained by the variance in the independent variables.

Table 14. Regression Line Analysis for the Third Hypothesis

Independent Variable	Dependent Variable	Intercept (b)	Regression Coefficient (a)	Correlation Coefficient (R)	Coefficient of Determination (R^2)	Calculated F Value	Significance Level (Sig.)
General Orientation	Entrepreneurial Spirit	1.534	0.553	0.456	0.208	100.070	0.000
Problem Definition		1.344	0.655	0.631	0.399	253.260	0.000
Generation of Alternatives		2.340	0.411	0.553	0.306	168.607	0.000
Decision Making		1.196	0.666	0.740	0.548	463.659	0.000
Evaluation		0.084	0.990	0.781	0.610	597.253	0.000

Source: Prepared by the researcher based on SPSS V.28 output.

The table above presents the results of a simple linear regression analysis used to examine the relationship between problem-solving strategy and entrepreneurial mindset. The findings reveal a statistically significant effect, with a significance level of (sig = 0.000), which is lower than the accepted threshold ($\alpha \leq 0.05$).

The correlation coefficient (R) was 0.781, indicating a strong positive relationship between the use of problem-solving strategies and the development of an entrepreneurial mindset among university students. Additionally, the coefficient of determination (R^2) was 0.610, meaning that 61% of the variation in students’ entrepreneurial mindset can be explained by their use of problem-solving strategies.

Based on the findings above, we have confirmed our third hypothesis:

There is a statistically significant relationship at the 95% confidence level ($\alpha \leq 0.05$) between teaching with a problem-solving strategy and fostering an entrepreneurial mindset among students in higher education.

This relationship can also be mathematically expressed as follows (using a simple linear regression equation):

$$Y = 0.781X + 0.084$$

The relationship can also be expressed in a logarithmic form:

$$Y = 3.48 \log(X) - 0.79$$

Where X is the dimensions of the problem-solving strategy and Y is the entrepreneurial mindset.

4. Conclusion :

In this study we uncovered various interesting findings and insights.

- ❖ It was noted that the use of creative teaching strategies - notably the problem-solving strategy - is occurring at a fair to good level within higher education institutions. This is a positive sign that creative teaching strategies are being implemented; however, further efforts need to be taken in order to strengthen and address its implementation. Furthermore, overcoming barriers is essential to improving the teaching and learning process.
- ❖ Additionally, the findings found that efforts to provide an entrepreneurial disposition to university students had increased. This points to parallel social and economic changes, as well as a deliberate process of offering a disposition to facilitate entrepreneurial thought
- ❖ and action. Furthermore, the study stated a statistically significant relationship ($\alpha \leq 0.05$) between broad problem-solving practices and entrepreneurial orientation of students in higher education, indicating that when problem-solving is taught in an active manner, it has the potential to promote students' inclination towards entrepreneurial ventures.

Given these findings, there are a number of implications.

- ❖ First, it is important to strengthen and grow strategies utilizing creative and active learning in higher education as they will produce more engaged, competent, and forward thinking students,
- ❖ Second, higher education institutions should encourage their students to recognize entrepreneurship as a valid career path and to begin thinking beyond obtaining employment to creating opportunities for themselves and others.
- ❖ Finally, programs offering entrepreneurship education should ensure they have more engagement with education through actual relevant situations in the world, rather than with just theory and to equip students with every possible applicable tool or scenario related to the pursuit of entrepreneurship

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6. Appendices:

Effect of the General Orientation Dimension on Entrepreneurial Spirit (SPSS Output)

R	R-deux	R-deux ajusté	Erreur standard de l'estimation
,456	,208	,206	,394

La variable indépendante est م.الوجه العام.

ANOVA

	Somme des carrés	ddl	Carré moyen	F	Sig.
Régression	15,501	1	15,501	100,070	,000
Résidu	59,173	382	,155		
Total	74,674	383			

La variable indépendante est م.الوجه العام.

Coefficients

	Coefficients non standardisés		Coefficients standardisés		Sig.
	B	Erreur standard	Bêta	t	
م.الوجه العام	,553	,055	,456	10,003	,000
(Constante)	1,534	,217		7,080	,000

Effect of the Problem Definition Dimension on Entrepreneurial Spirit (SPSS Output)

Récapitulatif des modèles

R	R-deux	R-deux ajusté	Erreur standard de l'estimation
,631	,399	,397	,343

La variable indépendante est م.تعريف المشكلة.

ANOVA

	Somme des carrés	ddl	Carré moyen	F	Sig.
Régression	29,770	1	29,770	253,260	,000

The effect of the alternative generation dimension on entrepreneurial spirit (extracted from SPSS)"

R	R-deux	R-deux ajusté	Erreur standard de l'estimation
,553	,306	,304	,368

La variable indépendante est م.توليد البدائل.

ANOVA

	Somme des carrés	ddl	Carré moyen	F	Sig.
Régression	22,867	1	22,867	168,607	,000
Résidu	51,807	382	,136		
Total	74,674	383			

La variable indépendante est م.توليد البدائل.

Coefficients

	Coefficients non standardisés		Coefficients standardisés	t	Sig.
	B	Erreur standard	Bêta		
م.توليد البدائل	,411	,032	,553	12,985	,000
(Constante)	2,340	,106		22,086	,000

The effect of the decision-making dimension on entrepreneurial spirit

R	R-deux	R-deux ajusté	Erreur standard de l'estimation
,740	,548	,547	,297

La variable indépendante est م.اتخاذ القرار.

ANOVA

	Somme des carrés	ddl	Carré moyen	F	Sig.
Régression	40,942	1	40,942	463,659	,000
Résidu	33,731	382	,088		
Total	74,674	383			

La variable indépendante est م.اتخاذ القرار.

Coefficients

	Coefficients non standardisés		Coefficients standardisés	t	Sig.
	B	Erreur standard	Bêta		
م.اتخاذ القرار	,666	,031	,740	21,533	,000
(Constante)	1,196	,117		10,229	,000

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The effect of the evaluation dimension on the development of entrepreneurial spirit

Récapitulatif des modèles

R	R-deux	R-deux ajusté	Erreur standard de l'estimation
,616	,380	,378	,348

La variable indépendante est م.القييم.

ANOVA

	Somme des carrés	ddl	Carré moyen	F	Sig.
Régression	28,369	1	28,369	234,039	,000
Résidu	46,304	382	,121		
Total	74,674	383			

La variable indépendante est م.القييم.

Coefficients

	Coefficients non standardisés		Coefficients standardisés	t	Sig.
	B	Erreur standard	Bêta		
م.القييم	,719	,047	,616	15,298	,000
(Constante)	1,033	,175		5,907	,000

Effect of the Problem-Solving Strategy on Entrepreneurial Spirit (SPSS Output)

Récapitulatif des modèles

R	R-deux	R-deux ajusté	Erreur standard de l'estimation
,781	,610	,609	,276

La variable indépendante est م.حل.المشكلات.

ANOVA

	Somme des carrés	ddl	Carré moyen	F	Sig.
Régression	45,544	1	45,544	597,253	,000
Résidu	29,130	382	,076		
Total	74,674	383			

La variable indépendante est م.حل.المشكلات.

Coefficients

	Coefficients non standardisés		Coefficients standardisés	t	Sig.
	B	Erreur standard	Bêta		
م.حل.المشكلات	,990	,041	,781	24,439	,000
(Constante)	,084	,148		,565	,572