

ANALYZING THE CHALLENGES OF LEARNING ENTREPRENEURSHIP AND INNOVATION IN HIGHER EDUCATION INSTITUTIONS AND THEIR IMPACT ON THE DEVELOPMENT AND SUPPORT OF ENTREPRENEURIAL PROJECTS

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Abstract

Globalisation and democratisation have given entrepreneurship and innovation a new dimension in the last decade. Entrepreneurs possess the capability and ambition to create, manage, and thrive in a new enterprise, including the associated risks, to generate profits. Current empirical research on entrepreneurship acknowledges that the primary problem for emerging countries is the transition to entrepreneurial societies. This perspective necessitates the participation of multiple stakeholders (universities, government, investors, entrepreneurs, etc.) in this evolutionary process. In this context, governments in emerging economies foster the development of entrepreneurial communities to facilitate this shift. Libyan educational institutions face many problems that prevent the teaching and implementation of innovative thinking and entrepreneurship, and the development of entrepreneurial activities. The results of this research can expand higher education entities' ability to promote entrepreneurship and innovation in society. This will help institutions address their challenges in this space and thus increase the number of successful entrepreneurship projects. It also presents solutions to these issues, helping higher education institutions improve their training and educational programs in entrepreneurship and innovation. The present descriptive-analytical research examines the entrepreneurship and innovation issues in Libyan higher education institutions and the impact of these problems on entrepreneurial project development and support. The study population consisted of all students in the 2022–2023 academic year. A simple random selection was used to sample 81 students. The results suggest that both mediating variables (learning skills in entrepreneurship and improving the supportive environment for entrepreneurship) play significant roles in the relationships between learning entrepreneurship and innovation, and between the development and support of entrepreneurial projects.

Keywords: Innovation, Entrepreneurship, Economics, Higher Education, Development, Entrepreneurship Training, Innovative Thinking

Introduction

In the last decade, entrepreneurship and innovation gained a new dimension due to globalization and democratization. Entrepreneurs possess the capability and ambition to create, manage, and thrive in a starting enterprise, together with the associated risks, to generate profits. The quintessential illustration of entrepreneurship is the initiation of a new company endeavor. Entrepreneurs are recognized as innovation catalysts, introducing novel concepts to the market by supplanting outdated inventions. It can be categorized as small or home enterprises and international corporations. In economics, an entrepreneur generates profits by integrating land, natural resources, labour, and capital. In conclusion, those possessing the resolve and tenacity to establish a new

enterprise and navigate its hazards can attain entrepreneurship (Prodan, 2007; Archana et al., 2022).

Entrepreneurs serve as catalysts for change. The essential formula for new enterprises is to exhibit concentration, fervour, and tenacity to ensure continual advancement. Entrepreneurs instigate reform in production by either innovating the method of manufacturing an existing commodity or by creating an entirely new commodity (Schumpeter, 2013). Technological entrepreneurship utilises science and engineering to create superior products and services that satisfy client needs. Some geographical regions are thought to progress more than others due to their effective promotion of technical entrepreneurship, resulting in economic advancement (Venkataraman, 2004). Globalization and industrialization assumed a new dimension with the emergence of the knowledge-based economy in the 1980s; this resulted in a rise in technical entrepreneurship (Gordon & Porter, 1990; Davies & Ellis, 2000).

Current empirical research on entrepreneurship acknowledges that the primary problem for emerging countries is the transition to entrepreneurial societies. This perspective necessitates the participation of multiple stakeholders (universities, government, investors, entrepreneurs, etc.) in this evolutionary process. In this context, governments in emerging economies foster the development of entrepreneurial communities to facilitate this shift. The significance of each actor remains a compelling focus for scholars and policymakers, as indicated in prior analyses. This chapter aims to elucidate the function of higher education institutions as catalysts for innovative and entrepreneurial ecosystems in Mexico (Herrera et al., 2018).

The educational institutions of Libya have many problems that prevent the teaching and implementation of innovative thought and entrepreneurship and the development of entrepreneurial activities.

This study will try to answer the following questions:

1. What are the key challenges facing innovation and entrepreneurship education and research in Libya's academic institutions?
2. How do the restrictions in obtaining entrepreneurship and innovation knowledge within educational settings impact the development and support for entrepreneurial activities?

This study aims to:

- Evaluate the impact of these challenges on the development of entrepreneurs' competencies and students' acquisition of critical knowledge.
- Additionally, provide insights and recommendations on improving educational programs or teaching methods in the entrepreneurship program to provide a better learning experience for college students studying entrepreneurship.”
- Explore the challenges students faced in entrepreneurship class.
- Identify the best teaching methods and factors influencing students' understanding and application of entrepreneurship concepts.

Study Significance

The results of this research can expand the ability of higher education entities to promote entrepreneurship and innovators in society. This will help institutions deal with their challenges in this space and thus increase the number of successful entrepreneurship projects. It also presents solutions to overcome these issues, helping higher education institutions improve their training and educational programs in entrepreneurship and innovation.

Hypotheses of the Study:

The study proposes the following hypotheses:

- Hypothesis H1: There is a statistically significant relationship between the challenges of learning entrepreneurship and innovation in higher education institutions and students' entrepreneurial skills and knowledge.
- Hypothesis H2: There is a statistically significant relationship between students' entrepreneurial skills and knowledge and the development and support of entrepreneurial projects.
- Hypothesis H3: A statistically significant relationship exists between the challenges of learning entrepreneurship and innovation in higher education institutions and the supportive environment for learning entrepreneurship and innovation.
- Hypothesis H4: A statistically significant relationship exists between the supportive environment for learning entrepreneurship and innovation and the development and support of entrepreneurial projects.
- Hypothesis H5: There is a statistically significant relationship between learning entrepreneurship and innovation challenges in higher education institutions and the development and support of entrepreneurial projects.

The study also highlighted several challenges facing entrepreneurship programs in higher education institutions in Libya, such as:

- Lack of coordination between higher education institutions and governmental and private entities to provide support for entrepreneurial projects.

Absence of a supportive environment for learning entrepreneurship and innovation in the community

Study Variables

The study variables can be identified as follows:

- Independent Variable: Challenges of learning entrepreneurship and innovation in higher education institutions.
- Mediating Variables: Entrepreneurial skills and knowledge of students, and the supportive environment for entrepreneurship.
- Dependent Variable: Development and support of entrepreneurial projects.

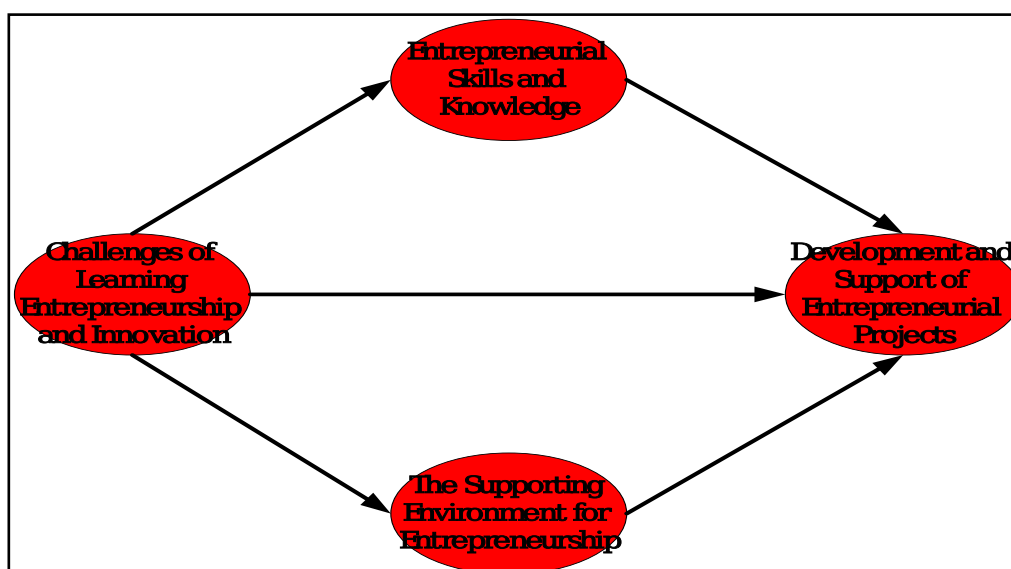


Figure 1: Study Model

Definition of Entrepreneurship and Innovation

Entrepreneurship is the process of creating an organization or developing existing ones, specifically involving the establishment of new ventures or responding to new opportunities. It is also defined as identifying a specific business project aimed at solving a challenge or problem or introducing an innovation, focusing on this initiative, providing and organizing the necessary resources, and taking risks to achieve financial profit (Abo Deif, 2016).

Innovation: Innovation is defined as the application of creative ideas and technologies in unconventional ways. This includes developing new products or services, new methods for manufacturing products or delivering services, or new ways of working. (World Bank, 2019).

The Relationship Between Entrepreneurship and Innovation

Entrepreneurship and innovation are closely intertwined. Innovation is a driving force of entrepreneurship, as entrepreneurs provide new ideas and solutions to problems and needs. Likewise, entrepreneurship is the means through which innovation is disseminated, and changes are made in the world.

Importance of Entrepreneurship and Innovation

Entrepreneurship and innovation hold significant importance in the economy and society, as they:

- Create new job opportunities.
- Increase productivity and economic growth.
- Improve living standards.
- Innovation is a fundamental catalyst for employment development and economic expansion.
- By promoting innovation, entrepreneurs can establish new industries, markets, and development prospects, thereby enhancing innovation, competitiveness, and quality of life.

These elements can facilitate economic expansion and foster a more affluent future for all.

Creating entrepreneurial projects involves talents like:

- The ability to be creative and innovative.
- The ability to manage risks.
- The ability to lead and motivate.
- The ability to market and sell.
- The ability to secure financing.

Literature Review

The elimination of poverty and the generation of employment have become priorities for numerous governments in emerging nations. Entrepreneurs are celebrated as job creators and important agents of poverty alleviation in various nations, with South Africa no exception (Youssef et al., 2018). Nonetheless, increasing interest in company operations concerning society, the environment, and the economy has initiated research on the necessity of sustainable entrepreneurship (Badri & Hachicha, 2019; Lindner, 2018). Sustainable enterprise is a company paradigm that emphasizes entrepreneurial activities aimed at generating social benefits, ensuring economic viability, and minimizing environmental harm. To do this, entrepreneurs must possess inventive mindsets to create business concepts that benefit society, the environment and the economy (Yan et al., 2018; Hall et al, 2010).

As a nascent idea, sustainable entrepreneurship necessitates disseminating further knowledge regarding its impacts and prospects for young and prospective entrepreneurs

in relation to environmental, societal, and economic factors (Thompson et al., 2011). Studies indicate that younger individuals, including young entrepreneurs, exhibit greater awareness of sustainability concerns than their older counterparts. Consequently, due to their strategic positioning, higher education institutions can offer significant chances for aspiring entrepreneurs to develop unique and creative concepts that can be transformed into sustainable entrepreneurship (kimanzi, 2019; Brazdauskas, 2015).

Sustainable enterprise derives from the principle of sustainable development. Sustainable development is defined as “development that satisfies the demands of the present without jeopardizing the capacity of generations to come to fulfil their own needs” (United Nations, 1987). Sustainable entrepreneurship is the process of achieving sustainable development via the identification, assessment, and utilization of opportunities, thereby generating value that fosters economic prosperity, social harmony, and environmental protection (Katsikis & Kyrgidou, 2009). Research indicates that enterprises are significant contributors to unsustainable practices; thus, promoting sustainable entrepreneurship is a viable method for minimizing this behaviour (Casey & Sieber, 2016; Granly & Welo, 2014).

Higher education institutions provide outstanding opportunities for leveraging innovation centers and laboratories, promoting idea generation within sustainable entrepreneurs. Creativity was recognized as the foremost attribute necessary for productive, sustainable entrepreneurship, and the enhancement of societal welfare is the principal reason for aspiring entrepreneurs to participate in this domain. Further research may be conducted with students who have commenced their sustainable entrepreneurship projects to evaluate their products, processes, and the benefits these enterprises will offer to the economy, society, and the environment (Badri & Hachicha, 2019).

Previous studies are among the most important elements that researchers should include in their scientific work. They help the researcher better understand the subject of their research, identify the problem they aim to solve, establish their hypotheses, select their research methodology, and interpret their results.

Study (Abu-Alam, 2022): This study aimed to assess the challenges facing higher education institutions in the field of entrepreneurship in Jordan. It was conducted on a sample of faculty members and students from ten higher education institutions in Jordan. The study found that the main challenges include content-related issues, such as outdated curricula that do not meet the practical needs of students; faculty-related challenges, where entrepreneurship faculty members often lack adequate qualifications or training; and supportive environment challenges, where institutions often lack necessary resources like financial, logistical, and moral support for learning entrepreneurship.

Study (Babineaux, 2021): This study aimed to evaluate the relationship between the challenges faced by higher education institutions in entrepreneurship and students' entrepreneurial skills. Conducted on a sample of students across five higher education institutions in the United States, the study concluded that there is a negative relationship between these challenges and students' entrepreneurial skills.

Competencies Gained from The Programs:

- Creative thinking and innovation skills.
- Problem-solving skills.
- Leadership and management skills.
- Communication and marketing skills.

Al-Naimi (2021) study aimed to evaluate the challenges faced by higher education institutions in entrepreneurship in the United Arab Emirates. This study found the following:

- Content-related challenges: The curricula in entrepreneurship are often outdated or not aligned with the practical needs of students.
- Faculty-related challenges: Faculty members in entrepreneurship often lack adequate qualifications or training.
- Challenges to the supportive environment: Higher education institutions frequently lack the supportive environment necessary for learning entrepreneurship, such as financial, logistical, and moral support.

(Shane & Venkataraman, 2000) suggest that individuals with strong entrepreneurial capabilities, including creative thinking, problem-solving, leadership, and communication skills, are more likely to succeed.

Social Exchange Theory posits that individuals interact based on mutual interests. These mutual interests include:

- Benefit: Individuals seek to achieve benefits through interaction with others.
- Cost: Individuals incur certain costs to gain benefits from interacting with others.

Abu-Alam (2022) states that social exchange theory asserts that people interact based on mutual interests, encompassing the benefits and costs of those interactions.

Social Learning Theory posits that individuals learn through observation and imitation. This includes:

- Observing the positive and negative behaviours of others.
- Imitating behaviours that are perceived as successful.

(Bandura, 1977) emphasizes that social learning occurs through observation and imitation of other's behaviours.

Methodology

The present descriptive-analytical research addresses entrepreneurship and innovation issues of Libyan higher education institutions and the impact of these problems on entrepreneurial project development and support. The study population consisted of all students in the 2022–2023 academic year. A simple random selection was used to sample 81 students. The study sample was gathered through online questionnaires. The study had two phases:

- The questionnaire was designed based on previous studies and consultation with professionals involved in entrepreneurship.
- The questionnaire was administered electronically to the study sample.

The study was conducted in accordance with research ethics to protect student data (Ogaili & Albadri, 2025). Statistical methods, such as Smart PLS, were applied to examine the data.

Statistical Analysis of the Study

Description of the Study Sample

The following table provides a general description of the study sample:

Table 1: Demographic Factors of Study Sample

| Demographic Factors of the Study Sample | | Frequency | Percentage |
|---|-------------|-----------|------------|
| Gender | Male | 31 | 38.3 |
| | Female | 50 | 61.7 |
| Age | 18-21 years | 26 | 32.1 |

| | | | |
|--|---------------------------|----|------|
| | 22-25 years | 16 | 19.8 |
| | 26-30 years | 38 | 46.9 |
| | 31 years and above | 1 | 1.2 |

The table illustrates the demographic factors of the study sample, providing information on the gender and age of the participants. The sample consists of 81 individuals, with males representing 31 individuals (38.3%) and females 50 individuals (61.7%).

Regarding age, the age group of 18 to 21 years includes 26 individuals (32.1%), while the group aged 22 to 25 years includes 16 individuals (19.8%). The age group of 26 to 30 years consists of 38 individuals (46.9%), and there is only one individual (1.2%) in the age group of 31 years and above.

Results

Statistical Analysis of the Questionnaire Items

Table 2: Mean and Standard Deviation of Study Variables

| Categories | Mean | Standard Deviation |
|---|------|--------------------|
| Challenges in Learning Entrepreneurship and Innovation | | |
| Clarity of Vision and Goals: The curricula addressing entrepreneurship and innovation are clear and defined | 1.75 | 0.699 |
| Resources and Funding: Higher education institutions provide the necessary financial and human resources for learning entrepreneurship and innovation | 2.11 | 0.935 |
| Curricula: The curricula addressing entrepreneurship and innovation are modern and realistic | 1.90 | 0.718 |
| Practical Experiences: Higher education institutions provide sufficient opportunities for students to gain practical experiences in entrepreneurship and innovation | 1.99 | 0.733 |
| Encouragement and Support: Higher education institutions encourage students to enroll in entrepreneurship and innovation education programs | 1.88 | 0.714 |
| Learning Skills | | |
| Critical Thinking: You possess the critical thinking skills necessary for entrepreneurship and innovation | 2.15 | 0.910 |
| Innovation: You possess the innovative skills necessary for entrepreneurship and innovation | 1.99 | 0.783 |
| Problem Solving: You possess the problem-solving skills necessary for entrepreneurship and innovation | 2.07 | 0.818 |
| Time Management: You possess the time management skills necessary for entrepreneurship and innovation | 2.22 | 0.822 |
| Self-Management: You possess the self-management skills necessary for entrepreneurship and innovation | 2.32 | 0.933 |
| Supporting Environment for Entrepreneurship | | |
| Funding: There are sufficient opportunities to obtain funding for entrepreneurship projects | 2.00 | 0.689 |

| | | |
|---|------|-------|
| Training and Guidance: There are sufficient opportunities to obtain training and guidance for entrepreneurship projects | 2.16 | 0.782 |
| Resources and Support: There are sufficient opportunities to obtain resources and support for entrepreneurship projects | 2.10 | 0.768 |

The table includes axes from a questionnaire exploring the challenges of learning entrepreneurship and innovation, the related learning skills, and the supportive environment for entrepreneurship. Here's a report on the table:

- Challenges in Learning Entrepreneurship and Innovation
- Lack of Clarity in Vision and Goals: The mean indicates that the curricula addressing entrepreneurship and innovation are unclear and insufficiently defined (Mean: 1.75), with a standard deviation of 0.699.
- Lack of Resources and Funding: The mean suggests that higher education institutions face a shortage of the necessary financial and human resources for teaching entrepreneurship and innovation (Mean: 2.11), with a standard deviation of 0.935.
- Weak Curricula: The mean indicates that the curricula addressing entrepreneurship and innovation may lack updating and realism (Mean: 1.90), with a standard deviation of 0.718.
- Insufficient Practical Experiences: The mean shows that higher education institutions struggle to provide adequate opportunities for students to gain practical experiences in entrepreneurship and innovation (Mean: 1.99), with a standard deviation of 0.733.
- Lack of Encouragement and Support: The mean indicates that higher education institutions do not sufficiently encourage students to enroll in entrepreneurship and innovation education programs (Mean: 1.88), with a standard deviation of 0.714.

Learning Skills

Critical Thinking: The meaning indicates that participants believe they possess the critical thinking skills necessary for entrepreneurship and innovation (Mean: 2.15), with a standard deviation of 0.910.

Innovation: The mean suggests that participants feel they have the innovative skills required for entrepreneurship and innovation (Mean: 1.99).

The results reveal that students face challenges in several aspects related to learning entrepreneurship and innovation, such as:

- Lack of clarity in vision and goals.
- Shortage of resources and funding.
- Weak curricula.
- Insufficient practical experience.
- Lack of encouragement and support.

The findings regarding learning skills indicate that students believe they possess critical thinking, innovation, problem-solving, time management, and self-management skills necessary for entrepreneurship and innovation.

As for the supportive environment for entrepreneurship, the results suggest that there are limited opportunities for obtaining funding, training, guidance, resources, and support for entrepreneurship projects.

Table 3: Mean and Standard Deviation of the Dependent Variable
 Development and Support of Entrepreneurial Projects

| Categories | Mean | Standard Deviation |
|---|------|--------------------|
| Funding | | |
| Capital Funding: There are sufficient opportunities to obtain capital funding for student entrepreneurial projects | 2.05 | 0.740 |
| Government Funding: There are sufficient opportunities to obtain government funding for student entrepreneurial projects | 2.11 | 0.791 |
| Crowdfunding: There are sufficient opportunities to obtain crowdfunding for student entrepreneurial projects | 2.10 | 1.044 |
| Training and Guidance | | |
| Training in Entrepreneurial Skills: There are sufficient opportunities to receive training in entrepreneurial skills for student entrepreneurial projects | 2.35 | 1.039 |
| Guidance from Entrepreneurs: There are sufficient opportunities to receive guidance from entrepreneurs for student entrepreneurial projects | 2.41 | 0.985 |
| Guidance from Experts: There are sufficient opportunities to receive guidance from experts for student entrepreneurial projects | 2.04 | 0.782 |
| Resources and Support | | |
| Material Resources: There are sufficient opportunities to obtain material resources for student entrepreneurial projects | 2.06 | 0.812 |
| Human Resources: There are sufficient opportunities to obtain human resources for student entrepreneurial projects | 2.20 | 0.781 |
| Informational Resources: There are sufficient opportunities to obtain informational resources for student entrepreneurial projects | 1.78 | 0.652 |

Report on Table 3

The table explores the level of development and support available for entrepreneurial projects in terms of funding, training, guidance, and material, human, and informational resources.

Funding

Regarding funding, the table indicates that there are limited opportunities to obtain capital funding for student entrepreneurial projects, with a mean of 2.05 and a standard deviation of 0.740. Similarly, there are limited opportunities for government funding and crowdfunding, with means of 2.11 and 2.10, respectively.

Training and Guidance: In terms of training and guidance, the table shows that there are opportunities available for training in entrepreneurial skills for student projects, with a mean of 2.35 and a standard deviation of 1.039. Additionally, there are opportunities for guidance from entrepreneurs and experts, with means of 2.41 and 2.04, respectively.

Resources and Support: Concerning resources and support, the table indicates that there are limited opportunities for obtaining material, human, and informational resources for student entrepreneurial projects. The means for these categories are 2.06, 2.20, and 1.78, respectively, with a relatively low standard deviation.

Reliability and Validity of the Questionnaire

Upon reviewing the statements in the questionnaire, some items with values below 0.70 were excluded from statistical analysis using Smart PLS. The remaining statements represent the relevant constructs and are retained for analysis to ensure the questions

closely relate to their corresponding constructs. All constructs were deemed satisfactory.

1. Individual Item Reliability (> 0.70) - Factor Loadings
2. Composite Reliability (> 0.70)
3. Average Variance Extracted ($AVE > 0.50$)

Consequently, items with loadings less than 0.70 were removed. The study will thus include the following:

Table 4: Item Saturation for Dependent Variables

| Variables | loading | AVE | CR |
|--|---------|-------|-------|
| Challenges in Learning Entrepreneurship and Innovation | 0.852 | 0.723 | 0.893 |
| | 0.842 | | |
| | 0.852 | | |
| | 0.873 | | |
| | 0.854 | | |
| Learning Skills | 0.802 | 0.861 | 0.991 |
| | 0.814 | | |
| | 0.762 | | |
| | 0.865 | | |
| | 0.662 | | |
| Supportive Environment for Entrepreneurship | 0.715 | 0.691 | 0.762 |
| | 0.726 | | |
| | 0.743 | | |
| Development and Support of Entrepreneurial Projects | 0.872 | 0.735 | 0.851 |
| | 0.728 | | |
| | 0.583 | | |
| | 0.718 | | |
| | 0.863 | | |
| | 0.852 | | |
| | 0.748 | | |
| | 0.833 | | |
| | 0.778 | | |

The table illustrates the variables utilized in a study on factors influencing the success of entrepreneurship and innovation, along with their corresponding loading values, average variance extracted (AVE) values, and composite reliability (CR) values.

Loadings: The loadings represent the strength of the relationships between the variables. In this table, the loading values range from 0.715 to 0.872, indicating that all variables are relatively strong.

Average Variance Extracted (AVE): The Average Variance Extracted (AVE) represents the average correlations among the sub-variables of the composite variable. The AVE values in this table indicate that all composite variables exhibit good internal consistency.

Composite Reliability (CR): Composite Reliability (CR) indicates how well the composite variable represents its sub-variables. The CR values in this table show that all composite variables effectively represent their sub-variables.

Variance Between Variables

Table 5: Variance Between Study Variables

| Variance Between Variables | Learning Skills | Supportive Environment for Entrepreneurship | Development and Support of Entrepreneurial Projects | Challenges in Learning Entrepreneurship and Innovation |
|--|-----------------|---|---|--|
| Learning Skills | 0.840 | | | |
| Supportive Environment for Entrepreneurship | 0.851 | 0.865 | | |
| Development and Support of Entrepreneurial Projects | 0.867 | 0.874 | 0.843 | |
| Challenges in Learning Entrepreneurship and Innovation | 0.720 | 0.750 | 0.739 | 0.877 |

The table illustrates the variance between variables in the study on learning skills, the supportive environment for entrepreneurship, the development and support of entrepreneurial projects, and challenges in learning entrepreneurship and innovation. The figures in the table represent the standard deviation values for each pair of variables.

Variance Between Variables

For Learning Skills, the variance is 0.840, indicating variability in the level of learning skills among individuals in the field of entrepreneurship.

- The variance for the Supportive Environment for Entrepreneurship is 0.865, showing differences in the level of support available from the surrounding environment for those involved in entrepreneurial projects.
- The variance for the Development and Support of Entrepreneurial Projects is 0.843, indicating variability in the level of development and support available for entrepreneurial projects.
- The variance in Challenges in Learning Entrepreneurship and Innovation is 0.877, suggesting variability in the challenges faced by individuals in learning and developing entrepreneurship and innovation skills.

Overall, the table indicates that there are differences and variances among the studied variables in the field of entrepreneurship, reflecting the challenges and differences in skills, supportive environments, project development, and educational challenges in this area.

- Evaluation of the Structural Model (Inner Model)

- Hypotheses Testing (Path Coefficient)

This testing assesses whether there is a relationship between the variables, determining if the relationships are positive or negative. It focuses on the variables central to the study.

To evaluate the significance of a certain correlation, we need the T-value (T Statistics) and the p-value. A significance level is determined at $P \leq 0.01$ or $P < 0.05$. The table displayed below illustrates the results of hypothesis testing.

Table 6: Relationship Between Study Variables

| | Relationship Between Study Variables | St | Std Error | P-value | |
|----|--|-------|-----------|---------|----|
| H1 | Challenges in Learning Entrepreneurship and Innovation --- Learning Skills | 0.790 | 0.100 | 0.000 | ** |
| H2 | Learning Skills --- Development and Support of Entrepreneurial Projects | 0.618 | 0.135 | 0.014 | * |
| H3 | Challenges in Learning Entrepreneurship and Innovation --- Supportive Environment for Entrepreneurship | 0.760 | 0.091 | 0.000 | ** |
| H4 | Supportive Environment for Entrepreneurship --- Development and Support of Entrepreneurial Projects | 0.530 | 0.074 | 0.001 | * |
| H5 | Challenges in Learning Entrepreneurship and Innovation --- Development and Support of Entrepreneurial Projects | 0.162 | 0.081 | 0.000 | ** |

This table displays the relationships between the study variables and includes descriptive statistics related to these relationships. Each pair of variables is analyzed to estimate the degree of correlation and the level of statistical significance.

Hypothesis Analysis

H1: Challenges in Learning Entrepreneurship and Innovation --- Learning Skills

The table indicates a positive and statistically significant relationship between challenges in learning entrepreneurship and innovation and learning skills. The correlation coefficient (St) is 0.790, the standard error (St error) is 0.100, and the p-value is 0.000, suggesting a strong and significant relationship between the two variables.

H2: Learning Skills --- Development and Support of Entrepreneurial Projects

The table shows a positive and statistically significant relationship between learning skills and the development and support of entrepreneurial projects. The correlation coefficient is 0.618, the standard error is 0.135, and the p-value is 0.014, indicating a positive and significant relationship between the two variables.

H3: Challenges in Learning Entrepreneurship and Innovation --- Supportive Environment for Entrepreneurship

The table presents a positive and statistically significant relationship between challenges in learning entrepreneurship and innovation and the supportive environment for entrepreneurship. The correlation coefficient is 0.760, the standard error is 0.091, and the p-value is 0.000, indicating a strong and significant relationship between the two variables.

H4: Supportive Environment for Entrepreneurship --- Development and Support of Entrepreneurial Projects

The table reflects a positive and statistically significant relationship between the supportive environment for entrepreneurship and the development and support of entrepreneurial projects. The correlation coefficient is

0.530, the standard error is 0.074, and the p-value is 0.001, indicating a positive and significant relationship between the two variables.

H5: Challenges in Learning Entrepreneurship and Innovation --- Development and Support of Entrepreneurial Projects, The table indicates a positive and statistically significant relationship between challenges in learning entrepreneurship and innovation and the development and support of entrepreneurial projects. The correlation coefficient is 0.162, the standard error is 0.081, and the p-value is 0.000, suggesting a strong and significant relationship between the two variables.

Table 7: Effect Size of the Relationship Between Variables

| Independent Variable | Dependent Variable | R | Result |
|--|---|-------|--------|
| Challenges in Learning Entrepreneurship and Innovation | Learning Skills | 0.576 | High |
| Challenges in Learning Entrepreneurship and Innovation | Supportive Environment for Entrepreneurship | 0.549 | Medium |
| Challenges in Learning Entrepreneurship and Innovation | Development and Support of Entrepreneurial Projects | 0.795 | High |
| Learning Skills | Development and Support of Entrepreneurial Projects | 0.618 | Medium |
| Supportive Environment for Entrepreneurship | Development and Support of Entrepreneurial Projects | 0.530 | Medium |

The table illustrates the effect sizes of the relationships between the independent and dependent variables. The values indicate the strength of the relationships, categorized as high or medium.

1. Challenges in Learning Entrepreneurship and Innovation / Learning Skills: There is a high correlation between these two variables, indicating a strong relationship between challenges in learning entrepreneurship and innovation and learning skills.
2. Challenges in Learning Entrepreneurship and Innovation / Supportive Environment for Entrepreneurship: There is a medium correlation between these variables, suggesting a moderate relationship between challenges in learning entrepreneurship and innovation and the supportive environment.
3. Challenges in Learning Entrepreneurship and Innovation / Development and Support of Entrepreneurial Projects: There is a high correlation, indicating a strong relationship between challenges in learning entrepreneurship and innovation and the development and support of entrepreneurial projects.
4. Learning Skills / Development and Support of Entrepreneurial Projects This pair shows a medium correlation, reflecting a moderate relationship between learning skills and the development and support of entrepreneurial projects.
5. Supportive Environment for Entrepreneurship / Development and Support of Entrepreneurial Projects There is a medium correlation here, indicating a moderate relationship between the supportive environment for entrepreneurship and the development and support of entrepreneurial projects.

Assessment of Effect Size (f²)

$$f^2 = \frac{R_{included}^2 - R_{excluded}^2}{1 - R_{included}^2}$$

The relative effect size of a specific external latent variable on one or more latent variables is indicated by changes in the squared correlation (r²) (Chin, 1998).

- An f² value above 0.35 is considered a large effect size.

- An f^2 value ranging from 0.15 to 0.35 is considered a medium effect size.
- An f^2 value between 0.02 and 0.15 is considered a small effect size.
- f^2 values less than 0.02 indicate no effect size.

Table 8: Effect Size Between Study Variables

| Relationship Between Variables | Effect Size (f^2) | Result |
|--|-----------------------|-------------|
| Challenges in Learning Entrepreneurship and Innovation ___ Learning Skills | 0.919 | Very Strong |
| Challenges in Learning Entrepreneurship and Innovation ___ Supportive Environment for Entrepreneurship | 0.826 | Strong |
| Learning Skills ___ Development and Support of Entrepreneurial Projects | 0.509 | Weak |
| Supportive Environment for Entrepreneurship ___ Development and Support of Entrepreneurial Projects | 0.290 | Medium |
| Challenges in Learning Entrepreneurship and Innovation ___ Development and Support of Entrepreneurial Projects | 0.868 | Very Weak |

Data extracted from Smart PLS 3.

Summary Of Relationships Between Variables

1. Challenges in Learning Entrepreneurship and Innovation / Learning Skills:
There is a very strong relationship between these two variables, indicating a significant impact of challenges in learning entrepreneurship and innovation on learning skills.
2. Challenges in Learning Entrepreneurship and Innovation / Supportive Environment for Entrepreneurship:
3. There is a strong relationship, suggesting a significant impact of challenges in learning entrepreneurship and innovation on the supportive environment for entrepreneurship.
4. Learning Skills / Development and Support of Entrepreneurial Projects:
This pair shows a weak relationship, indicating a limited impact of learning skills on the development and support of entrepreneurial projects.
5. Supportive Environment for Entrepreneurship / Development and Support of Entrepreneurial Projects:
6. There is a medium relationship, suggesting a moderate impact of the supportive environment for entrepreneurship on the development and support of entrepreneurial projects.
7. Challenges in Learning Entrepreneurship and Innovation / Development and Support of Entrepreneurial Projects:
8. There is a very weak relationship, indicating a very limited impact of challenges in learning entrepreneurship and innovation on the development and support of entrepreneurial projects.

Testing Predictive Relevance (Q^2)

This test evaluates whether the model presented in the study can predict the dependent variable.

Table 9: Predictive Ability of the Study

| Variable | SSO | SSE | Q ² |
|--|-----|-----|----------------|
| Learning Skills | 234 | 174 | 0.319 |
| Supportive Environment for Entrepreneurship | 380 | 219 | 0.273 |
| Development and Support of Entrepreneurial Projects | 480 | 175 | 0.488 |
| Challenges in Learning Entrepreneurship and Innovation | 214 | 253 | 0.255 |

Analysis of Predictive Ability

The table indicates that the first three variables (Learning Skills, Supportive Environment for Entrepreneurship, and Development and Support of Entrepreneurial Projects) have a high predictive capability for the success of entrepreneurial projects.

1. **Learning Skills:** With an SSO of 234 and an SSE of 174, learning skills show a strong ability to predict the success of entrepreneurial projects. This suggests that students with strong learning skills are more likely to succeed in entrepreneurship and innovation.
2. **Supportive Environment for Entrepreneurship:** The SSO of 380 and SSE of 219 indicate that a supportive environment for entrepreneurship can effectively predict the success of entrepreneurial projects. These findings highlight that such an environment provides the resources and support necessary for students to start and manage successful entrepreneurial ventures.
3. **Development and Support of Entrepreneurial Projects:** An SSO of 480 and SSE of 175 shows that this variable also has a high predictive capability for project success. This implies that opportunities for the development and support of entrepreneurial projects offer students the resources and assistance needed to start and manage successful ventures.
4. **Challenges in Learning Entrepreneurship and Innovation:** This variable displays a lower predictive capability, with an SSO of 214 and an SSE of 253. It indicates that the challenges students face in learning entrepreneurship and innovation may negatively impact the success of entrepreneurial projects.

Examining Mediating Variables in This Relationship

If the extracted values do not include zero, these two mediating variables positively enhance the development and support of entrepreneurial projects. Conversely, if the interval includes zero, it suggests that these mediating variables do not positively influence the development and support of entrepreneurial projects.

- LL (Lower Level)
- UL (Upper Level)

Table 10: Examining Mediating Variables in the Relationship Between Study Variables

| | IV- -> Mediator | Mediat or --> DV | Automati c calculatio n | Standard deviatio n | Automatic calculation | Bootstrapped Confidence Interval | |
|----|--------------------|------------------------|----------------------------------|---------------------------|--------------------------|-------------------------------------|--------|
| | | | | | | Path a | Path b |
| M1 | 0.135 | 0.618 | 0.219 | 0.071 | 2.083 | 0.070 | 0.259 |
| M2 | 0.074 | 0.530 | 0.340 | 0.071 | 5.584 | 0.241 | 0.379 |

From the table, we can conclude that both mediating variables (Learning Skills in Entrepreneurship and Improving the Supportive Environment for Entrepreneurship) enhance the relationship between the analysis of learning entrepreneurship and innovation and the development and support of entrepreneurial projects.

Mediating Variable One: Learning Skills in Entrepreneurship

The table indicates that the indirect effect of learning entrepreneurship on developing and supporting entrepreneurial projects through Learning Skills is 0.219. This means that analyzing learning entrepreneurship can improve Learning Skills in Entrepreneurship by 21.9%, leading to a 21.9% enhancement in developing and supporting entrepreneurial projects.

Mediating Variable Two: Improving the Supportive Environment for Entrepreneurship

The table shows that the indirect effect of learning entrepreneurship on developing and supporting entrepreneurial projects through improving the supportive environment is 0.340. This means that analyzing learning entrepreneurship can improve the supportive environment for entrepreneurship by 34.0%, subsequently leading to a 34.0% enhancement in the development and support of entrepreneurial projects.

The study reached the following conclusions:

1. Positive Relationship: A positive relationship exists between the analysis of learning entrepreneurship and innovation and the development and support of entrepreneurial projects.
2. Role of Mediating Variables: Both mediating variables (Learning Skills and Improving the Supportive Environment for Entrepreneurship) significantly influence the relationship between independent and dependent variables in both studies.
3. Key Factors in Success: Successful entrepreneurial projects require Learning Skills and improving the supportive environment.
4. Enhancements Through Challenges: Analyzing learning entrepreneurship and its associated challenges can enhance Learning Skills and improve the supportive environment, leading to better development and support for entrepreneurial projects.
5. Content-Related Challenges include a lack of alignment between the entrepreneurship curriculum and students' practical needs and insufficient focus on developing the necessary entrepreneurial skills and knowledge for creating and managing successful projects.
6. Supportive Environment Challenges: Challenges include financial support for entrepreneurial projects, inadequate logistical support, and insufficient moral support for entrepreneurs.

Discussion of Results with Previous Studies

This study distinguishes itself from previous research in several key aspects:

1. **New Analytical Model:** The study employs a new analytical model to investigate the relationship between learning entrepreneurship analysis, challenges in learning entrepreneurship, and the development and support of entrepreneurial projects. This approach enhances the understanding of the dynamics involved.
2. **Mediating Variables:** Unlike most previous studies, which focus solely on the direct relationship between independent and dependent variables, this study examines the relationship using mediating variables—specifically, Learning Skills and Improving the Supportive Environment for Entrepreneurship. This allows for a deeper comprehension of how independent variables influence dependent outcomes.
3. **Targeting Student Samples:** The study uses a sample of students, providing better insights into the factors that influence the future success of entrepreneurial projects. This focus on students helps them remain grounded in the practical realities they will face.

New Analytical Model

Most previous studies rely on simple or multiple regression analyses to explore relationships between variables. In contrast, this study utilizes a more sophisticated model known as Path Analysis. This model facilitates a more precise examination of the relationships between independent and dependent variables by accounting for the interrelated effects among these variables.

Mediating Variables

While prior research often emphasizes direct relationships, this study specifically investigates the indirect effects through mediating variables. By examining how learning entrepreneurship analysis and challenges relate to the development and support of entrepreneurial projects through variables such as Learning Skills and improving the supportive environment, a better understanding of the mechanisms at play emerges. This adds depth to the analysis, highlighting the importance of not just the end effects, but also the pathways through which these effects occur.

Student Sample

Typically, previous studies utilize samples of successful or unsuccessful entrepreneurs to examine the factors influencing entrepreneurial project success. This study, however, focuses on a sample of students, which provides a unique perspective on the factors that may impact the future success of entrepreneurial projects.

Contributions to Knowledge

1. **Insight into Future Success:** This research studies students and offers valuable insights into the foundational skills and environments that can shape future entrepreneurs. Understanding these factors during the educational phase is crucial for better preparing students for entrepreneurial challenges.
2. **Importance of Learning Skills:** The study reinforces the significance of Learning Skills and improving the supportive environment for entrepreneurship, demonstrating their critical role in the success of entrepreneurial projects.
3. **Enriching Entrepreneurial Literature:** This research contributes to the academic literature on entrepreneurship by providing a novel analysis of the relationship between learning entrepreneurship analysis, the challenges associated with learning, and the development and support of entrepreneurial projects. It

highlights how educational environments can be enhanced to support future entrepreneurs better.

Identified Challenges

The following challenges were identified:

1. Content-Related Challenges:
 - The curriculum often lacks development and does not align with the practical needs of students.
 - Insufficient focus on acquiring the necessary entrepreneurial skills and knowledge.
2. Faculty-Related Challenges:
 - Faculty members often lack adequate qualifications and training in entrepreneurship.
 - There is a lack of continuous training programs for faculty to enhance their teaching competencies in entrepreneurship.
3. Supportive Environment Challenges:
 - The educational environment at higher educational institutions is not very conducive to entrepreneurship and innovation.
 - Lack of sufficient financial support for the projects.

Conclusion

The results suggest that both mediating variables (Learning Skills in Entrepreneurship and Improving the Supportive Environment for Entrepreneurship) play a significant role in the relationship between learning entrepreneurship and innovation and the development and support of entrepreneurial projects.

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