



Transforming Education: A Systematic Literature Review on the Practices and Policies of Entrepreneurial Universities

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ABSTRACT

This systematic literature review (SLR) aims to explore the best practices and policies of entrepreneurial universities operating outside Saudi Arabia, including those in the UK, Turkey, Spain, Latvia, China, the US, Germany, and Austria. To achieve this aim, the study utilized the preferred reporting items for systematic reviews and meta-analyses and SLR methodologies. A total of 5,000 literature studies or sources were screened, with 25 being included in the final analysis. The rationale behind conducting this study was to gain key insights into the entrepreneurial environment of universities to positively influence the education industry. The study found that in most of the selected studies, entrepreneurial universities implemented various best practices and policies that supported them in favorably shaping the education industry. These best practices and policies included promoting innovation, increasing funding levels, and developing a positive entrepreneurship culture among students. A limitation of prior relevant research is its constricted nature. However, this paper provides a novel and comprehensive perspective on the field of entrepreneurship, summarizing the ways through which entrepreneurial universities operating in any nation can shape their respective industries.

KEYWORDS

education industry, entrepreneurial intentions, interdisciplinary nature, internationalization, pragmatism culture, spin-offs

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1. Introduction

Universities today play a crucial role in the global knowledge economy. The knowledge developed by universities and their research centers is instrumental in shaping the social, cultural, political, and economic landscapes of countries worldwide. Recently, more universities, particularly in emerging countries, have started creating their own spin-offs. For example, in Saudi Arabia, several universities have established companies such as Wady Makkah (Umm Al-Qura University), Taibah Valley (Taibah University), and Riyadh Valley (King Saud University). In line with this trend, universities are developing policies and laws to effectively participate in the business and investment world.

Like many developing nations, Saudi Arabia presents significant educational and entrepreneurial opportunities, especially among university students (e.g., Alshebami and Alamri, 2020; Alshebami and Seraj, 2021; Raza *et al.*, 2021). Understanding the practices and policies of entrepreneurial universities is crucial for students and scholars to achieve future professional success. One such policy is good governance, ensuring that all work is executed appropriately and fairly to achieve the desired outcome. The identified practices of entrepreneurial universities include innovation, transferability, transversality, sustainability, usefulness, efficiency, impact, and evaluation. These practices support the growth of both the institution and its students, contributing to educational and professional development.

The focus on innovation or creativity allows for the discovery of solutions to new and emerging issues, which in turn enhances both the educational process and the students' learning experiences. The practice must reflect transferability or replicability, ensuring that it can be implemented and repeated in various contexts. Good practice should also embody transversality, meaning it should be of a globalizing and interdisciplinary nature. Sustainability is key; the practice must be capable of continuing over a long period while maintaining standard quality. Additionally, the practice must be

effective and useful, ensuring a positive and tangible influence on either the student or society. It must be executed efficiently, utilizing the minimum necessary resources—be they human, physical, or financial—to achieve the desired outcome. Furthermore, the practice must have a positive impact on the university community and/or society, affirming its worthiness for implementation. There must also be a systematic method to evaluate best practices to redefine the necessary objectives and determine their success and relevance. This evaluation involves monitoring to identify failures and successes, enabling the transfer of practice to other contexts. Self-assessment also plays a crucial role in reinforcing a practice by analyzing all its positive and negative factors (Fernández-Nogueira *et al.*, 2018). Therefore, the practices and policies of entrepreneurial universities hold significant importance from the perspective of students and scholars.

1.1. Research Aim and Objectives:

This study aims to develop a systematic literature review (SLR) covering various aspects of the research. To achieve this aim, the following research objectives must be met:

- To examine how universities, particularly those in Saudi Arabia, contribute to students' learning and training in entrepreneurship.
- To inspect the roles of these educational institutions in supporting the transition of nations, specifically Saudi Arabia, from an oil-dependent economy to one driven by entrepreneurship.

1.2. Research Questions:

The research questions are as follows:

- How do universities in Saudi Arabia support students in developing entrepreneurial skills?
- What roles do these educational institutions, especially in Saudi Arabia, play in facilitating the transition from oil-based economies to entrepreneurship-driven economies?

1.3. Motivation:

In response to the need to address rising economic and political stresses across various societies and nations, entrepreneurial

universities are increasingly becoming important. This enables future students to apply their learning to succeed in business.

The study's motives include examining how educational institutions, such as universities in Saudi Arabia, develop the learning and training of young Saudis and determining the roles of these institutions in supporting the nation's transition from oil to entrepreneurship.

1.4. Research Gap:

Initial exploration of the topic revealed certain research gaps despite the existence of articles on entrepreneurial universities. One gap is the economic constraint, which led to the selection of a smaller sample space. Moreover, apart from Saudi Arabia, no other countries have been specifically chosen for this study, somewhat limiting its scope.

This study is structured as follows: after the introduction in Part 1, Part 2 presents the research methodology, followed by the results and discussion in Parts 3 and 4. The study concludes in Part 5. Research limitations and future research opportunities are discussed in the final Part 6.

2. Methodology

ASLR, along with the preferred reporting items for systematic reviews and meta-analyses (PRISMA) methods, has been utilized in writing this article. This is based on exploring the practices and policies of entrepreneurial universities and their contributions or roles in shaping the industry. Conceptually, an SLR is a type of literature review that aims to identify and respond to a clearly defined research/study question. It employs systematic procedures for identifying relevant publications and appraising the data reported in these publications. On the other hand, the PRISMA statement is an essential reading before starting an SLR. "Editors increasingly expect authors of systematic reviews to use PRISMA or similar guidelines" (Zurynski, 2014, p. 2).

To write the article, the literature search focused on various criteria, including "how," "why," and "where," among others. It is worth mentioning that electronic research databases, such as Google Scholar, have been considered for searching for literature relevant to the foundation of this article. An attempt was made to search for articles available over the previous 12 years (i.e., 2011–2023) based on either a quantitative or qualitative research approach. Additionally, some search terms that included "entrepreneurial universities," the Bayh-Dole Act, and Professor's Privilege, among others, were used to collect relevant data and thereby address the identified issue relating to the article.

The following inclusion and exclusion criteria were adhered to in writing the article, which explores and investigates the diverse practices and policies of entrepreneurial universities located not only in Saudi Arabia but also in other nations, such as the US and the UK, among others.

2.1. Inclusion Criteria:

- Literature studies published in the English language in academic journals.
- Articles published between 2011 and 2023.
- Articles covering key subject matters related to the article, such as entrepreneurial universities and their practices or policies.

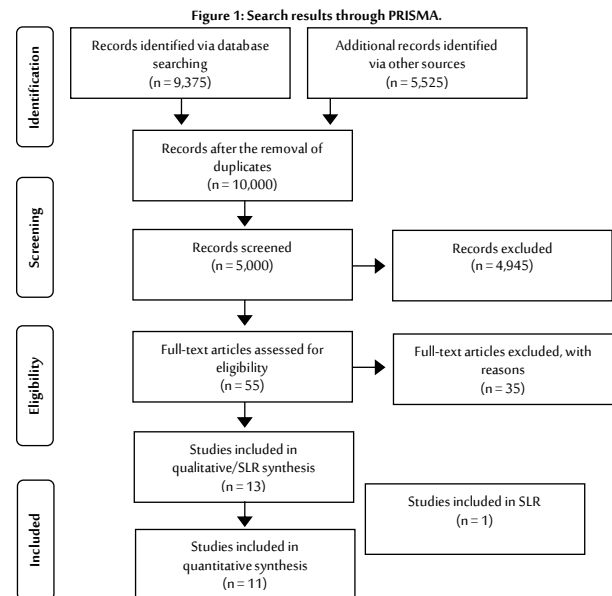
2.2. Exclusion Criteria:

- Literature studies not published in peer-reviewed scholarly journals.
- Relevant articles in languages other than English.
- Literature studies that do not address any of the main subject matters of the article.

The outcomes of the literature studies that were searched and selected, following the above inclusion and exclusion criteria, were measured in a table using PRISMA. This measurement tool considered specific points for each article to obtain and validate the relevant data. These points typically included author(s), year of study, country, method(s), main findings, and recommendations for future research. These points were elaborated in relation to the given topic of the article, thereby creating the findings.

3. Search Results

A total of 15,000 literature studies in the form of articles were accessed during the initial literature search procedure. Of these, 9,375 records were identified via database searching, and the remaining 5,625 records were identified through other sources. Out of the initial 15,000 records, 10,000 were removed due to duplicity. Consequently, 5,000 records were screened, and 4,945 of these were excluded. This left a total of 55 records in the form of full-text articles assessed for eligibility. Of these, 35 full-text articles were excluded for being published in non-English languages or before the period of 2011–2023. The remaining 20 full-text articles, consisting of 13 qualitative, 6 quantitative, and 1 SLR article, were considered for the synthesis of the current study. These search results are presented below in a graphical representation using the PRISMA tool.



3.1. Features of the Included Studies:

A total of 25 literature studies or sources were considered for this study. These studies focused on exploring and investigating how Saudi universities can play a critical role in supporting the country's transition from oil to entrepreneurship. It is notable that among the selected literature, 11 studies were quantitative, 1 was SLR in nature, and the remaining 13 were qualitatively based. Efforts were made to explore the practices and policies of entrepreneurial universities not only in Saudi Arabia but also in other nations. These nations included the US, Germany, Turkey, the UK, Spain, Latvia, Austria, and China, among others.

3.2. Outcomes:

Based on the above-selected 25 literature studies or sources, it can be critically commented that the 11 quantitative resources focused on collecting primary data through either questionnaire surveys or semi-structured interviews with selected participants. Conversely, the 13

qualitative sources concentrated on retrieving descriptive as well as secondary data by accessing suitable journals, books, articles, or authentic online reports and websites related to the identified issue. Lastly, the literature source employing the SLR method used relevant theories not only to generate valid results but also to reach exclusive conclusions. In terms of outcomes, it is important to note that all 25 chosen literature studies or sources provided a critical understanding of the practices and/or policies adopted and applied by the entrepreneurial universities of Saudi Arabia and other countries to shape the respective industries in which they operate, as shown below.

- Author(s) and Year of Study: Almahdi (2019)

Title: Promotion and Participation of Saudi Universities in the Development of Entrepreneurial Leadership: An Empirical Study in a Saudi Arabian Context

Country(s): Saudi Arabia

Method: Cross-sectional, descriptive, non-experimental quantitative.

Findings: Universities in Saudi Arabia, including Prince Mohammad Bin Fahad and Umm Al-Qura, often implement practices or utilize policies concerning the promotion of their students' leadership skills and progression in critical thinking abilities. Entrepreneurial universities in Saudi Arabia thus aim to provide students with a substantial level of awareness regarding entrepreneurship.

Future Research: Consideration of a larger sample size and an extended focus on literature review findings alongside descriptive data.

- Author(s) and Year of Study: Yusuf and Atassi (2016)

Title: Promoting a Culture of Innovation and Entrepreneurship in Saudi Arabia: The Role of Universities

Country(s): Saudi Arabia

Method: Qualitative, descriptive, and secondary data

Findings: Saudi's entrepreneurial universities pay the utmost attention to making significant investments to form a knowledge-based market, leveraging the long-term benefits that could soon be attained. The practices and policies of these universities focus on raising substantial funds to foster an innovation culture among students in Saudi Arabia.

Future Research: Consideration of a quantitative methodology focusing on retrieving primary information through conducting either survey questionnaires or semi-structured interviews, taking into account an adequate sample size and sampling method or procedure.

- Author(s) and Year of Study: Sperrer *et al.* (2016)

Title: The Concept of the Entrepreneurial University Applied to Universities of Technology in Austria: Already Reality or a Vision of the Future

Country(s): Austria

Method: Qualitative, descriptive, with primary data collected via customized questionnaires.

Findings: The entrepreneurial universities in Austria's educational market adopt policies including effective mentoring procedures, developing open spaces within incubators, and establishing numerous knowledge-transfer centers. Another key practice of these Austrian universities is offering personal coaching to students on entrepreneurship, which aids in building successful networks.

Future Research: Inclusion of semi-structured or other forms of interviews to collect necessary and relevant data.

- Author(s) and Year of Study: Almobaireek and Manolova (2013)

Title: Entrepreneurial Motivations among Female University Youth in Saudi Arabia

Country(s): Saudi Arabia

Method: Quantitative surveys were used to retrieve primary data from participants, namely undergraduate students from King Saud University, one of Saudi Arabia's largest entrepreneurial universities.

Findings: Opportunity-based entrepreneurial universities in Saudi Arabia are spurred by the availability of educational resources. There is a necessity for providing quality entrepreneurship training to young university students to boost their confidence in becoming future entrepreneurs.

Future Research: More in-depth studies are required regarding the impact of institutional embeddedness on the entrepreneurial attitudes of Saudi university students.

- Author(s) and Year of Study: Almobaireek and Manolova (2012)

Title: Who Wants to be an Entrepreneur? Entrepreneurial Intentions among Saudi University Students

Country(s): Saudi Arabia

Method: Quantitative surveys were used to gather primary data from participants, namely undergraduate students from King Saud University, one of Saudi Arabia's major entrepreneurial universities. The study considered entrepreneurial intentions as the dependent variable and perceived desirability, perceived behavioral control, and perceived social norms as the independent variables. Data analysis involved using the logistic regression model in the Statistical Package for the Social Sciences.

Findings: The practices and/or policies of Saudi entrepreneurial universities involve implementing successful entrepreneurship programs and forming and maintaining broad private–public partnerships, particularly in research and development procedures.

Future Research: Consideration of the stratified random sampling method, including a sample population (university students) from various nations worldwide.

- Author(s) and Year of Study: Miranda *et al.* (2017)

Title: Academic Entrepreneurship in Spanish Universities: An Analysis of the Determinants of Entrepreneurial Intention

Country(s): Spain

Method: Quantitative Methodology with Hypothesis Testing, conducted through an online survey-based questionnaire involving academics from Spanish universities.

Findings: The practices and/or policies of Spanish entrepreneurial universities were influenced by individual and contextual factors. Individual factors included entrepreneurial attitude, social networks, knowledge of cognitive styles, and perceived behavioral control. Contextual factors encompassed the university reward system, work–life balance, and work–family environment.

Future Research: Consideration of semi-structured or other forms of interviews to complement surveys for drawing more valid responses and conclusions.

- Author(s) and Year of Study: Guerrero *et al.* (2016)

Title: Entrepreneurial Universities: Emerging Models in the New Social and Economic Landscape

Country(s): US

Method: Qualitative, utilizing descriptive and secondary data.

Findings: The study concluded that entrepreneurial universities are recognized as catalysts for innovation and creativity, sources of knowledge providing innovative content, and drivers of the

entrepreneurial context.

Future Research: Greater emphasis on the compilation of primary data through either survey questionnaires or interview methods, considering large sample sizes and quantitative-based data analysis instruments.

- Author(s) and Year of Study: Kirby *et al.* (2011)

Title: Making Universities More Entrepreneurial: Development of a Model

Country(s): Spain

Method: Qualitative methodology, collecting primary data through a survey questionnaire with faculties at the Autonomous University of Barcelona in Spain.

Findings: Several formal and informal factors support the success and sustainability of entrepreneurial universities in the US. Formal factors included flexible organizational structures, curriculum, and horizontal coordination, while informal factors included opportunity recognition and risk mitigation.

Future Research: Consideration of more objectively comparative measures instead of solely relying on subjective perceptions and data collection, taking into account different cultures apart from Spain.

- Author(s) and Year of Study: Fernández-Nogueira *et al.* (2018)

Title: The Entrepreneurial University: A Selection of Good Practices

Country(s): Spain

Method: Quantitative methodology, with primary data retrieved through an online survey questionnaire targeting deans/directors of various Spanish universities.

Findings: The practices and/or policies of Spanish universities include promoting internationalization, implementing active methodologies, and gaining support from management teams, all contributing to shaping their respective industries.

Future Research: Inclusion of more statistical tools such as ANOVA or t-tests to support the generation of more valid outcomes and the reaching of pertinent conclusions.

- Author(s) and Year of Study: Jarohnovich and Avotiņš (2013)

Title: The Changing Role of the Entrepreneurial University in Developing Countries: The Case of Latvia

Country(s): Latvia

Method: Qualitative research incorporating descriptive and secondary data.

Findings: Entrepreneurial universities in Latvia are characterized by three specific missions interlinked with research, education, and community benefits. These institutions practice knowledge transfer and engagement, playing a critical role in raising funds and advancing collaborative research.

Future Research: Conducting quantitative research with primary data collection through survey questionnaires or interview methods and considering statistical data analysis tools, including t-tests, correlation, and regression.

- Author(s) and Year of Study: Pittz and Vanevenhoven (2018)

Title: Entrepreneurship Education in US Community Colleges: A Review Analysis

Country(s): US

Method: SLR.

Findings: US community colleges are identified as key drivers in adopting and applying entrepreneurial policies to attract students, thereby supporting the development of the national economy. These policies include both degree and non-degree programs and curricular effectiveness, among others.

Future Research: Expansion of focus to include other colleges and universities beyond community colleges to avoid potential bias and data manipulation.

- Author(s) and Year of Study: Guan and Qi (2013)

Title: The Cultural Roots of American Entrepreneurship Education

Country(s): US

Method: Qualitative methodology with a focus on secondary data.

Findings: Entrepreneurship education in various US colleges and universities began early, emphasizing education and student learning development. The practices and policies of US entrepreneurship education encompass "innovation consciousness," "cognitive ability," "entrepreneurial practice," "lifelong learning," and "culture," all contributing to enhanced education in an entrepreneurial environment.

Future Research: Inclusion of quantitative research methodology with primary data collection and the consideration of statistical data analysis tools to generate valid outcomes and reach pertinent conclusions.

- Author(s) and Year of Study: Genc *et al.* (2020)

Title: Transforming Turkish Universities into Entrepreneurial Universities for Sustainability: From Strategy to Practice

Country(s): Turkey

Method: Qualitative research methodology utilizing the content analysis method. Findings: Turkish universities cannot be considered entrepreneurial-based as some significant aspects are missing from their strategic plans. These aspects are categorized into "first group" and "second group." The "first group" includes innovation and entrepreneurship, while the patent and technopark/technocity fall under the "second group."

Future Research: Consider using a moderate-level sample size to collect primary data through survey questionnaires or interview methods.

- Author(s) and Year of Study: Kawamorita *et al.* (2016)

Title: Academic Entrepreneurship: Some Evidence from a Turkish University

Country(s): Turkey

Method: Qualitative methodology emphasizing the collection of relevant data through semi-structured interviews with deans and advisors from various Turkish universities.

Findings: Entrepreneurial universities in Turkey encounter critical challenges that impede the provision of related education to students. These include academic workload, a shortage of entrepreneurship know-how, and low entrepreneurial intentions among academics.

Future Research: Conduct nationwide case studies, collecting more primary and secondary data.

- Author(s) and Year of Study: Iskender and Bati (2015)

Title: Comparing Turkish Universities' Entrepreneurship and Innovativeness Index's Rankings with Sentiment Analysis Results on

Social Media

Country(s): Turkey

Method: Quantitative research methodology employing sentiment analysis and Spearman correlation for data analysis.

Findings: The Scientific and Technological Research Council of Turkey is crucial in fostering a strong link between entrepreneurship and innovation, enhancing competition, and establishing an entrepreneurially driven economy within the country.

Future Research: Increase data coverage through semi-structured interviews with deans and advisors as primary respondents.

- Author(s) and Year of Study: Yildirim and Askun (2012)

Title: Entrepreneurship Intentions of Public Universities in Turkey: Going Beyond Education and Research?

Country(s): Turkey

Method: A qualitative approach using content analysis and hypothesis testing.

Findings: Entrepreneurial universities in Turkey extensively develop infrastructure and course curricula. Aligned with the Supreme Council for Science and Technology these universities promote entrepreneurship education among students.

Future Research: Expand the research to include Turkish private universities and assess their entrepreneurial intentions.

- Author(s) and Year of Study: Leišytė and Sigl (2018)

Title: Academic Institutional Entrepreneurs in Germany: Navigating and Shaping Multilevel Research Commercialization Governance

Country(s): Germany

Method: A qualitative approach focusing on semi-structured interviews and desk research.

Findings: Academic and institutional entrepreneurship approaches are prevalent in Germany, emphasizing the motivation for knowledge transfer among individual learners.

Future Research: Emphasise gathering more primary data through survey questionnaires, considering appropriate sample size and sampling technique.

- Author(s) and Year of Study: Zarate-Hoyos and Larios-Meño (2015)

Title: The Role of Universities and Other Institutions in Successful Entrepreneurship: Some Insights from a Literature Review

Country(s): Germany

Method: Qualitative research methodology, employing case study analysis to draw valid inferences and conclusions.

Findings: The practices and policies of German entrepreneurial universities are mainly associated with key variables such as start-up capital, income level, and contact with entrepreneurs.

Recommendation(s) for Future Research: Consider quantitative data from secondary sources, including scholarly journal articles and authentic online websites.

- Author(s) and Year of Study: Mok and Yue (2013)

Title: Promoting Entrepreneurship and Innovation in China: Enhancing Research and Transforming the University Curriculum

Country(s): China

Method: A qualitative approach utilizing descriptive and secondary data.

Findings: Entrepreneurial universities in China are shaping the nation's industry by designing and organizing successful training programs and by encouraging entrepreneurial talents.

Future Research: Conduct quantitative research, focusing on collecting primary data with a large sample size and an effective sampling method.

- Author(s) and Year of Study: Anderson (2011)

Title: The University's Role in Developing Chinese Entrepreneurship

Country(s): China

Method: Qualitative and theoretical perspectives, incorporating descriptive and secondary data.

Findings: Chinese universities play a critical role in advancing the nation's entrepreneurship, focusing on employment, wealth generation, and the creation of new industries.

Future Research: Retrieve primary data through survey questionnaires or interview methods, considering a suitable data analysis tool.

- Author(s) and Year of Study: Alshebami *et al.* (2023)

Title: Examining the Relationship between Green Mindfulness, Spiritual Intelligence, and Environmental Self-Identity: Unveiling the Path to Green Entrepreneurial Intention

Country(s): Saudi Arabia

Method(s): Partial least-squares structural equation modeling and self-administered questionnaire.

Findings: Green mindfulness (GM) shows a direct and significant positive association with environmental self-identity (ESI) and green entrepreneurial intention (GEI). Spiritual intelligence (SPI) has a positive and significant connection with ESI but not with GEI. Environmental self-identity significantly positively relates to GEI. While ESI cannot mediate the relationship between GM and GEI, it fully mediates between SPI and GEI.

Future Research: Future studies should incorporate larger sample sizes and compare findings from Saudi Arabia with those of other nations to gain comprehensive insights.

- Author(s) and Year of Study: Alghamdi (2020)

Title: Transforming into Entrepreneurial Universities: EU-OECD as a Framework for Saudi Universities

Country(s): Saudi Arabia

Method: Quantitative research design.

Findings: According to the EU-OECD framework, entrepreneurship in Saudi universities is at a moderate level based on academic leaders' perceptions. The highest-rated dimensions of entrepreneurial universities are organizational capacity, people, and incentives. Statistically significant differences were observed based on university type, favoring established universities.

Future Research: The recommended concept for transforming both recognized and emerging Saudi universities into entrepreneurial universities, as outlined in this study within the context of the EU-OECD framework, should be applied.

- Author(s) and Year of Study: Elnadi and Gheith (2021)

Title: Entrepreneurial Ecosystem, Entrepreneurial Self-Efficacy, and

Entrepreneurial Intention in Higher Education: Evidence from Saudi Arabia

Country(s): Saudi Arabia

Method: Online questionnaire.

Findings: Students' perceptions of the entrepreneurial ecosystem directly and indirectly influence entrepreneurial intentions through entrepreneurial self-efficacy. Significant gender differences exist in the impact of entrepreneurial self-efficacy on students' entrepreneurial intention.

Future Research: Include students from other cities and countries for data collection and incorporate a longitudinal study to enhance generalizability.

- Author(s) and Year of Study: Jeet (2023)

Title: Entrepreneurial Intention of Saudi Students: Role of Saudi Arabian Universities in Achieving the Vision 2030

Country(s): Saudi Arabia

Method: Descriptive statistics, correlation, and stepwise multiple regression analysis.

Findings: Saudi universities positively influence students' self-efficacy and attitudes toward entrepreneurship, as well as mitigate the impact of social norms on entrepreneurial intentions.

Future Research: Future researchers should consider a broader sample of Saudi universities and conduct additional empirical research to better understand the impact of digital academic entrepreneurship.

- Author(s) and Year of Study: Nuseir *et al.* (2020)

Title: Antecedents of Entrepreneurial Intentions in the Smart City of Neom, Saudi Arabia: Does Entrepreneurial Education on Artificial Intelligence Matter?

Country(s): Saudi Arabia

Method: Structural Equation Modeling-Partial Least Squares.

Findings: Entrepreneurial self-efficacy and competency significantly positively influence entrepreneurial intentions. Entrepreneurial education on artificial intelligence mediates the relationship between entrepreneurial competency, self-efficacy, and entrepreneurial intentions.

Future Research: Although not explicitly stated, future researchers could explore and understand specific strategies for implementing entrepreneurial education on artificial intelligence that effectively mediate the relationship between entrepreneurial competency, self-efficacy, and entrepreneurial intentions in smart cities like Neom.

4. Discussion

4.1. Practices and Policies of Entrepreneurial Universities:

Four studies—namely, those by Almahdi (2019), Yusuf and Atassi (2016), Almobaireek and Manolova (2013), and Sperrer *et al.* (2016)—have demonstrated that the adoption and execution of the best practices or policies of entrepreneurial universities are not a new phenomenon in Saudi Arabia. For instance, the literature studies of Almahdi (2019) and Yusuf and Atassi (2016) provide evidence that Saudi universities play a critical role in the progression of entrepreneurial leadership within the nation's education industry, utilizing successful programs related to entrepreneurial promotion and innovation encouragement. On the other hand, the study findings of Almobaireek and Manolova (2013), as well as

Almobaireek and Manolova (2012), highlighted that creating an exclusive entrepreneurship culture among students is one of the top priorities for universities in Saudi Arabia. This is in pursuit of long-term success and sustainable growth of the nation's economy. According to two selected literature studies or sources, the policies and practices of entrepreneurial universities have also been observed in countries outside of Saudi Arabia, specifically Austria and Latvia. For instance, Sperrer *et al.* (2016) suggest that forming, developing, and maintaining strong relationships with potential stakeholders is an effective policy or program for Austrian entrepreneurial universities. These stakeholders include research funders, parents of students, and alumni members, among others (Sperrer *et al.*, 2016). Conversely, the research findings of Jarohnovich and Avotiņš (2013) revealed that entrepreneurial universities in Latvia tend to promote knowledge transfer, which acts as one of their successful entrepreneurship-based practices or policies.

Similarly, in Spain, entrepreneurial universities have been observed adopting effective policies or performing best practices to shape the industry in which they operate, ensuring wider sustainable growth. According to Fernández-Nogueira *et al.* (2018), these universities in Spain consider various external factors while devising and executing their policies or practices. These factors include internationalization, management support, curriculum advancement, and organizational design (Fernández-Nogueira *et al.*, 2018). Moreover, the study findings of Miranda *et al.* (2017) and Kirby *et al.* (2011) indicate that the policies and best practices of Spanish entrepreneurial universities involve building an adequate level of entrepreneurial attitudes among learners and promoting an effective entrepreneurial culture within their operational settings. In contrast, in the US, entrepreneurial community universities aim to develop free enterprise education by making significant changes to four-year degree programs (Pittz and Vanevenhoven, 2018). Guerrero *et al.* (2016), focusing on the structuring of an entrepreneurial university ecosystem within a US state, state that "one important contribution of the entrepreneurial university is related to the creation of new university spin-offs; it is considered a window of socio-economic contributions to the region." Furthermore, Guan and Qi (2013) pointed out that the policies or best practices of entrepreneurial universities in the US are typically based on individualism and pragmatic culture, supporting these institutions in contributing to the nation's significant economic progression.

Turkish entrepreneurial universities have also been noted for implementing certain best practices to drive sustainable growth in their respective industries (Kawamorita *et al.*, 2016). One such practice involves following a strategic plan formulated under Public Financial Management and Control Law No. 5018. This plan is perceived as containing medium and long-term objectives of public administration, basic principles and policies, objectives and priorities, performance criteria, methods to be followed, and resource allocation (Genc *et al.*, 2020). By law, all public institutions, including universities, with some exceptions, must prepare a strategic plan, and all public sector managers are required to prepare an institution-specific strategic plan (Genc *et al.*, 2020). In addition, other best practices and policies followed by entrepreneurial universities in Turkey include fostering internationalization and innovation and raising substantial levels of funding, among others (Iskender and Bati, 2015; Yildirim and Askun, 2012). Beyond Turkey, universities in two other countries—namely, Germany and China—have also successfully implemented their competitive advantages and competencies to promote entrepreneurship-based education. In contrast, Chinese universities have effectively utilized their enhanced research and training programs as competitive advantages and competencies to foster entrepreneurship-related education within

the nation (Anderson, 2011; Mok and Yue, 2013).

4.2. Practical Implications of the Study:

It is evident that various countries and their diverse universities have contributed to shaping the education industry in such a way that sustainable growth can be achieved within a definite timeframe. These universities have been observed to implement entrepreneurially based practices, aiding not only in shaping their respective operating industries but also in ensuring better progression in the economies of the nations where they operate. For instance, entrepreneurial universities based in Saudi Arabia tend to explore the impacts of perceived desirability on the entrepreneurial intentions of the younger generation, thereby supporting them in shaping the industry according to expectation levels (Almobaireek and Manolova, 2012). Entrepreneurial intention in Saudi Arabia is also influenced by the mindfulness and self-identity of university students, although it is not affected by spiritual intelligence (Alshebami *et al.*, 2023). The entrepreneurial intentions of Saudi Arabian university students are further influenced by the entrepreneurial ecosystem provided by the university. However, the impact of entrepreneurial self-efficacy on entrepreneurial intentions is not uniform across genders; it is particularly more significant among males (Elnadi and Gheith, 2021). The self-efficacy and attitudes of students can reduce the influence of social norms on entrepreneurial intentions, thus encouraging greater female participation in entrepreneurial activities (Jeet, 2023). Additionally, the entrepreneurial intentions of university students in Saudi Arabia are shaped by entrepreneurial competencies developed through education on artificial intelligence (Nuseir *et al.*, 2020).

Entrepreneurial universities in Spain and the US have similarly influenced the education industry to ensure long-term sustainable growth within a specific timeline. According to SLR findings, universities in these countries excel in promoting both innovation and internationalization (Guerrero *et al.*, 2016; Miranda *et al.*, 2017), positively impacting the education industry. Furthermore, it was noted that entrepreneurial universities in Turkey successfully shape their respective industries by incorporating innovative technologies into their curricula and developing entrepreneurship knowledge among students to a considerable extent (Genc *et al.*, 2020; Kawamorita *et al.*, 2016). In Germany and China, entrepreneurial universities influence the education industry by fostering knowledge transfer and focusing on start-up capital, designing effective training programs, and significantly enhancing wealth (Leišytė and Sigl, 2018; Mok and Yue, 2013).

4.3. Theoretical Implications:

The findings of this study significantly enhance existing theories and frameworks in the field, particularly in relation to entrepreneurial universities, especially those in Saudi Arabia, and how their practices align with global best practices. These findings enrich the understanding of entrepreneurial education theories, specifically relating to the three-stage framework: pre-experience, experience, and post-experience. This framework informs the roles of educators and learners during the experiential learning process. They also contribute to the entrepreneurial education theory of behaviorism or cognitivism, which emphasizes providing foundational knowledge and critical thinking skills to university students and scholars to help them adapt and thrive in complex and uncertain conditions.

Additionally, the study's results support the Constructivism Entrepreneurial Education Theory, where students and scholars in universities build new knowledge frameworks and understanding by comprehending new information from experiences through reflection. The findings align with the Entrepreneurial Education

theory of reflection-in-action, proposed by Schön in 1983, which encourages university students and scholars to reflect on their knowledge and understanding during experiences to reassess logic and strategy, aiding their sustainability in challenging academic settings. Furthermore, the findings complement Kolb's experiential learning cycle, suggesting a learning cycle in which the experiences of university students and scholars eventually translate into learning and development (Bell and Bell, 2020).

The study also contributes to theories of sustainable growth, including the institutional theory, which examines innovative elements or capabilities in small and medium-sized enterprises as a lens for encouraging managerial practices to pursue sustainable growth, considering factors like cultural, legal, and social environment, economic incentive schemes, and market values (Nimfa *et al.*, 2021). This supports university students and scholars in identifying and effectively meeting learning opportunities. Another relevant theory of sustainable growth is the resource-based view theory, highlighting that entrepreneurial universities can effectively utilize educational resources even in crisis or supply shortage situations, ensuring uninterrupted learning and development of students and scholars. The diffusion of innovations theory, another theory of sustainable growth, is acknowledged for its contribution to increased innovation and support in finding solutions.

Moreover, the findings align with the stakeholder theory proposed by R. E. Freeman, suggesting that effective and sustainable learning in universities is achievable when all stakeholders, including learners, educators, and non-teaching staff, benefit. Finally, the findings support contingency theory, preparing university students, scholars, teachers, and non-teaching staff to address issues arising from the external environment (Nimfa *et al.*, 2021).

5. Conclusion

From the above discussion, it is evident that entrepreneurial universities operating in various nations outside Saudi Arabia, such as the UK, Spain, China, the US, Germany, Austria, and Latvia, implement certain best practices and policies that assist them in ensuring long-term sustainable growth. These practices and policies play a crucial role in aiding these entrepreneurial universities in shaping the respective industries in which they operate, particularly by attracting significant numbers of young-generation students through key methods. Among these methods are the promotion of entrepreneurship know-how and the development of knowledge transfer among students, focusing on free enterprise and its associated benefits. For instance, according to the retrieved SLR outcomes, it is evident that entrepreneurial universities in Saudi Arabia are committed to enhancing the critical thinking capacities of their students through the promotion of knowledge sharing and assessment. In contrast, US-based entrepreneurial universities often adopt a bottom-up procedure, whereas European entrepreneurial universities typically follow a top-down mechanism in their activities. In the cases of Spain and Turkey, the entrepreneurial universities there implement the best practice of determining entrepreneurial intentions in such a way that a profound culture of entrepreneurship is formed, developed, and preserved among the learners.

Therefore, the overall findings of the study largely support addressing the research questions, as universities in Saudi Arabia actively foster the development of entrepreneurial skills among students. This is primarily because these universities promote entrepreneurial leadership among students and cultivate an innovative culture, enabling them to provide solutions to complex and uncertain situations. Moreover, entrepreneurial universities in Saudi Arabia demonstrate a commitment to the long-term success and sustainable growth of students and other stakeholders. It is also evident that these universities

endeavor to equip students with the necessary professional preparation for their future career success. Additionally, educational institutions in Saudi Arabia play a significant role in facilitating the transition from an oil-based economy to an entrepreneurship-driven economy, as efforts are made to establish robust links between academia, business, and industry through higher educational institutes. Notably, innovation, knowledge transfer, and entrepreneurial culture are actively promoted by universities in Saudi Arabia, significantly supporting the economic progression of the nation. Furthermore, the best practices and policies in Saudi Arabia are closely aligned with those in other nations, such as Spain, the US, Turkey, Germany, and China. Entrepreneurial universities contribute to the enhancement of innovation, internationalization, knowledge transfer, and the cultivation of entrepreneurial attitudes among students, thereby contributing to economic development. In conclusion, the implementation of best practices and the effective utilization of innovative policies by entrepreneurial universities operating in any nation facilitate sustainable growth over the long term.

6. Research Limitations and Future Research Opportunities

Although the study has been conducted effectively with considerations of varied relevant aspects, there are some limitations that cannot be ignored. One limitation is the scarcity of relevant and reliable scholarly journal articles relating to entrepreneurial universities, particularly in recent years. This scarcity may affect the comprehensiveness of the research outcome despite the extensive use of available credible sources. Another limitation is that the study focused solely on the context of Saudi Arabia, thereby limiting the generalizability of the findings to a broader international context. This suggests that the findings of this study might not be entirely applicable to other nations.

The outcome of the study has opened up future research opportunities. These opportunities involve considering a more diverse set of countries and regions so that a more inclusive understanding of global practices in entrepreneurial universities can be attained. Future researchers also have the opportunity to conduct case studies within and outside Saudi Arabia. Furthermore, researchers can focus on exploring the long-term impact of entrepreneurial practices in universities, as well as perform a comparative analysis of entrepreneurial practices between countries. Additionally, future research can consider studies published in languages other than English and assess the real-world impact of entrepreneurial practices on students, local communities, and the economy.

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