Deanship of Graduate Studies
Al-Quds University

"Towards an Entrepreneurial University Model and Possibilities of Implementation in Palestine: Evidence from Al-Quds University"

Alaa Omer Ibdair

M.Sc. Thesis

Jerusalem-Palestine

1443/2022

Towards an Entrepreneurial University Model and Possibilities of Implementation in Palestine: Evidence from Al-Quds University

Prepared By:
Alaa Omer Ibdair

B.Sc.: Information Technology From Al-Quds University in Palestine

Supervisor: Dr. Ibrahim Awad

This thesis is submitted in Partial to fulfill the requirements for the degree of Master of Business Administration from the Deanship of Graduate Studies at Al-Quds University

1443/2022

Al-Quds University
Deanship of Graduate Studies
Business Administration Department

Thesis Approval

Towards an Entrepreneurial University Model and Possibilities of Implementation in Palestine: Evidence from Al-Quds University

Prepared By: Alaa Omer Ibdair
Registration No: 21620371

Supervisor: Dr. Ibrahim M. Awad

Master Thesis submitted and Accepted, Date: 12/1/2022
The names and signatures of the examining committee are as follows:

1- Head of the committee: **Dr. Ibrahim M. Awad** **Signature:**
2- Internal Examiner: Dr. **Mohammed Abdalrahman** **Signature:**
3- External Examiner: **Prof. Zahran Daraghma** **Signature:**

Jerusalem-Palestine

1443/2022

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and that this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed: Alaa Omer Ibdair

17/1/2022

Acknowledgments

A special thanks to Dr. Ibrahim Awad, my academic supervisor, for his invaluable feedback, helpful advice, and encouragement. You have provided me with a perfect combination of insight and humor. I have learned immensely from your wealth of knowledge, and I am incredibly grateful that you took me on as a student and continued to have faith in me over the years. Finally, I should admit that this work has never been done without your support, patience, and guidance throughout this study.

And endless gratitude to my husband, daughter, family members, and numerous friends who have supported me throughout this long process.

Abstract

This study aimed to describe the entrepreneurial university phenomenon at Al-Quds University and determine the requirements to transform it into an entrepreneurial university. Therefore, a descriptive and an exploratory approach was used to achieve the study objectives. Additionally, a well-prepared questionnaire was used to collect the data from the study population, and it was analyzed using the SPSS program. In the end, 159 have participated in this study, and the sample consisted of 11% professors, 33% associate professors, and 56% assistant professors.

The results of the reality of entrepreneurship at Al-Quds University based on the academic levels stated that there is a statistically significant difference between the means of the academic levels (assistant professors, associate professors, and professors) with a p-value less than.05 alpha level for implementing the entrepreneurship in all domains at the university: the university management and organizational structure, university leadership, university academic programs and curriculum, entrepreneurial education, entrepreneurial culture at the university, university relationships and collaborations, university internationalization, university tangible resources and services, university reputation, and the intellectual abilities of the university community.

On the other hand, the results of the reality of entrepreneurship at Al-Quds University based on the work experience stated that there are no statistically significant differences between the means of the work experience for implementing entrepreneurship in the following domains of the study: the university management and organizational structure, university leadership, university academic programs and curriculum, university tangible resources and services, university reputation, and the intellectual abilities of the university community.

The findings of this study showed the requirements that facilitate Al-Quds University's transformation into an entrepreneurial university according to their importance, and the arrangement was: university internationalization is the most important requirement, followed by entrepreneurial education, university relationships and collaborations, university reputation, and university leadership. Next are the Intellectual abilities of the university community, university entrepreneurial culture, academic programs and curriculum, university management and organizational structure, and finally, the university's tangible resources and services.

The finding also showed the ambition of Al-Quds University to transform into an entrepreneurial university by applying most of the needed requirements. Still, it needs to apply all of them just as important to ensure its transformation successfully.

إمكانية التحول من جامعة تقليدية الى جامعة ريادية (دراسة حالة جامعة القدس)

اعداد: الاء عمر ابدير

أشراف: الدكتور إبراهيم عوض

ملخص الدراسة

هدفت هذه الدراسة إلى وصف ظاهرة ريادة الأعمال الجامعية في جامعة القدس وتحديد متطلبات تحويلها إلى جامعة ريادية. وقد تم استخدام المنهج الوصفي والاستكشافي لتحقيق أهداف الدراسة. بالإضافة إلى ذلك، تم استخدام استبيان معد جيدًا لجمع البيانات من مجتمع الدراسة، وتم تحليله باستخدام برنامج SPSS. وقد شارك 159 شخصًا في هذه الدراسة، حيث تألفت عينة الدراسة من 11٪ أساتذة، و33٪ أساتذة مشاركين، و56٪ أساتذة مساعدين.

وقد بينت نتائج الدراسة واقع ريادة الأعمال في جامعة القدس بناءً على المستويات الأكاديمية أن هناك فروق ذات دلالة إحصائية بين متوسطات المستويات الأكاديمية (الأساتذة المساعدون، والأساتذة المشاركون، والأساتذة) بقيمة p أقل من. 05 ألفا مستوى في تطبيق ريادة الأعمال في جميع المجالات في الجامعة: إدارة الجامعة والهيكل التنظيمي، وقيادة الجامعة، والبرامج الأكاديمية الجامعية والمناهج الدراسية، وتعليم ريادة الأعمال، وثقافة ريادة الأعمال في الجامعة، والعلاقات والتعاون الجامعي، وتدويل الجامعة، والموارد الملموسة للجامعة والخدمات، وسمعة الجامعة، والقدرات الفكرية لمجتمع الجامعة.

ومن جهة أخرى، أشارت نتائج واقع ريادة الأعمال في جامعة القدس بناءً على الخبرة العملية إلى عدم وجود فروق ذات دلالة إحصائية بين متوسطات الخبرة العملية لتنفيذ ريادة الأعمال في المجالات التالية في جامعة القدس وهي: الهيكل الإداري والتنظيمي للجامعة، والقيادة الجامعية، والبرامج الأكاديمية والمناهج الدراسية، والموارد والخدمات الجامعية الملموسة، وسمعة الجامعة، والقدرات الفكرية لمجتمع الجامعة.

وفي نهاية الدراسة، فقد حددت نتائج هذه الدراسة المتطلبات التي تسهل تحول جامعة القدس إلى جامعة ريادية حسب أهميتها من وجهة نظر عينة الدراسة، وكان الترتيب على النحو التالي: تدويل الجامعة هو المطلب الأكثر أهمية، يليه التعليم الريادي، والعلاقات الجامعية والتعاون، وسمعة الجامعة، وقيادة الجامعة. فيما يلي القدرات الفكرية لمجتمع الجامعة، وثقافة ريادة الأعمال بالجامعة، والبرامج والمناهج الأكاديمية، وإدارة الجامعة والهيكل التنظيمي، وأخيراً الموارد والخدمات الملموسة للجامعة.

كما أظهرت النتائج طموح جامعة القدس للتحول إلى جامعة ريادية من خلال تطبيق معظم المتطلبات المطلوبة. ومع ذلك، فإنها تحتاج إلى تطبيق كل منهم بنفس القدر من الأهمية لضمان تحوله بنجاح.

Table of Contents

List of Tables

List of Figures

Abbreviations

HE:	Higher Education
HES:	Higher Education System
HEI:	Higher Education Institution
MOHE:	Ministry of Higher Education
EC:	European Commission
EEC:	Entrepreneurial European Commission
EU:	Entrepreneurial University
OECD:	Organization for Economic Cooperation and Development
EU-OECD	Entrepreneurial University - Organization for Economic Cooperation and Development
PNA	The Palestinian National Authority
IPR	Intellectual Property Rights
TLO	Technology Licensing Offices
TTO	Technology Transfer Offices
AQU	Al-Quds University

Chapter One

1 Introduction

Higher education in Palestine is considered the leading wealth and civilization structure of Palestinian society. By the existence of the Israeli occupation and the absence of any other natural resources, higher education plays a crucial role in developing the Palestinians economic, political, and social situation.

The higher education system (HES) in Palestine comprises 49 accredited education institutions distributed between the West Bank and Gaza Strip. In the West Bank, there are thirty-four institutions, ranging between 14 traditional universities, 16 university colleges, 18 community colleges, and one open university. They offer three hundred different fields of study to about 218,415 students (MOHE, 2020). These higher education institutions (HEIs) are managed to survive and overcome all the difficulties imposed by the Israeli occupation and try to respond to the rapid changes and developments in the higher education system regionally and worldwide to maintain high-quality education in Palestine.

Due to the abnormal circumstances in Palestine, the Palestinian HEIs face many educational, political, and financial challenges. For example, most Palestinian HEIs depend on student tuition fees to pay the salaries and cover about 60% -80% of their operational expenses (Isaac et al., 2019). Still, most students cannot pay the tuition fees, which affects the Palestinian HEIs' financial stability.

This challenge led them to find alternative sources of funds to enhance their economic sustainability, such as international financial aid and support sources, including the US

government, the European Economic Community (EEC), and United Nations Agencies' financial support (Abed, 2014) however, these sources are still insufficient to fulfill their needs.

Another funding source is the governmental financial support, which is insufficient and irregular due to the Lack of the Finance Ministry and the Palestinian National Authority (PNA) budget, so they still fail to offer the full annual support to all, including the educational institutions.

The Palestinian universities also face the challenge of having proper funding for research and don't have any financial return or market value from the research they do and publish. Therefore, this led the universities to revise their academic and research roles. As a result, most academics did most researches due to academic promotions or fulfilling the academic load, or granting teaching overtime at the end (Isaac et al., 2019).

The Palestinian HEIs also suffer from the lack of cooperation with the private sector, the essential key player in the Palestinian economy. This collaboration weakness led to a massive gap between the industry's skills requirements and the education system's output. Moreover, it required new skills, such as capacity building and vocational training for potential employees and workers. Kološta & Flaška (2017) assured that the lack of this collaboration limits the HEIs to contribute to industrial innovation via various interactions.

As mentioned above, Palestinian HEIs have developed under abnormal circumstances. However, they still face many educational, political, and financial challenges that led them not to reach self-financial dependence and prevented them from being involved and contributing to their socio-economic development. Therefore, a new higher education context should be developed and created in Palestine to respond and overcome those challenges and improve its financial situation. In addition, the HES should be restructured to ensure better HEI's capacity in responding to local and global changes and developments.

Al-Quds University, a Palestinian University, was founded in 1984. It has more than 13,000 students and more than fifteen colleges. Its main campus is located in Abu Dis, and it has four campuses in Jerusalem, Sheikh Jarrah, Beit Hanina, and Ramallah (al-Berieh). AQU's mission is to provide higher education for students and community services for Palestinian people and refugees living in the Jerusalem and West Bank areas (AQU, 2020).

Al-Quds University, like other Palestinian universities, is facing different challenges such as lack of student populations compared with the available spaces in the university, financial limitations, and crisis. Due to those challenges, Palestinian universities must think deeply and work hard about their initial mission, including their research and teaching roles. In addition, they should start connecting with the business sector and government, engaging in different research activities, designing commercial prototypes or producing new products, and regulating markets (Blenker et al., 2014; Etzkowitz et al., 2000; Etzkowitz & Leydesdorff, 2000).

To become self-financial dependent on the research and educational activities and generate profit primarily through projects with the industry community means transitioning the universities from traditional towards entrepreneurial universities.

An entrepreneurial university can then be defined as a university that monitors and readily responds to environmental changes on local and global levels by using the knowledge to create practical applications and solutions to solve those problems. Most researchers conclude that each university has a different way to transform into an entrepreneurial university depending on its situations, resources, and environment (Gutíerrez et al., 2020).

The transformation into an entrepreneurial university requires expanding the academic roles of universities, responding to the changes and challenges in their local and national

environments by preparing and implementing a well-defined framework that helps them transform into entrepreneurial universities (Allinson, 2012).

Therefore, the transformation into an entrepreneurial university is a current phenomenon. So, this study's overall goal is to highlight the importance of transforming into an entrepreneurial university, analyze the contemporary characteristics of the Al-Quds University, and present the requirements to become an entrepreneurial university.

1.1 Research Problem

Palestinian Universities have been struggling with many different educational, political, and financial issues over the past decade, as the lack of students' populations, the lack of funding resources, the lack of cooperation with the private sector and the educational market competence, as well as including the issue of globalization and internationalization of higher education. Therefore, a new context of higher education is a current phenomenon that aims to change the existing universities' context into another context that expands its role and increases its response to the needs of their local and national environments.

Therefore, Entrepreneurial university is now recognized as a significant driver to overcome those issues and reach a self-financial dependency and recognized as the potential of universities to be involved and contribute to the country's socio-economic development, especially in an unpredictable environment like Palestine (Arnaut, 2019).

Therefore, there is a critical need to study the importance of being an entrepreneurial university and study transforming into an entrepreneurial university. This research study summarizes the following central question: ***What is needed to transform from a traditional***

university into an entrepreneurial one? And this study will also answer the following sub-questions:

- What are different possible approaches to transforming a university into an entrepreneurial university?
- What mission, objectives, and strategies are needed to become an entrepreneurial university?
- Are there significant differences in entrepreneurship reality at Al-Quds University based on the respondents' work experience and academic level?
- From the respondents' perspective, what are the requirements for Al-Quds University to become an entrepreneurial university?

1.2 Significance of Study

This study's significance stems from the fact that entrepreneurship in higher education is a growing global phenomenon. It is now recognized as a significant driver to underpin innovation and succeed in unpredictable and highly competitive environments by finding new solutions to the multiple challenges and crises that need to be addressed locally, regionally, or globally.

This study will provide insight into entrepreneurial university models, propose an integrated model with prior related studies; furthermore, the study will significantly develop various entrepreneurial capacities for students, staff, faculty, community, graduates, and market needs. Finally, it will give universities an exact role in designing learning environments that stimulate entrepreneurial mindsets, thinking, practices, and activities. Therefore, this study has both theoretical and practical importance.

1.3 Practical Significance

The study's practical importance lies in the pursuit of entrepreneurship in the Palestinian HEIs, especially in Palestinian universities. The HEIs have a significant role in interacting with its social and economic environment, advancing the global knowledge-based economy and its ability to adapt to the changes and look for additional funds for teaching, research, technology transfer, commercialization, etc. (García-Aracil et al., 2017). Therefore, this leads to studying and exploring the requirements for transforming into an entrepreneurial university, especially for Palestinian HEIs, considering the unusual political situation in Palestine and the lack of Arabic and Palestinian studies about this phenomenon. The above shows the practical importance of presenting a transformation model into an entrepreneurial university, and Al-Quds University will be the case in this study.

1.4 Theoretical Significance

This study will explain entrepreneurial universities' phenomenon and capture some core factors that affect universities' transformation into entrepreneurial universities, including the organizational changes, strategies enhancements, entrepreneurial orientation, environmental challenges and pressures, academic characteristics, and educational implications. In addition, this study's findings could be used to reference future research and practices in other Palestinian universities.

1.5 Study Objectives

This study aims to determine the requirements to transform a traditional university into an entrepreneurial university. And this objective can be subdivided into the following purposes:

1. It provides further insights into the entrepreneurial university.
2. It identifies the most crucial entrepreneurship activities and practices that can lead to an entrepreneurial university.
3. It identifies what is necessary to transform a university into an entrepreneurial university.
4. It identifies the obstacles and challenges restricting a university's transformation into an entrepreneurial university.
5. It provides a set of policy recommendations that contribute to the development of the entrepreneurial university.

1.6 Definitions of Key Terms

Entrepreneurship

- Entrepreneurship is a combination of social, political, economic, and cultural elements in a region that supports the development and growth of investments based on creativity and innovation (Tajpour, 2021)
- Eliakis et al. (2020) define entrepreneurship as the process of using valuable resources and creating new and original ideas to generate profits in an ambiguous and competitive environment.

Entrepreneur

- An entrepreneur who perceives a business opportunity and develops the business as his career choice must bear the risk of taking business and face uncertainty and volatility of business (Diandra & Azmy, 2020).

- Kuratko et al. (2017) defined an entrepreneur as that person or organization capable of generating a new business project or activity that creates value.

Academic Entrepreneur

- An academic Entrepreneur is that academic member engaging in activities that lead to technology commercialization (Albats et al., 2018).
- An academic Entrepreneur is an academic faculty member who undertakes technology commercialization, using formal modes of engagement that capitalize on specific market opportunities (Grimaldi et al., 2011).

Entrepreneurial Academic

- An entrepreneurial academic adopts an entrepreneurial outlook and readily seeks engagement with industrial partners, often through the less formal modes of engagement, to further their research objectives (Alexander et al., 2015).

Academic Entrepreneurship

- Padilla-Meléndez et al. (2020) defined academic entrepreneurship as how universities' knowledge is disseminated and exploited by industry, resulting in university start-ups.
- Beyhan & Findik (2018) defined academic entrepreneurship as the discovery, evaluation, and use of opportunities to transform knowledge into products, processes, and services in the university environment.
- Mirani and Yusof (2016) defined academic entrepreneurship as the ability to increase individuals or institutions' profit, influence, or prestige by developing new valuable and unique marketable research ideas or projects.

Entrepreneurial Education

- Creativity-based education aims to develop students' minds and abilities necessary for self-employment as a job creator rather than a seeker (European Commission, 2012)

Entrepreneurial University

- An entrepreneurial university is a university that empowers the whole of its community (academic and administrative staff, researchers, students, and alumni) to commit to developing a mindset for knowledge generation, creativity, and innovation under uncertainty to solve real complex problems and create new opportunities, as the means of adding value to society and contributing to sustainable development, locally and internationally (Gutíerrez et al., 2020).
- An entrepreneurial University refers to an academic organization that is conducive for staff and students to demonstrate enterprise, innovation, and creativity, that creates public value, partners with local, regional, national, and international stakeholders, and can effectively operate in a dynamic context (Huub et al., 2017).

Entrepreneurial Society

- An entrepreneurial society refers to a society that depends on knowledge to create new employment opportunities, enhance economic growth, and increase competitiveness (Guerrero & Urbano, 2014).

Innovation

- Innovation is turning a new concept into a commercial success (Innoway, 2020).
- Innovation is the process of generating new ideas and implementing them into new products, processes, or services to generate profits, increase employment opportunities, and enhance and grow the national economy (Kogabayev & Maziliauskas, 2017).

1.7 The Model of Study

The model of this study is derived from previous studies that dealt with the subject and have significant representations in prior relevant literature reviews on the entrepreneurial university. Figure (1) below shows the most important variables (dependent, independent, and moderating variables) for the transformation of Al-Quds University into an Entrepreneurial University. Those variables are found as follows (Source: Own Elaboration Based):

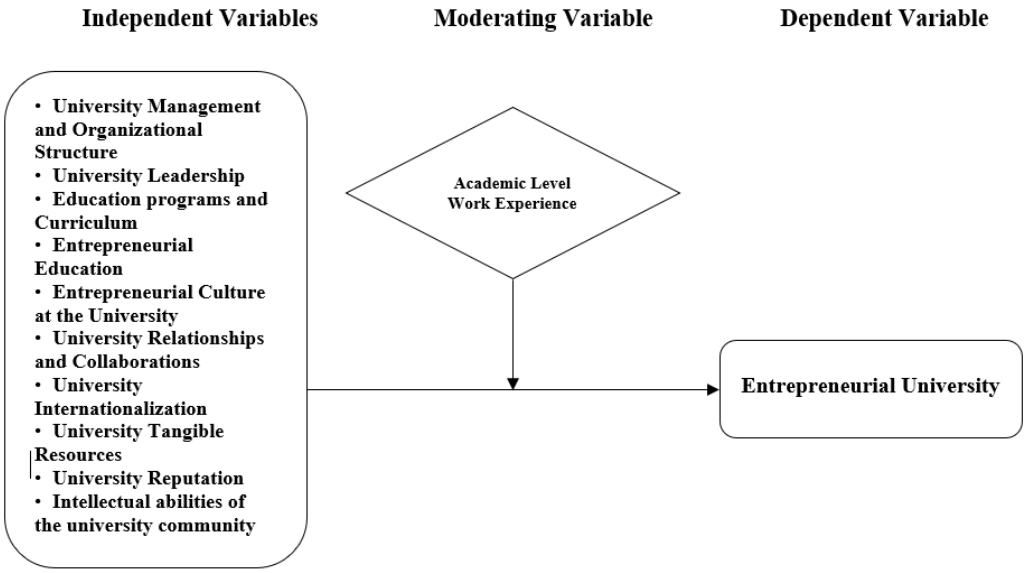


Figure 1.1: The Model of Study

The model of the study can be explained using the following exploratory factor analysis equation:

$$z = (ax_{11} + ax_{22} + ax_{33} + ax_{44} + ax_{55} + ax_{66} + ax_{77} + ax_{88} + ax_{99} + a\ x_{1010})$$

For instance, exploratory factor analysis is a statistical technique used as an indicator to determine the structure of the relationship between the variables and the respondent by reducing

data to a smaller number of summary variables and revealing the structure of the underlying phenomenon.

Based on the equation above, z is the dependent variable, entrepreneurial university, and ai's represents the criterion variable's value changes when the predictor variable changes.

x1: University Management and Organizational Structure; x2: University Leadership; x3: University Academic programs and Curriculum; x4: Entrepreneurial Education; x5: Entrepreneurial Culture at the University; x6: University Relationships and Collaborations; x7: University Internationalization; x8: University Tangible Resources and Services; x9: University Reputation; and x10: Intellectual abilities of the university community.

1.8 Structure of Study

The study is divided into five main chapters, and these chapters are listed below:

- **Chapter One**: This chapter will introduce the study, the problem statement, the importance, the main question, and sub-questions.
- **Chapter Two**: This chapter will focus on previous studies on the entrepreneurial university phenomenon.
- **Chapter Three**: This chapter will show the study's methodology, tools, and population.
- **Chapter Four**: This chapter will show the findings and the collected data results, including the answers to the study's questions.
- **Chapter Five**: This chapter will summarize the results, findings, conclusions, and recommendations that have been driven from the study.

1.9 Distinctions of Study

The study subject is an essential topic in the current era, which receives attention from all universities worldwide, particularly Palestine. This crucial attention requires investigating and determining the entrepreneurial universities' transformation requirements to propose a transformation model as a case study on Al-Quds University. Al-Quds University strives to achieve its entrepreneurial mission and vision by conducting several entrepreneurial activities and events such as spreading the entrepreneurship culture among students, staff, and faculty members. It also focuses on implementing entrepreneurial education methodologies. Therefore, this study will provide insights into entrepreneurship by proposing an entrepreneurial model.

This study differed from prior studies because it proposes a model for Al-Quds University to transform into an entrepreneurial university by studying the current level of entrepreneurship and different entrepreneurial activities at the university considering the lack of Arabic and Palestinian studies about this phenomenon. Additionally, this study covers various aspects of university transformation: structure, governance, curriculum, policies and strategies, research purposes, collaborations, exchange programs, university enterprises, university capabilities and networking, internationalization, and the challenges.

Finally, this study will combine existing literature results and models focused on university transformation into entrepreneurial universities to propose a model that fits Al-Quds University or any Palestinian University.

Chapter Two

2 Literature Review

Today, the higher education system is experiencing significant pressure and challenges worldwide. As a result, the funding to HEIs decreased, which forced them to search for new funding sources and diversify them by more actively attracting donors, increasing tuition fees, receiving funds from their own business, or other types of economic activity.

Klofsten et al. (2019) and Paul (2013) confirmed that universities face significant political and economic challenges, including different pressures from the public and government, which created an unpredictable environment for higher education. Therefore, they asserted that universities should make higher education accessible for all, consider the globalization issue, technology development, social mobility, and involve and contribute to the country's socio-economic development.

As a result, this pressure has affected the shape of the current higher education system and forced countries across the globe to energetically encourage HEIs to look for ways to respond to those challenges, exploit the emerged opportunities and attract extra-budgetary funds (Emelyanovich et al., 2019).

Accordingly, the higher education institutions started using various new legislative instruments to expand economic independence to clarify the rules for receiving and spending income from economic activities. In this regard, today, the basic principles of management are coming to the fore in university management: productivity with minimizing costs and efficiency through how to do the right things, what to do and what not to do? That means HEIs should

become more flexible and adapt to external requirements and challenges by suggesting and following a new management strategy (Riyad, 2021).

In this regard, the models of third-generation universities - entrepreneurial universities - that combine high-quality education, scientific activity, and the commercialization of knowledge have attracted the most significant interest of researchers. In this vein, Bilyalova et al. (2019) insisted that the practical implementation of entrepreneurial universities is associated with profound transformations of the university's organizational culture, professional patterns, and university's structural changes. Similarly, the European Center for High Education (2020) and Samadi & Samadi (2018) confirmed that this transformation is necessary for HEIs to become more innovative and effective in their internal management and operations and play an active role in producing the national and regional economy.

Today, the entrepreneurial university is widely used in higher education management and development. The first publications on this topic appeared in J. Ropke's work in 1998. He stated that a university to become an entrepreneurial university should demonstrate entrepreneurial behavior, teach its members how to become entrepreneurs, and have a strong relationship with its environment to develop businesses (Mytsiuk, 2019).

At the same time, Ropke does not speak about the principles of spending funds from the entrepreneurial activity and does not determine the nature of the market's influence on the university's entrepreneurial activity. While B. Clark, in his study in 1998, tried to comprehend how universities react to the ongoing changes theoretically and showed in detail the influence of demand on educational services and understanding how universities respond to changing external market conditions of existence (Rhoades & Stensaker, 2017).

Therefore, the literature has witnessed various discussions on theoretical models about the entrepreneurial university concept and identifying the main factors that affect the

development of entrepreneurial university theoretical models (Salamzadeh et al., 2011). At the same time, others have tried creating frameworks and addressing the types of challenges and obstacles to help universities transform towards entrepreneurial universities successfully (Markuerkiaga et al., 2014; OECD, 2012; Guerrero et al., 2014).

Therefore, this research could be necessary for other universities that would like to understand how to become an entrepreneurial university? And how to overcome implementation obstacles?

2.1 Entrepreneurship

2.1.1 The Concept of Entrepreneurship, Academic Entrepreneurship, Entrepreneur, and Academic Entrepreneur:

Tajpour (2021) defined Entrepreneurship as "a combination of social, political, economic, and cultural elements in a region that supports investments based on creativity and innovation." While Chang et al. (2019) defined Entrepreneurship "as a process of discovering, evaluating, and exploiting opportunities that entail starting a new project, offering innovative or alternative products or services to the market."

Villasana (2016) described Entrepreneurship as more than transforming resources to merely economic objectives; it is the art of turning an idea into reality depending on the context in which it is used. In the academic context, he describes it as a set of characteristics that make a person act in a certain way to demonstrate specific competencies to define and achieve objectives (Coduraset al., 2016). In this context, The Global Entrepreneurship Monitor (GEM1, 2020) defined Entrepreneurship as the attempt by individuals to start a new business or become self-employed.

Therefore, the definition of entrepreneurship can be summarized as a function or a process to exploit opportunities within the market (Marefa, 2020) and design, launch or operate a new company that offers a new product or a service (Wynn and Jones, 2017) along with any of their risks to generate profit (Rosangela et al., 2020).

As for the concept of entrepreneur, Kuratko et al. (2017) have defined an entrepreneur as that person or organization capable of generating a new business project or activity that creates value. While Dwyer et al. (2016) defined an entrepreneur as an individual who is responsible, creative, innovative and takes risks to turn ideas into actions.

In this vein, Fairlie & Fossen (2018) asserted that two factors are needed for an entrepreneur to emerge: on the one hand, the entrepreneurial opportunity; and on the other, the intention and capacity of the person. The creation of new businesses occurs (push versus pull factors) by opportunity when the individual considers it a source of benefits, both material and immaterial, and by necessity when the individual opts for entrepreneurship because they cannot find what they need in the market.

Additionally, Wangari (2017) emphasized that innovation also characterizes the entrepreneur, and he indicated that innovation is changing the way of doing what has always been done in the same way. Above all, it assumes that development is a continuous learning process, that nothing is permanent, and that the only way to grow is by questioning the traditional ways of doing, thinking, and even being. This term applies to people who flee from routines and seek novelty.

Peter Drucker, in 1985, stated that being an entrepreneur is not a character trait but rather a behavior (Obschonka & Fisch, 2018). Nevertheless, the authors are still debating on the nature

of the personality of entrepreneurs. Some agreed that entrepreneurial behavior is inherited or learned. In contrast, others affirmed that it is a learning product or social construction.

In this context, Wangari (2017) mentioned that the entrepreneur's training plays a vital role in developing the entrepreneur's skills and behavior, including academic training, technical skills, the technology of the specific operation, communication, and interpersonal relationships. Similarly, Obschonka & Fisch (2018) emphasized that entrepreneurism is not limited to a particular people; all can become successful entrepreneurs if they uncover their embedded skills and develop them enough through academic training and gaining the required technical skills.

In this context, other authors such as Dilli et al. (2018) claimed that entrepreneurship is not related to personality characteristics but to the form of behavior of an entrepreneur that can be changed and learned. Additionally, Salihu et al. (2020) maintained that entrepreneurship and learning have a common root since entrepreneurship is a continuous evolution of knowledge. They considered that learning entrepreneurship would change an individual's skills and behavior, and attributes, even managing to avoid the generation of socially undesirable attitudes.

Within an academic context and environment, entrepreneurship has been an area of study for many researchers who have defined the concept of academic entrepreneurship and disseminated its characteristics, activities, economic growth, and social impact.

Padilla-Meléndez et al. (2020) defined academic entrepreneurship as how universities disseminate knowledge that industry could exploit. While, Beyhan & Findik (2018) defined academic entrepreneurship as the ability of universities to create new opportunities by transforming knowledge into products, processes, or services. Similarly, Hu et al. (2017) defined academic entrepreneurship as universities' ability to contribute to economic growth by commercializing knowledge to the market by transforming it into products, processes, or services.

According to Eva et al. (2016) and Pilegaard et al. (2010), academic entrepreneurship refers to the direct collaboration between university and industry; this collaboration includes engaging academic scientists in different forms of commercially relevant activities, venture funds, start-ups, or working in different industrial firms.

As for the academic entrepreneur concept, the consensus of previous literature on the academic entrepreneur was that academic members engage in activities that lead to technology commercialization (Albats et al., 2018). Likewise, Alexander et al. (2015) defined academic entrepreneurs by their actions, who create patents, licenses, or start-ups.

Also (Albats et al., 2018) cited that the academic entrepreneurs are engaging in university-industry collaborations, leading to more effective technology commercialization than less formal collaborations. In this vein, Albats et al. (2018) stated authors had debated the need to redefine academic entrepreneurship and better recognize the changing role of academics to become more entrepreneurial.

Moreover, Hu et al. (2017) emphasized the need for a legal framework and clearly defined institutional mechanisms to promote and protect the academic entrepreneurs' engagement within the industry environment. Additionally, Samo & Huda (2019) asserted the need for a strategic interplay between organizational embedding and academic engagement in different entrepreneurial activities to become more contributors to societal progress. In addition, universities should analyze institutional context influences on academic behavior and productivity. In this essence, this field of study of engaging universities in industry activities through different entrepreneurial activities has brought up the entrepreneurial university concept in today's literature (Etzkowitz, 1984).

Therefore, the next section of this study will discuss the entrepreneurial university concept in a separate section.

2.1.2 Entrepreneurship Benefits:

Recently, the economic uncertainty has increased and led to increasingly significant social problems such as unemployment, marginalization, and violence. And with the presence of poverty in 47% of the world population made it position itself as the first development goal of the millennium. Therefore, in the global agenda recently signed by the United Nations General Assembly - UN, by 2030, poverty reduction continues to be the priority, as evidenced in the Sustainable Development Goals (SDG) formulated in October 2015 (Maseno, & Wanyoike, 2020).

In this context, governments have recognized that supporting entrepreneurship is a powerful way to combat poverty, creating more job opportunities for individuals. For this, they establish programs to provide resources and training, which impacts the population's development of skills and capacities. Moreover, Wegner et al. (2019) concluded that the generation of micro and small technology-based companies with solid innovation elements through increasing entrepreneurial activities at universities would reduce unemployment and increase economic dynamics.

Alayoubi et al. (2020) confirmed that integration between universities, government, communities, and companies is required to generate employment, income, innovation, and quadripartite convergence. Furthermore, Facer (2020) stated that almost everyone, including governments, believes that entrepreneurship plays a decisive role in the virtuous cycle of economic growth. Similarly, Al Shobaki et al. (2018) mentioned that the importance of entrepreneurship could not be underestimated since it enables organizations and institutions to achieve success and stability.

As a result, and according to Naderibeni et al. (2020), universities play a vital role in promoting social entrepreneurship. Universities can generate and foster an entrepreneurial culture based on developing skills that awaken creativity and social responsibility to generate multiple productive alternatives. In this regard, Maseno & Wanyoike (2020) emphasized that the university's role in generating new entrepreneurs should not be limited to mere academic training; go further to create and develop creative capacities and the necessary skills for projects that promote self-employment.

Therefore, the consensus is decision-makers through entrepreneurship can develop new approaches and theories that could be implemented in the future that positively affect developing countries' social and economic development.

2.1.3 Entrepreneurship in Palestine:

Palestine faces significant restrictions in moving and accessing the suitable investment climate due to the fragile political situation. As a result, the Palestinian economy is shaped as an uncertain and high-risk economy. Sultan (2017) mentioned that the Palestinian entrepreneurship situation had not improved substantially due to the growing political crisis in Palestine and the degradation of livelihoods; additionally, the Early-Stage Entrepreneurial Activity (TEA) rate was around 10% until 2013, which cannot help drive local economies. By contrast, the Palestinian Central Bureau of Statistics (2020) reported that the unemployment rate is 46% and 14%, respectively, in Gaza Strip and the West Bank, while the unemployment rate for Palestinian men is 21%, and 40% for women.

In light of the statistics above, entrepreneurship in Palestine needs to be promoted by formulating a proper development strategy in Palestine and by fostering conditions conducive

to innovation and entrepreneurship. In this regard, many well-known authors (Sultan, 2017; El-Farra, 2017) support that entrepreneurship is the primary key to economic stability, the rise of industry, and jobs creation in Palestine.

2.1.3.1 Entrepreneurship Barriers and Challenges in Palestine:

Aburrub (2020) has revealed some crucial challenges that affect Entrepreneurship in Palestine, including the following:

- Many problems that Palestinian society faces stem from the Israeli occupation, which has affected the investment climate and entrepreneurship development.
- Socio-cultural factors influence leadership among Palestinian youth, especially when failure is not an option.
- Palestinian schools and universities lack the encouragement for entrepreneurship that equips students with the skills necessary to pursue entrepreneurial endeavors.
- Barriers related to the acquisition of technology due to the obstacles by occupation in importing modern machines and new technology.
- The infrastructure services in Palestine can be described as very weak and almost does not exist in some areas, especially in rural areas, like water, electricity, telephony, transportation, and sanitation. This weakness reflects the bad atmosphere to grow entrepreneurial projects.
- Inadequate cooperation between schools and universities with different companies and institutions weakens the connections of young entrepreneurs with those companies and prevents their projects from succeeding.

- Barriers related to obtaining raw materials: Starting entrepreneurial projects needs raw materials, in Palestine as a particular case, no way to get raw materials without going through the occupation authorities (i.e., Israeli ports, crossing points), so Palestinian entrepreneurs are limited in getting needed raw materials, on the other hand, they are forced to pay higher costs leading to weakness in their competitive advantage for their products.
- Due to its tightness and dependence on competitive pricing, small and medium-sized companies find it challenging to compete in the Palestinian market.
- It is difficult for potential Palestinian entrepreneurs to find sources of financing for projects because the process of financing through banks or institutions is very complicated, and there are some related challenges to the funding and financing issues in Palestine, such as:
    - Limited funding sources available for entrepreneurial projects in Palestine:
    - Lack of interest in financing pilot projects, Financing institutions concentrate on Existing and successful projects when giving loans
    - High level of risk in financing such projects due to political and economic situation in Palestine
    - High financing cost and the inexistence of direct governmental or foreign support for entrepreneurial projects.

In addition to that, El-Farra (2017) added that entrepreneurship in Palestine faces many management weaknesses and a lack of accounting policies for entrepreneurial projects.

2.1.3.2 Entrepreneurship in Palestinian Universities:

Recently, Palestinian higher education institutions have developed steadily. As a result, the Palestinian educational system has been developed and adopted new models, including entrepreneurship courses and project-based learning, with the involvement of universities. (Representative Office of Switzerland in Ramallah, 2020). Consequently, the revision and transformation of the Palestinian educational system, based on the problems that currently affect all sectors, constitute the spearhead in guiding, specifying, and directing current and future requirements towards the country's development (Talla et al., 2020).

Sultan (2017) pointed out the role of the university must be based, today with more relevance than ever, on the linking of a complex triad such as education-society-culture, with an educational conception in which the houses of Higher studies such as the formation of integral beings with capacities and abilities in the scientific-technical and human fields. And he also added that universities should be responsible for training professionals with a participatory, creative, critical, and ethical attitude based on science, moral and cultural values. Thus, an entrepreneurial university is engaged in the commercialization of science, earning money from selling start-ups and licenses.

In this context, the Palestinian Ministry of Higher Education (MoHE) had encouraged Palestinian institutions to integrate entrepreneurship and critical thinking skills into their curriculums to give students the skills and knowledge necessary for success on the job market. This initiative allowed Palestinian universities to develop new curriculums, programs, and workshops and establish learning and capacity-building centers, incubators, and accelerators that support entrepreneurship in Palestine (Representative office of Switzerland in Ramallah, 2020).

In this regard, El-Farra (2017) reported that many Palestinian local universities introduced entrepreneurship courses and programs to enhance their students' skills and knowledge. Likewise, Al Shobaki et al. (2018) reported that Palestinian universities offer a wide range of entrepreneurship and technology transfer services, such as helping graduates find jobs and connecting them with industry firms.

Recently, many institutions, such as The Palestine Information and Communications Technology Incubator (PICTI), assisted Palestinian entrepreneurs in commercializing their ideas by designing, developing, implementing, and promoting those start-ups and providing complete incubation services to them, including job training and internship opportunities or job placements for individuals. Other institutions and organizations, such as Faten Institute, Asala institution, etc., focused on supporting small businesses through financial, technical, and management assistance. On the other hand, some institutions focused on helping potential entrepreneurs by offering them investment or matching with potential local or international investors (Mercy Corps, 2015).

Furthermore, some institutions, including Sharek, focused on addressing the gap between educational deliverables and labor market demands by providing career counseling and facilitating work experiences for young women, academic consulting, and business incubator services. Additionally, the ministry of the national economy created programs to fund small businesses and help them with their technical and managerial needs.

In this regard, Al Shobaki et al. (2018), Sultan (2017), and El-Farra (2017) concluded that as a result of promoting entrepreneurship at Palestinian universities, the education system would be more effective, student unemployment will be reduced. In addition, universities will be more financially sustainable, positively affecting Palestinian social and economic development.

2.2 Entrepreneurial University

2.2.1 The Concept of the Entrepreneurial University:

Entrepreneurial university is not a new concept in the literature. It is, however, a term with many meanings. For example, Bezanilla et al. (2020) and Rosangela (2020) noted that Etzkowitz coined the term entrepreneurial university in 1998 for regional economic development.

It is also known by the triple helix concept, which describes the relationship, collaboration, and interactions between universities, industries, and government to promote social and economic development in the country (Sánchez-Barrioluengo et al., 2019; Fernandez-Nogueiraet al., 2018; Guerrero et al., 2014).

Other authors, such as Adele et al. (2013), defined an entrepreneurial university as taking risks, innovating, exploiting opportunities, and responding to challenges, trying to reshape its organizational character to achieve a more positive future. In this sense, Paul (2013) provided a similar definition of the entrepreneurial university as the entrepreneurial university response to tackle and overcome challenges it faces as it seeks to adapt to changing circumstances.

Additionally, Kalenyuk & Dyachenko (2016) defined the entrepreneurial university as a university that facilitates knowledge exchange and fosters the commercialization of innovative ideas of projects among universities, stakeholders, the government, and companies based on a solid organizational and economic model. Moreover, Huub et al. (2017) defined entrepreneurial universities as those in which staff and students can demonstrate entrepreneurial by innovating, creating public values, and partnering with local, regional, national, and international stakeholders. But Salem (2014) defined the entrepreneurial university as a university that

encourages entrepreneurship among its workers, students, and alumni to succeed in a dynamic and competitive environment. Accordingly, Tajpour (2021) considered entrepreneurial universities a social system seeking innovation and creativity in business activities.

Recently, Brătucu et al. (2020) defined the entrepreneurial university as a university that transfers technology, sets up start-ups, and participates in the country's development based on knowledge production and dissemination. In contrast, Audretsch (2014) added that the entrepreneurial university is not limited to transferring technology or setting up start-ups but also creating entrepreneurial thinking, behavior, actions, mindset, and spirit. At the same time, Abu Labhan (2018) showed the importance of having entrepreneurial thinking, behavior, actions, mindset, and spirit in the definition of the entrepreneurial universities and affirmed that those unique behaviors should be encouraged and rewarded internally and externally from the university itself and its partners.

In conclusion, several researchers have discussed and explored the concept of the entrepreneurial university from a variety of perspectives, contexts, and cultures (Bezanilla et al., 2020; Rosangela, 2020; Dalmarco et al., 2018; Elia et al., 2017; Riviezzo et al., 2020; and Sperrer et al., 2016). They defined it as a university with a well-defined mission, role, and organizational structure that focuses on contributing to technological, social, and economic development by transferring the knowledge and the results of research from laboratories to the economy in collaboration with external partners. Talla et al. (2020) defined an entrepreneurial university as continuously enhancing its policies, regulations, and training to create an entrepreneurial culture, train more and better human capital, and improve its financing services to attract a greater quantity and quality of innovations, and enhance the development of the market.

So, some regularities in the definitions can be concluded from the above definitions. The list below summarizes what the concept of an entrepreneurial university implies:

- A new form of relations between universities, industry, and the government.
- The importance of changing universities' organizational character and roles to overcome challenges and crises.
- The importance of linking the design and management of university processes and the needs and problems of society.
- Interactions with internal and external actors to apply research collaborations and knowledge transfer.
- The absence of antagonistic contradictions between the commercialization of the universities' academic and scientific results, values, and mission.
- More significant influence and impact of the university in local and regional development processes.
- A contribution to economic development by launching new businesses, products, or services created from research.

2.2.2 The Characteristics of The Entrepreneurial University:

There is no agreement on the characteristics of the entrepreneurial university in the literature, but some previous attempts and models could be used for guidance (Alghamdi, 2020). Therefore, this section presents some characteristics of entrepreneurial universities and the entrepreneurial activities undertaken within entrepreneurial universities.

Dinh (2020) and Flores (2019) affirmed that entrepreneurial universities are different from traditional universities. However, they confirmed that entrepreneurial universities have

specific characteristics and improved organizational structure and entrepreneurial activities. The table below compares them based on the university's primary teaching role, organizational structure, and activities.

Table 2.1. Traditional Universities Versus Entrepreneurial Universities (Prepared by the researcher)

	Traditional University	**Entrepreneurial University**

Goal	• Center for knowledge generation through teaching and non-oriented research.
	• Evaluation with criteria endogenous to the Academy
		• Generate knowledge and utilize knowledge through:
		  • oriented teaching for entrepreneurship
		  • oriented research for market needs
		• Oriented evaluation towards value for money.

Organizational Structure	• Functional departments, Faculty, Laboratory, Research center, etc. • University extension	• Entrepreneurship incubators, accelerators, and Spin-offs • Functional departments, Faculty, Laboratory, Research center, and Technology transfer offices • Promotion of the University-Company relationship
Activities	• Academic activities include teaching, doing research workshops, and serving the community.	• Academic activities and commercialization of research results

Dinh (2020) indicated that entrepreneurial universities play an essential role in the tripartite cooperation of the Triple-Helix model: government, universities, and businesses to promote technology transfer and enterprise formation. The typical entrepreneurial activities in

entrepreneurial universities include introducing innovative research, technology transfer, commercialization of research products, patents, licenses, incubation, and establishing new companies by faculty or students.

A recent study by Yurdanova & Filipe (2019) examines how universities can become entrepreneurial; they synthesized that entrepreneurial universities have several distinctive characteristics: more innovative, exploit opportunities, take risks, entrepreneurial attitude, capability, culture, intense research, closer partnerships with firms, and diversified sources of funds, agility, more flexible and adjustable to the external environment, ability to transfer of technology from academia to industry and facilitates the technology diffusion. Furthermore, Flores (2019) asserted that crucial values are identified for the entrepreneurial university, such as human sense, teamwork, integrity, and social commitment.

In this context, Yordanova & Filipe (2019) have also synthesized that University entrepreneurs may engage in the following activities: establishing spin-outs or start-ups, generating funds from patents, licensing, initiating joint research with private enterprises, and generation of technology advances. Additionally, Ray (2019) listed more specific activities that an entrepreneurial university should undertake: joint research projects, research commercialization through intellectual property rights (IPR), spin-off formation, provision of infrastructure for proper University-Industry cooperation, strategic partnerships for academic research commercialization, intersectional mobility of staff and promotion of professional education for companies, and lastly involvement in local and regional development projects.

Importantly, Yordanova & Filipe (2019) confirmed that several support mechanisms, structures, and intermediaries, such as technology transfer offices and incubators, should be implemented within entrepreneurial universities to encourage entrepreneurial activities. Furthermore, entrepreneurship education can indirectly facilitate technology transfer from

academia to industry. Likewise, Dinh (2020) added that these activities must be designed to meet market demand, increase university revenues and the salaries of lecturers and researchers. Therefore, the next section will offer a general overview of the framework of an entrepreneurial university.

2.2.3 The Benefits of the Entrepreneurial University:

The OECD (2012) recognizes entrepreneurial universities as knowledge centers that support creativity, leadership, and the integration of regional and national development goals. Moreover, Tajour (2021) stressed that entrepreneurial universities influence the economy and social situation by altering people's mentality and perceptions of innovation. Also, entrepreneurial universities are recognized as a powerful driver of innovation and self-development in today's competitive and unpredictable markets (Fernandez-Nogueiraet al., 2018; Brătucu et al., 2020; Davey et al., 2016; Paul, 2013; Adele et al., 2013; OECD, 2012). Importantly, Samadi & Samadi (2018) asserted that economic growth and international competitiveness would be hampered without entrepreneurial universities.

Therefore, an entrepreneurial university responds quickly to challenges and faces societies' crises by generating creative ideas and projects in a way that contributes to long-term development (Gustomo & Ghina, 2017). Additionally, entrepreneurial universities have an essential role in enhancing the entrepreneurship ecosystems of countries (Salamzadeh et al., 2019).

Additionally, entrepreneurial universities also play a crucial role in transferring scientific results to the market and promoting the economic and social development of the region (Tajpour et al., 2018; Ziyae et al., 2019). In this context, Dinh (2020) asserted that entrepreneurial universities had become creative centers for providing students with multidisciplinary

knowledge and training to generate new insights and solve society's problems and crises. Moreover, Entrepreneurial universities had a prominent role in promoting entrepreneurship, entrepreneurial thinking and capital, actions, and new institutions (Naderibeni et al., 2020; Rosangela, 2020; Vega-Gomez et al., 2018; and Grecu & Denes, 2017).

Salem (2014) cited that entrepreneurial university assists students in thinking, responding creatively, starting their businesses, and participating in different entrepreneurial activities. Additionally, Yin & Wang (2017) and Grecu & Denes (2017) added that entrepreneurial universities also cultivate and enhance students' learning, social, psychological, financial, and leadership capabilities.

Currently, the COVID-19 pandemic was evident in showing the importance of entrepreneurial universities and encouraging universities to widen participation, be entrepreneurial, collaborate with the industry to solve crises (Blackmore, 2020). Similarly, Vanessa (2020) affirmed that the COVID-19 pandemic had raised academics from different universities to be at the forefront in managing the health and economic crisis that occurred during the pandemic. Notably, the COVID-19 pandemic has illustrated that the role of universities is essential in solving the crises, and the power of collective action between the universities, industries, and governments can produce new ways of working to solve current issues.

Based on those mentioned above, some strong justification for being an entrepreneurial university can be concluded. The list below summarizes them:

- To respond to the rapid global changes in the development of the education system.
- To fulfill the labor market requirements in the era of uncertain, turbulent, imbalanced, and unpredictable markets.

- To respond and solve social and economic challenges and achieve sustainable national economic growth.
- To overcome financial difficulties and respond to the declining public spending on university education.
- To develop human and organizational capacities and values by promoting entrepreneurial teaching and learning activities and practices.
- It opens up the possibility for students, staff, and faculty members to become potential entrepreneurs and for students to create their future jobs.
- It enhances students, staff, and faculty members' competencies, attitudes, capabilities, and experience, which will assist them in adjusting their expectations for the job market.
- It encourages students, staff, and faculty members' skills, behaviors, and entrepreneurial mindset and behaviors.
- It gives students, faculty, and staff members access to both internal and external expertise and opportunities.
- It provides students with updated content of the university academic programs and needed skills of the labor market.
- It promotes the employment of students and graduates.
- It promotes mobility between the external environment and academia for students, staff, and faculty members.
- It provides students with mentoring, coaching, IT services, incubating, and research facilities.
- It helps potential entrepreneurs to access private financial services and supports.

Therefore, the next section will offer a general overview of the frameworks of an entrepreneurial university.

2.3 Frameworks of The Entrepreneurial University

The Entrepreneurial University Organization for Economic Co-operation and Development (EU-OECD) produced the "HEInnovate" framework with the European Commission. This framework aims to help universities determine their current situation, strengths, weaknesses, entrepreneurial level, and potential actions to transform into entrepreneurial universities. It consists of seven dimensions, and it is recommended for universities looking for transformation into entrepreneurial universities (OECD, 2012).

- **Leadership and Governance**. The need for solid leadership and governance enhances the institution's entrepreneurial culture.
- **Organizational Capacity: People, Funding, and Incentives**. The need for an efficient and effective system and conditions at the university to support entrepreneurship.
- **Entrepreneurial Teaching and Learning Development**. Entrepreneurship education includes the entire institution, including staff and students.
- **Routes for Entrepreneurs.** It supports potential entrepreneurs in their development.
- **The Entrepreneurial University as an International Institution**. Internationalization has increased its integration with university processes.
- **University-Company / linking for the Exchange of Knowledge**: Relations with key actors and external collaborators are essential to achieve the university's full potential in its processes.

- **Measurement of the impact of the Entrepreneurial University**: There are different impacts that a university causes in its environment. Measuring it is necessary to define the changes caused by the institution with its actions.

In this regard, some essential theoretical studies contributed significantly to literature with some proposed frameworks for entrepreneurial universities that facilitate other universities to transform towards entrepreneurial universities.

Abu labhan (2018) suggested a proposed framework which of seven dimensions:

- **Leadership and Governance:** Consists of a strategic plan for entrepreneurship, entrepreneurship vision and mission, entrepreneurship and innovation center, entrepreneurship and innovation unit in colleges, and supporting start-ups to foster innovation.
- **Organizational Capacity:** Consists of a long-term financing strategy, incentives, links with investors, official policy for entrepreneurship and professional development, and training courses in entrepreneurship and innovation.
- **Entrepreneurial Teaching and Learning.** It consists of having entrepreneurial learning outcomes for each program, university entrepreneurial community networks, teaching methods for developing an entrepreneurial mindset, cooperative relationships with companies and institutions, and building an entrepreneurship forum for university members.
- **Supporting Entrepreneurs.** It consists of an online entrepreneurial platform and forums for the university, raising awareness of entrepreneurial activities by events, supporting women's entrepreneurship, getting more entrepreneurial funds, and supporting start-ups by creating different programs.

- **Sharing and Exchange Knowledge.** It Consists of incubators and science parks, more relationships with external stakeholders and the private sector, and more student-led initiatives to support entrepreneurial activities.
- **Internationalization.** It Consists of having international relations management center, exchange programs for community members, university membership in international entrepreneurship networks, and partnership with international entrepreneurship boards.
- **Institutional Impact Measurement.** Award for measuring the institutional impact, entrepreneurship output evaluation, and collecting evidence to achieve outputs.

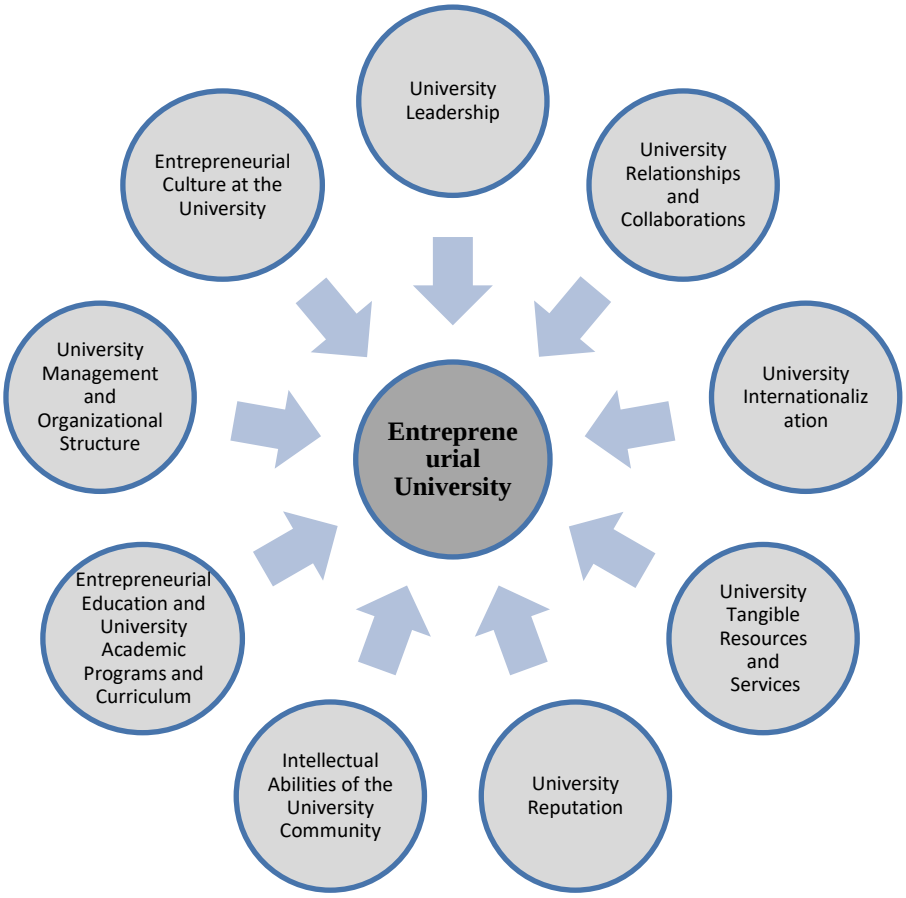
Recently, Samadi & Samadi (2018) described some critical factors for an entrepreneurial university: strong leadership, strengthening relationships with stakeholders, rewarding entrepreneurial achievements, developing new learning and teaching techniques, minimizing boundaries, and providing multidisciplinary approaches.

Based on previous studies and with the adoption of the OECD (2012), and Abu labhan (2018) models, and considering the findings and recommendations of Al-Sirr (2017) and Haboush (2017) studies; the researcher concludes the crucial components for proposing an entrepreneurial university framework.

This proposed framework consists of the following elements: university management and organizational structure, university leadership, university academic programs and curriculum, entrepreneurial education, entrepreneurial culture at the university, university relationships and collaborations, university internationalization, university tangible resources and services, university- reputation, and intellectual abilities of the university community.

The diagram below shows the components of the Entrepreneurial university that the Researcher derived from related studies.

Figure 2.1: Entrepreneurial University Components Diagram (Prepared by the Researcher)



2.4 Models of The Entrepreneurial Universities

This section presents some prior theoretical studies focused on the factors (formal and informal) that facilitate the creation and development of entrepreneurial universities.

- **Clark's Model, 1998**. According to this model, universities should apply five elements to become more entrepreneurial when undergoing institutional transformations. The elements are a strengthened steering core, an expanded developmental periphery, a diversified funding base, an integrated entrepreneurial culture, and a stimulated academic heartland (Yordanov & Filipe, 2019).

- **Etzkowitz et al. Model, 2000.** According to this model, universities should apply the following strategies to become more entrepreneurial, redefining and expanding traditional academic tasks, institutionalizing the university, and developing various capabilities (Yordanov & Filipe, 2019).
- **Etzkowitz's Model, 2004**. This model is considered an institutional renovation model. Universities should apply the following renovations frequently to become more entrepreneurial through capitalizing on the knowledge and hybridizing different organizational forms with the industry and the government (Yordanov & Filipe, 2019; Maribel et al., 2016).
- **Sporn's Model, 2001**. This model focused on the university structure adaptation to become more entrepreneurial through connecting it with the environmental forces. This model consists of seven factors: the university structure, mission, goals, management, governance, leadership, and culture (Yordanov & Filipe, 2019; Maribel et al., 2016).
- **Kirby's Model, 2005**. This model focused on university promotion through strategic actions such as endorsement, incorporation, implementation, communication, recognition, and rewarding (Yordanov & Filipe, 2019; Maribel et al., 2016).
- **Rothaermel et al. Model, 2007.** This model focused on the university innovation system, including science parks, technology transfer offices, and incubators that help universities to become more entrepreneurial through generating the knowledge and commercializing it and establishing new firms (Yordanov & Filipe, 2019).
- **Model of Kirby et al., 2011.** This model focused on the factors that facilitate the transformation of universities into entrepreneurial universities, such as offering entrepreneurship courses, enhancing the teaching methods, supporting start-ups,

cultivating the relationships between the university and the industry, incubating new ideas, promoting entrepreneurial attitude and culture (Yordanov & Filipe, 2019).

2.5 The Development of Entrepreneurial Universities

Developing entrepreneurial universities involves the selection of appropriate development strategies, revisited organizational structures, embedding entrepreneurship, and more external conditions that are essential (Dinh, 2020). Furthermore, universities need to develop the institutional environment to support academic entrepreneurship activities and become more entrepreneurial (Mirani & Yosuf, 2016). In addition to that, universities have to involve individuals, groups, departments, and universities as a whole with suitable infrastructure to become entrepreneurial universities (Rasmussen & Wright, 2015).

In this context, Taucean et al. (2018) suggested that determining what the entrepreneurship components are, the mission, objectives, strategies needed, organizational creation (climate, culture, and performance), organizational innovation, and renewal to become an entrepreneurial university are very important in the development and transformation of universities. In addition, Tajpour (2021) asserted that one of the essential methods in developing entrepreneurial universities is using virtual social media for teaching and learning to develop its teaching methods and become more entrepreneurial universities.

Recently, Samadi & Samadi (2018) concluded that all university elements are essential factors in its development to entrepreneurial universities. They included the following elements: university vision, mission, strategy, governance, structure, organizational design, disciplinaries, leverage, relationships, community values, knowledge transfer, incubator centers, and university internationalization.

On the other hand, Tatarski et al. (2020) concluded that the development of universities to entrepreneurial universities is varied and depends on different conditions, including the university's country, culture, and sociological differences. Similarly, Cviji' et al. (2019) confirmed that the variety of higher education systems in different countries or institutions in the same country affects the transformation towards an entrepreneurial university.

As a result, we can conclude that each university is unique and varies in its transformation and development to become an entrepreneurial university. Therefore, the next section will present the factors that can enhance entrepreneurial university development regardless of the university's country.

2.5.1 The Entrepreneurial Orientation and the Development of Entrepreneurial University:

Entrepreneurial orientation has grabbed the interest of many entrepreneurship researchers and has been studied for the last four decades. According to Miller and Friesen (1982), entrepreneurial orientation is a firm's willingness to engage in product-market innovation, undertakes somewhat risky ventures and is first to come up with 'proactive' innovations, beating its competitors to the punch (Sidrat et al., 2020). The authors have determined the three dimensions of entrepreneurial orientation in this definition: innovation, risk-taking, and proactivity. After that, Lumpkin and Dess (1996) added two more essential dimensions: autonomy and competitiveness (Tatarski et al., 2020). So, the consensus of previous literature on the entrepreneurial orientation agreed that the dimensions of entrepreneurial orientation are autonomy, innovation, risk-taking, proactivity, and competitiveness.

In the academic entrepreneurship context, Sidrat et al. (2020) and Kapaya et al. (2018) confirmed that the university should adopt an entrepreneurial orientation to become an

entrepreneurial university and integrate the dimensions of the entrepreneurial orientation into its role with the same equally importance. Furthermore, Schmitz et al. (2016) mentioned that the university's mission should be oriented towards entrepreneurial orientation to impact socio-economic development positively. In contrast, Olutuase et al. (2018) affirmed that entrepreneurial orientation is needed to foster entrepreneurial activities and facilitate the university's ideas commercialization. In this regard, Tatarski et al. (2020) concluded that the university should be innovative, autonomous, proactive, risk-taker, and competitive to respond to challenges and survive in a competitive environment by initiating and implementing an entrepreneurial orientation policy. Consequently, Latif, Abdullah & Jan (2016) confirmed that the entrepreneurial orientation promotes commercialization and the response to the changes in the environment (Elbousserghini et al., 2015).

Sidrat et al. (2020), Tatarski et al. (2020), and Cviji´c et al. (2019) confirmed that innovation is a necessary factor that facilitates the process of creating and developing an entrepreneurial university. Similarly, Dal-Soto et al. (2021) and Latif, Abdullah & Jan (2016) agreed on the importance of innovation in universities development. Furthermore, they have agreed that applying innovative activities within the universities such as branding the university, enhancing its strategies and structure, developing an internal motivation system are all things that facilitate and foster universities' transformation into entrepreneurial universities.

In addition to that, Duygulu et al. (2018) concluded that the significant indicators behind the best outstanding universities worldwide innovativeness are applying innovative strategies such as: providing more tangible and intangible resources for students and employees, diversifying disciplinaries, recruiting fewer students, and more qualified academics, promoting social activities and student-led initiatives, enforcing collaboration with industry. In this regard,

the consensus of previous literature agreed that innovation positively affects the creation and development of the entrepreneurial university.

As for proactivity, Frankl (1993) defined it as "the freedom to choose our attitude facing the circumstances that our own life offers us and we can always choose how to act" (Martinez et al., 2020). Additionally, Jun-Hwa (2018) defined proactivity as being an active leader in creating and leading the future of the entrepreneurial venture instead of waiting for unprepared opportunities. At the same time, Kozubíková et al. (2017) generalized the definition of proactiveness as the inclination of individuals or organizations to predict future problems or needs before they happen rather than adapting with them.

Tatarski et al. (2020), Dal-Soto et al. (2021), and Yoon (2018) confirmed that proactiveness is an essential factor for the development of entrepreneurial orientation, including the spirit of entrepreneurship within the university. Furthermore, several studies have shown that universities with an entrepreneurial orientation are more proactive in becoming more entrepreneurial (Jun-Hwa, 2018; Kozubková et al., 2017; Tatarski et al., 2020).

As for autonomy, Sidrat et al. (2020) defined it as the independent and self-directed actions undertaken by an individual or a team from the starting stage to the completion stage. Tatarski et al. (2020) insisted that universities also need autonomy at the individual level for students, staff, and faculty and the departmental level for different departments, programs, and centers. As a result, an autonomous university is more self-confident than other universities, and it can sustain itself by finding the necessary resources to finance itself. The consensus is, autonomy plays an essential factor in facilitating the transformation of universities into entrepreneurial universities.

As for risk-taking, it is the degree to which a firm can drive its wish to take action, even when the consequences are unknown (Usman & Hashim, 2020). For example, Jun-Hwa (2018)

defined risk-taking as making investment decisions and strategic actions under uncertainty. While other researchers outlined that risk-taking is the desire to accept uncertainty and assume the responsibility for the result of the actions for seizing new opportunities.

In the academic context, according to Sidrat et al. (2020), Clark (1998) considered the university to be entrepreneurial if it is willing to accept risk-taking. In addition to that, the European Commission and OECD confirmed that the university should take the risk and respond to challenges to become an entrepreneurial university (2012). Moreover, Liu & Sijde (2021) asserted that university risk-taking is the most necessary characteristic for a university to become an entrepreneurial university.

As for competitiveness, Yi et al. (2021) defined it as an organizations' ability to supply similar products and services at a lower cost or with better quality than its competitors. In this regard, Sidrat et al. (2020) encourage universities to maintain competitive advantages by reducing costs and improving their outcome quality. While Kireeva et al. (2018) generalized the university becomes more competitive if it produces qualified specialists who act as an effective entity of the economy through in-demand results of scientific and educational activities.

At the same time, Tatarski et al. (2020) and Dimitrova & Dimitrova (2017) explained that universities could maintain competitive advantages by developing new projects, research, ventures, spin-offs companies, and providing consulting services that satisfy universities, industries, and students.

Furthermore, Kireeva et al. (2018) specified that the components of university competitiveness are determined by university in-demand graduates, university in-demand programs, strategic vision of university development, and developed infrastructure alongside different competitiveness activities such as enhancing its international educational ranking, international students recruitment, student living improvement, internationalization of society,

returns from innovations and activeness of investments. Additionally, Dimitrova and Dimitrova (2017), based on Porter's general model, has concluded that the competitive advantages of a university depend on having highly qualified academics, modern materials, and technical facilities and infrastructure; having a variety of educational services; providing complementary activities such as scientific research, consultancy, and marketing management; and having a sustainable strategy, competitive structure and a degree of rivalry in the educational market.

2.5.2 Environmental Factors Facilitating the Development of Entrepreneurial Universities:

This section presents the environmental factors that facilitate the development of entrepreneurial universities. Based on the consensus of previous related literature, environmental factors have been divided into formal and informal factors. The formal factors include university organizational structure and governance, support for university start-ups, and entrepreneurship education, including programs and courses. In contrast, informal factors contain the attitude to entrepreneurship, entrepreneurship programs at the university, role models, and rewards systems.

As for formal environmental factors, the university organizational structure and governance factor includes the university mission, strategies, management systems, autonomy, and proactivity. As for support measures to university startups: it includes different centers and services that could accelerate the creation of firms within the university, including consultancy, incubation, and science parks. At the same time, the entrepreneurship education factor includes the offered programs in the university such as doctoral, master, and undergraduate programs and courses.

As for informal environmental factors, the entrepreneurship attitudes include the attitude of all university members to entrepreneurship. In comparison, entrepreneurship at university factor includes university teaching methodologies. Finally, the university rewards systems factor includes the rewarding system for all university members' achievements and successes.

2.5.2.1 Environmental Formal Factors Facilitating the Development of Entrepreneurial Universities:

2.5.2.1.1 University Organizational Structure and University Governance:

Maribel et al. (2016) mentioned that clear missions, goals, objectives, and continued innovation are essential requirements for universities to become entrepreneurial. Similarly, Dinh (2020) asserted that universities' mission, regulations, and management processes would maximize the utilization of their academic activities toward becoming entrepreneurial universities. Furthermore, Chang et al. (2016) pointed out that some changes should be done on university structure to become more entrepreneurial, including the establishment of new units such as technology transfer offices (TTO), incubators, new businesses, and research centers. At the role level of the university, they mentioned that the university role should be expanded to include some collaboration with the industry that facilitates the implementation of new ventures and businesses.

Additionally, Dinh (2020) emphasized that the internal management mechanisms of universities should be modified due to the changes in their roles, which expanded to include more collaborations with industry to become more entrepreneurial and avoid conflicts between different parties. Likewise, what Etzkowitz revealed in 2004: capitalization, independence,

interdependence, hybridization, and re-flexibility are essential to developing entrepreneurial universities.

In conclusion, based on those mentioned above, the greater the clear mission, organizational structure, independence, and interdependence with involved parties, the better developing Entrepreneurial Universities.

2.5.2.1.2 Support Measures to University Startups:

Taucean et al. (2017) asserted that universities need to provide the right environment for their members to start their businesses by providing the necessary skills, financial resources, and influential networks. Similarly, Dinh (2020) emphasized that universities to become more entrepreneurial must support and encourage members to innovate by providing them with different research facilities, consultations, more industrial partnerships, open new offices such as the technology transfer offices, incubators, or training centers.

In conclusion, a more supportive environment for start-ups will positively affect the development of entrepreneurial universities.

2.5.2.1.3 University Entrepreneurship Education Programs:

University curricula should support entrepreneurship and develop innovativeness, teamwork, communication, problem-solving, and creativity skills, Shekhar et al. (2019) concluded. Similarly, Yordanova & Filipe (2019) affirmed that universities need to offer academic courses on entrepreneurship and innovation for students in all faculties and academic and administrative staff to influence their attitude toward creating new business and cultivating an entrepreneurial culture.

In conclusion, more programs and courses in entrepreneurship will positively facilitate the development of entrepreneurial universities.

2.5.2.2 Environmental Informal Factors Conditioning the Development of Entrepreneurial Universities:

2.5.2.2.1 University Attitudes to Entrepreneurship:

According to Boldureanu et al. (2020), universities need to include in their mission the importance of developing entrepreneurial intentions and attitudes among their students, faculty, and employees to successfully transform into entrepreneurial universities. In the same direction, Ahmad (2019) revealed that entrepreneurial characteristics are essential for individuals to start businesses and help universities improve industrial organizations' efficiency.

In conclusion, stimulating students' and faculty members' attitudes to entrepreneurship facilitates entrepreneurial universities' development.

2.5.2.2.2 Entrepreneurship Subject at The University:

Benneworth & Osborne (2015) emphasized that university teaching methods, activities, and interactive learning environments stimulate the development of entrepreneurial universities. And they added that the universities' teaching methods and activities influence the development of students' entrepreneurial orientations and competencies. Similarly, Davey et al. (2019) insisted that entrepreneurial learning environments with different teaching activities and practices, innovative pedagogies are essential for universities to become more entrepreneurial.

In conclusion, universities with more entrepreneurial teaching environments are closer to entrepreneurial universities.

2.5.2.2.3 Role Models, Cases, and the University Rewards Systems:

According to Boldureanu et al. (2020), universities should develop an environment that collects role models with potential ones to work together and benefit from each other to create new ventures or businesses under the supervision of university specialists and experts. Similarly, Urbano et al. (2021) emphasized that universities should hold meetings, seminars, or training that collect role models with potential ones to meet and work together; these activities will cultivate the university's entrepreneurship culture. Additionally, universities should develop a reward system to incentive their members who contribute actively to entrepreneurship and business creation (OECD, 2012). In conclusion, universities with a rewarding system are closer to entrepreneurial universities.

2.5.2.3 Internal Factors Facilitating the Development of Entrepreneurial Universities:

This section presents the internal factors considered essential for entrepreneurial universities' development. Based on the consensus of previous related literature, internal factors have been divided into formal and informal factors. The formal factor includes the resources, which consists of human capital, financial, physical, and commercial resources. In contrast, the informal factor includes university status, prestige, connections, and localization capabilities.

Padilla-Meléndez et al. (2020) and Silva et al. (2018) asserted that human capital, financial, physical, and commercial resources, status, prestige, connections of universities are essential elements for the transformation into entrepreneurial universities.

2.6 The Challenges of Entrepreneurial Universities

The section reveals the challenges that could face universities and restrain their movement towards an entrepreneurial university model, wherever its located.

Many authors, including Feola et al. (2021), Klofsten et al. (2019), and Dalmarco et al. (2018), have discussed the transformation challenges into entrepreneurial universities depending on different perspectives and contexts. However, they concluded all impacts the transformation processes in some way. Similarly, Germain-Alamartine (2020) confirmed that challenges differ depending on one country's context.

The consensus of previous literature on the entrepreneurial universities' challenges can be summarized as follows:

- Adopting a management system that achieves multiple missions and visions will challenge universities (Klofsten et al., 2019).
- Universities will face particular challenges in changing their core academic and non-academic activities to entrepreneurial ones (Guerrero et al., 2016).
- Adopting a strategic orientation that meets the goals of university, government, and industry will be a challenge for universities (Klofsten et al., 2018).
- Developing organizational, entrepreneurial, and innovative capabilities will be challenging for universities, including developing an incentive and rewarding system (Rippa & Giustina, 2019; Nambisan et al., 2018).
- The expansion of universities' roles and activities will become a significant challenge for universities. They will focus not only on teaching and research but also on a vast entrepreneurial plan for the short and long-term future (Perkmann et al., 2014).
- Determining universities' nature will be a significant challenge since it will become between an academic university or a university immersed in commercial activities (Brunner & Labraña, 2020).

- Recruiting talented students and qualified employees with entrepreneurial mindsets and behavior will challenge universities (Klofsten et al., 2019).
- The attitudes of students and faculty, their resistance to change, or their reaction at all levels toward entrepreneurship are challenges for universities to continue moving towards entrepreneurial universities (Nabi et al., 2017).
- Diversifying funds and financial sources, grants, awards to support the new ventures and initiatives will become a challenge for universities (Mian et al., 2016).
- Accepting the adverse entrepreneurship outcomes, such as failure, stress, financial losses, or health concerns, will challenge universities (Nabi et al., 2017; Wang & Chugh, 2014).
- Finally, universities will also face the challenge of measuring the impact of university entrepreneurial activities on micro and macro levels (Klofsten et al., 2019; Meissner et al., 2018; Sánchez Barrioluengo & Benneworth, 2019).

In conclusion, transforming into an entrepreneurial university requires a well-developed strategy, a solid management system to fit all stakeholders' goals and mission, and internal and external development on the organizational, cultural, and structural levels to overcome challenges and succeed in the transformation process.

2.7 Conclusion

Based on the previous literature reviews, there is a consensus that transforming universities into entrepreneurial ones is common. This transformation emerged for several reasons: the unpredicted and competitive market, universities' significant financial constraints, funding issues, globalization, internationalization, and many more issues related to the environment of universities.

Therefore, universities' roles, characteristics, and properties must be modified. As a result, a new form of education has emerged. In addition, new strategies and collaborations between universities and industry have been implemented to overcome different challenges facing universities and exploit opportunities. Accordingly, universities became more active by participating in more commercial activities, consultations, and joint projects.

In conclusion, universities to transform into entrepreneurial ones need internal and external changes, including strong leadership, solid relationships and collaborations with stakeholders, an innovative education system with new teaching methodologies, and different multidisciplinary approaches, empowering entrepreneurial capabilities, actions, activities, and promoting entrepreneurial achievements.

As for the Palestinian universities' transformation into entrepreneurial ones, Sultan (2017) recommended that Palestinian universities need a solid entrepreneurial development model to be more entrepreneurial despite the lack of Arabic studies that dealt with the topic. He summarized that model by the following essential elements: new entrepreneurial education, including new teaching methods and curriculum that meets the labor market needs, leadership, academic exchange, internationalization, relations and partnership, and scientific research, more training for faculty and students to increase their awareness on entrepreneurship and develop their skills, more support for start-ups, projects, which will affect positively on the university and society and improve the university reputation.

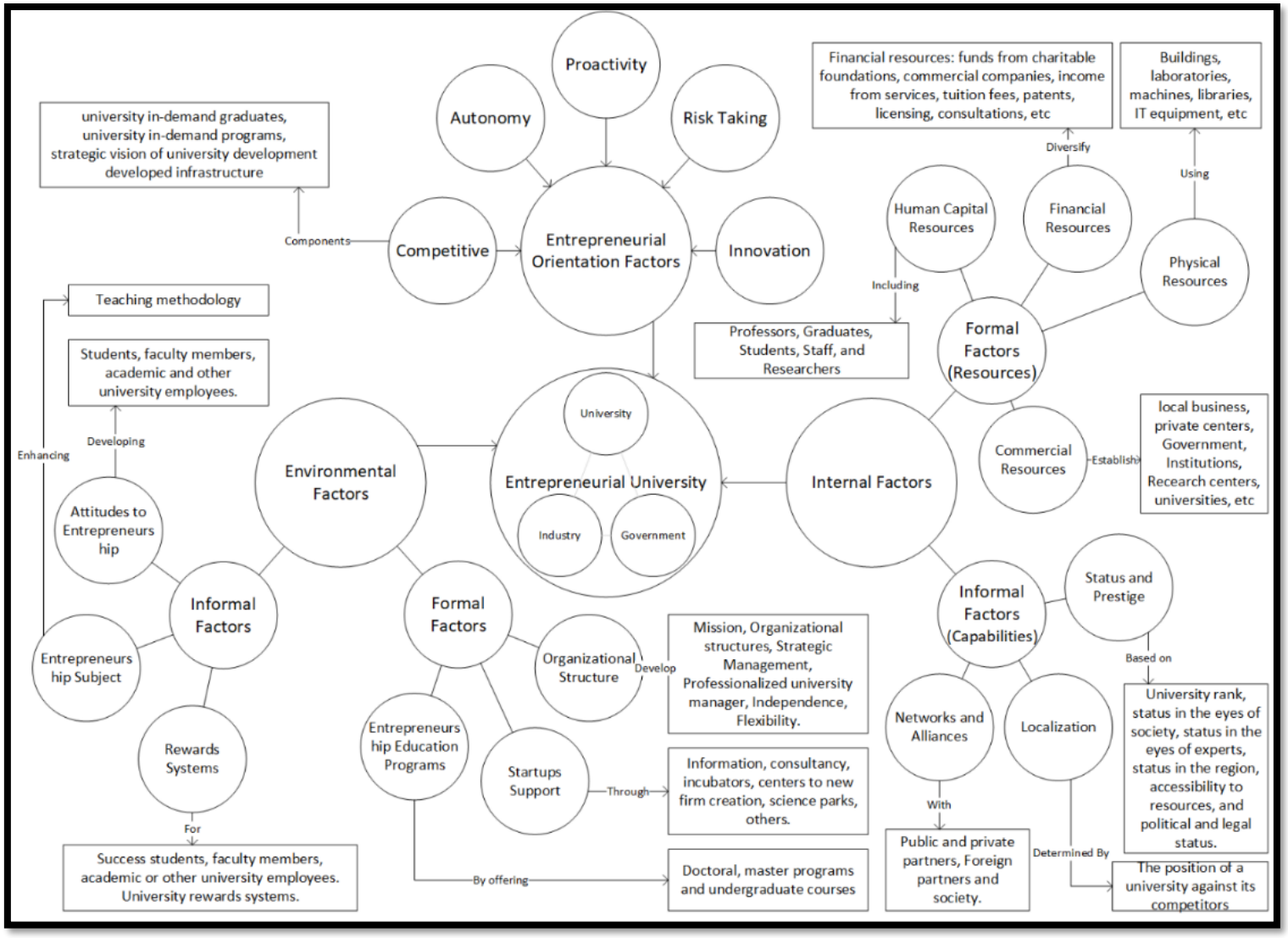
Additionally, Abu labhan (2018) recommended that Palestinian universities become more entrepreneurial need some essential requirements such as entrepreneurial leadership, modified policies and regulations, an entrepreneurial culture within the university, university internationalization, an enhanced educational system that meets the market needs, innovative

research and projects that create some collaboration with industry or could be commercialized at the end.

In conclusion, from the researcher's viewpoint, the transformation towards an entrepreneurial university is a phenomenon that faces various challenges that prevent the performance of expected and appropriate roles in the epoch in which we live now. Therefore, universities need to adopt new models for the entrepreneurial university formula that has proven its success in developing their educational systems in some developing countries that preceded us. In light of this, there is an urgent need to review and update mechanisms for developing the HEIs to reformulate their vision, mission, goals, and pioneering strategic directions to face all scientific developments and global transformations.

Finally, this study will combine existing literature results and models focused on university transformation into entrepreneurial universities to investigate the phenomenon of entrepreneurialism at Al-Quds University. The diagram below identifies the essential factors (environmental and internal) that facilitate the development of entrepreneurial universities.

Figure 2.2: The essential factors (environmental and internal) that facilitate the development of entrepreneurial universities (Prepared by the researcher)



Chapter 3: Methodology and Data Collection

3 Methodology

This study is considered a descriptive and exploratory study—a descriptive study to describe or define the entrepreneurial university phenomenon at Al-Quds University and an exploratory study to investigate the phenomenon of entrepreneurial university at Al-Quds University to get the requirements to transform it into an entrepreneurial university. Additionally, a questionnaire was developed to gather the data, then evaluated and analyzed.

In this study, we used the Factor Analysis Method, a method used to find factors that can explain the relationship or correlation between independent indicators or observed variables. Confirmatory and exploratory factor analyses are the two types of factor analysis.

The confirmatory factor analysis (CFA) helps to confirm the structure from variables that are being observed to discover if there is a linear relationship between the variable and indicators. In contrast, the exploratory factor analysis (EFA) is an exploratory tool that can reduce the number of indicators and find the most basic indicators of a variable without imposing the previous structure.

This research used the exploratory factor analysis (EFA) to determine the new factor structure with the help of using the SPSS Software (Statistical Product and Service Solution) to make it easier to analyze the data.

Below are the steps used in this study to analyze the data:

1. Sample Size and Tabulation: Our sample size is 159, and it can be classified as fair enough to conduct the exploratory factor analysis (EFA). As for processing the data, SPSS has been given the complete questionnaire data and

will use it to process the data.

2. Development of Correlation Matrix: The matrix is filled with all correlation coefficients from all variables in the research and will be measured using two types of approach tests:
    a. *Kaiser-Meiyer-Oklin* (KMO): The test has function as an index to compare the number of correlation coefficients observed to the number of partial coefficientcorrelations. The closer the value of KMO to 1 can be defined as sizeable sampling adequacy, which normally, the value accepted is greater than 0.5. The greater the value of KMO refers to good factor analysis. If the value is small, the factor analysis of the variables might not be good.
    b. Bartlett's *Test of Sphericity* or Measure Sampling Adequacy (MSA): The method is used to calculate the adequacy of the sample that is calculated on each variable. The value of MSA has to be greater than 0.5 to be considered valid.
3. Factor Extraction: The main goal of this stage is to determine the factors. The first step of this stage is to decide the number of factors as the basis of a set variable. Then, the number of factors that can be made is measured using the value of Eigen from the factors. In this term, the factor with more than 1 Eigen Value will be maintained in the model. As the most common method, the Principal Component Analysis can determine the initial factors that have functioned to determine what factors have a significant relationship.
4. Factor Rotation: In this stage, the factors will be rotated. The unrotated factor usually cannot be determined well. Therefore, factors are rotated to make it

more meaningful and easily determined. The varimax rotations method is the most-used rotational method used in this research. Varimax uses orthogonal rotation resulting in a factor or component that does not correlate. Varimax tries to minimize the number of variables with high loadings on a factor.

5. Making Final Decision: The final chosen factors are the number of factors for the rotated solution that could be interpreted the most. In identifying the factor, grouping the variable with large loadings in the same factor is necessary. Then, the factors will be interpreted according to the meaning of the variables. Finally, the final decision will be based on the Eigenvalues calculated in step 3 and the relative interpretability of rotated solutions calculated in step 4.

For more details about the factor analysis method, including a complete study analysis and results, see appendix (b).

3.1 Data Collection Sources

This study used two sources to collect data: a primary source through a questionnaire and a secondary source relying on previous related studies and other literature.

Primary Sources

A questionnaire was used to collect data. It was developed based on the literature review and previous studies then presented to arbitrators, who offered their remarks and suggestions that helped the researcher develop the questionnaire better to serve the purposes for which it was designed. The questionnaire was composed of the 103 questions using the interval Likert scale (6-1), (1 = Always, 2 = Usually, 3 = Sometimes, 4 = Rarely, 5 = Never, 6 = I Don't Know).

In this scale, we have used "I Don't Know" to determine the percentage of respondents who don't have any related experience in the field, and it has been excluded from the analysis.

The questionnaire consisted of three sections as follows:

- **The first section** included the demographic data and the personal information, including gender, age, academic level, and years of experience.
- **The second section** consisted of 9 domains described above to study the reality of entrepreneurship at AQU.
- **The third section** included the requirements for the AQU's transformation into an entrepreneurial university. This section consisted of nine domains, which should be ordered ascendingly based on the respondents' point of view and its importance as a requirement for transforming AQU into an entrepreneurial university.

The second section was divided into nine domains as follows: 1) university management and organizational structure, 2) university leadership, 3) university entrepreneurship education programs and curriculum, 4) entrepreneurial education, 5) entrepreneurial culture at the university, 6) university relationships and collaborations, 7) university internationalization, 8) university tangible resources and services, and 9) university reputation 10) intellectual abilities of the university community.

Secondary Sources

The study relies on previous related studies, including books, articles from high-rank journals, and periodicals related to the transformation towards entrepreneurial universities.

3.2 Study Variables

- **The Dependent variable** contained Entrepreneurial University characterized by: Entrepreneurial Education, Entrepreneurial Culture, Policies and Regulations, University Leadership, University Internationalization, Academic Exchange, University Environment, Community Relations, and Partnerships, Scientific Researches and Innovations, and Curriculum compatible with labor market needs.
- **The Moderating Variable** included the work experience and the academic levels.
- **The Independent Variables** contained 1) University Management and Organizational Structure, 2) University Leadership, 3) University Entrepreneurial Education programs and Curriculum, 4) Entrepreneurial Culture at the University, 5) University Relationships and Collaborations, 6) University Internationalization, 7), University Tangible Resources and Services, 8) University Reputation, and 9) Intellectual Abilities of the University's Community.

3.3 The Description of Study Variables

This section presents and defines the variables derived from the literature review and previous studies according to what was designed in the questionnaire to meet the study objectives.

3.3.1.1 Independent Variables:

- **University Management and Organizational Structure**: The organization's organizational structure is the hierarchy through which responsibility is delegated and assigned tasks, coordination, and supervision to all organization members to direct the organization towards achieving the desired goals effectively and efficiently. There must

be transparent systems and policies within the institution, which are intended to be a set of mandatory guidelines set by the institution to determine its long-term goals and guide its members to achieve those goals and protect the various interests of the institution. (Oliver & Kwong, 2021).

- **University Leadership**: University leadership is concerned with policies and strategies, collaborative decision-making, nurturing the achievement of organizational goals, motivating individuals using different leadership methods, maintaining personal and institutional relationships that guarantee the university its vision and history, spreading its mission, maintaining its independence, and responding to local and global changes (Mishra, 2020). In addition, the university leadership is concerned with providing the material and moral capabilities of entrepreneurs within the university and securing a clear strategic plan to move towards entrepreneurship, building a knowledge generation, and shifting towards a knowledge economy (Khatib, 2018).
- **University Entrepreneurship Education programs and Curriculum:** Entrepreneurial education means education based on developing students' creativity and innovation skills to create a generation capable of self-employment to create job opportunities rather than looking for them (Commission European, 2012).
- **University Tangible Resources and Services**: The university's tangible resources are the physical elements such as buildings, laboratories, tools, machines, libraries, information technology equipment, and others that the student and employee can benefit from during his presence inside the university. As a result, the university provides various services such as technical support, resources, references, the Internet, spaces, and others (Harness, 2018).

- **Entrepreneurial Culture at the University**: Entrepreneurship culture is defined as a set of traits and attitudes that enhance in organizations and individuals the opportunity to make decisions, take initiatives, take risks, have self-confidence, and participate in projects aimed at promoting independence and free will, producing modernity and change, and emphasizing creativity (Asli & Abdelaziz, 2019).
- **Intellectual Abilities of the University**: It means all knowledge, ideas, values, or skills possessed by members of the institution or university and are a reason for distinguishing the institution from others (Bratianu, 2018).
- **University Relationships and Collaborations**: It means that the university establishes cooperative relations between the university, the private business sector, the government, and other stakeholders through an effective strategic plan through which it seeks to share resources, generate knowledge and create new opportunities in addition to marketing the newly discovered knowledge and benefiting from the experts within the cooperating institutions. (Abbas et al., 2019).
- **University Reputation**: The university's reputation is the general impression or perception of the public or employees about its operation. The institution's reputation is one of the most important factors to measure the credibility of institutions (Chen & Esangbedo, 2018).
- **University Internationalization**: Internationalization of the university means that the university expands its international academic cooperation in the process of teaching and research and the various activities it provides, such as student exchange, attracting international students to study at the university, attracting and employing international lecturers, establishing international research partnerships and communicating with

various institutions of the world to provide an educational and research environment suitable for developments and changes. Globally (Mittelmeier et al., 2020).

3.3.1.2 Dependent variable:

- **Entrepreneurial University**: An entrepreneurial university is defined as a university that empowers the whole of its community (academic and administrative staff, researchers, students, and alumni) to generate knowledge creatively and innovatively to solve problems and exploit opportunities and contribute to local or international sustainability development (Gutíerrez et al., 2020). As well as An entrepreneurial university aims to increase revenues for the universities as well as increase staff, lecturers, and researcher incomes by applying and utilizing knowledge (Dinh, 2020).

3.3.1.3 Moderating variable: contains the work experience and the academic level.

3.4 The Model of the Study

The study model is derived from previous studies and has significant representations in relevant literature reviews on entrepreneurial universities. The figure below shows the most important variables (dependent, independent, and moderating) for the Al-Quds University transformation into an Entrepreneurial University as explained in chapter one on page number one in figure 1: “The model of the Study.”

3.5 The Study Population and Sample

The target population of this study is the entire population of all Ph.D. academic full-time faculty members at Al-Quds University, whose categorized into the following categories:

(Professors, Associate Professors, and Assistant Professors), and the total number was (245). Table (3.1) below indicates the categories and the numbers of the faculty members working at the university. The targeted population of this study is categorized into four categories based on the academic level, work experience, department, and academic with administrative roles. The questionnaire was distributed to all online using a Google form. As a result, we received back 159 from the respondents, and all were valid for statistical analysis. This study was conducted over the first semester of 2021/2022.

Table 3.1: Distribution of the Study Population and Sample by Academic Levels

Category	Study Population #	Study Sample #
Professors	27	18
Associate Professors	67	52
Assistant professors	151	89
Total	**245**	**159**

Table 3.2: Distribution of the Study Population by Colleges

College	Academic Level	Study Population #
Literature College	Professors	2
	Associate Professors	34
	Assistant professors	13
Science College	Professors	8
	Associate Professors	15
	Assistant professors	13
College of Health Professions	Professors	-
	Associate Professors	9
	Assistant professors	3
Engineering College	Professors	2
	Associate Professors	13
	Assistant professors	7
	Professors	2

College	Academic Level	Study Population #
President Office	Associate Professors	1
	Assistant professors	5
College of Law	Professors	-
	Associate Professors	3
	Assistant professors	9
Business and Economics College	Professors	1
	Associate Professors	3
	Assistant professors	16
Religion College	Professors	3
	Associate Professors	3
	Assistant professors	4
Medical School College	Professors	2
	Associate Professors	3
	Assistant professors	15
Educational Sciences College	Professors	3
	Associate Professors	6
	Assistant professors	8
Pharmacy College	Professors	2
	Associate Professors	3
	Assistant professors	4
Al-Quds Center for Innovation and Technology Entrepreneurship	Assistant professors	1
Dentistry College	Professors	-
	Associate Professors	5
	Assistant professors	14
Public Health	Professors	1
	Associate Professors	3
	Assistant professors	6
Total		**245**

3.6 Characteristics of the Study Sample

Table (3.3) and figures (3.1,3.2,3.3, and 3.4) below describe the demographic characteristics of the study sample, respectively.

Table 3.3: Characteristics of the Study Sample

Variable	Classifications	Frequency N= 159	Percentage (%)
Gender	Male	131	82.3%
	Female	28	18.7%
	Total	**159**	**100.0%**
Age	Less than 40 years	3	1.9%
	From 41-50 years	86	54.1%
	51 years and more	70	44.0%
	Total	**159**	**100.0%**
Academic Level	Professor	18	11.4%
	Associate Professor	52	32.7%
	Assistant Professor	89	55.9%
	Total	**159**	**100.0%**
Work Experience	From 6-10 years	7	4.5%
	From 11-15 years	60	37.7%
	From 16-20 years	47	29.5%
	20 years and more	45	28.3%
	Total	**159**	**100.0%**

Figure (3.1) below shows the distribution of the study sample according to gender. Based on the responses, the percentage of the male was 81%, while 19% for females. This result means that males occupy most of the academic positions at AQU.

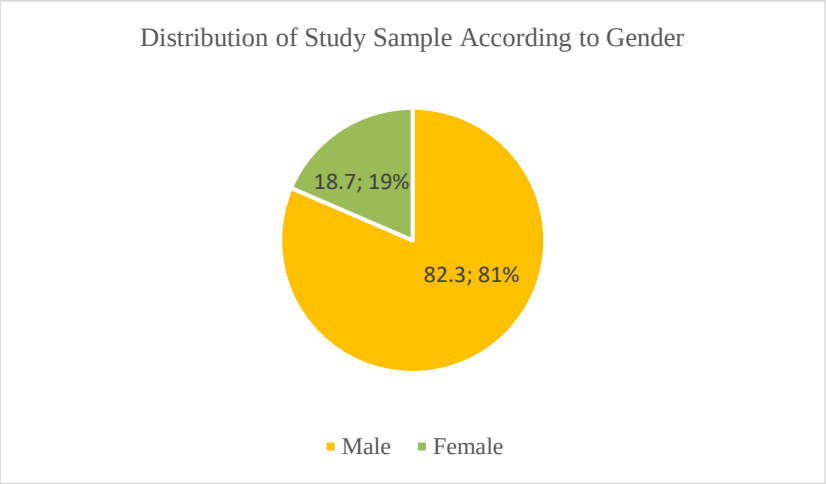


Figure 3.1: Distribution of Study Sample According to Gender

Figure (3.2) below shows the distribution of the study sample according to Age. Based on the responses, faculty members of ages between 41-50 years old had occupied the largest among individuals who work at Al-Quds University with 54%. On the other hand, faculty members who are 51 and above years old had occupied the second large group with 44%, and the smallest group was for faculty members who are less than 40 years old with 2%.

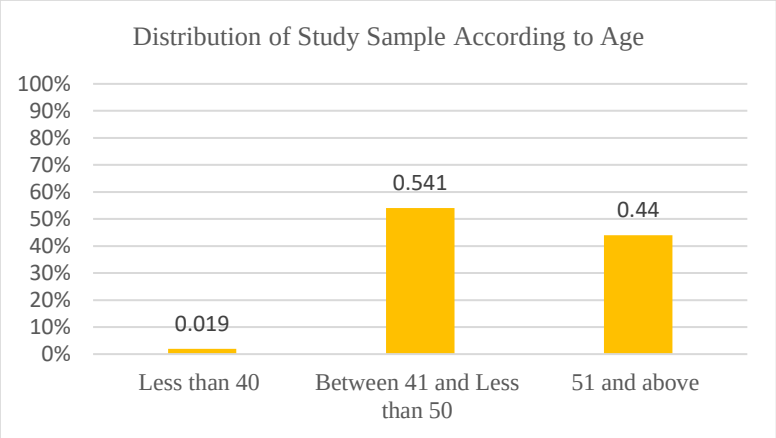


Figure 3.2: Distribution of Study Sample According to Age

Figure (3.3) shows the distribution of the respondents according to the work experience of the study sample. It shows that 4.5% of the respondents have been working for at least 6 to 10 years, 37.7% have been working for 11 to 15 years, 29.5% for 16 to 20 years, and finally

28.3% for more than 21 years. This result means that most of the study sample worked for at least 11 to 15 years at AQU.

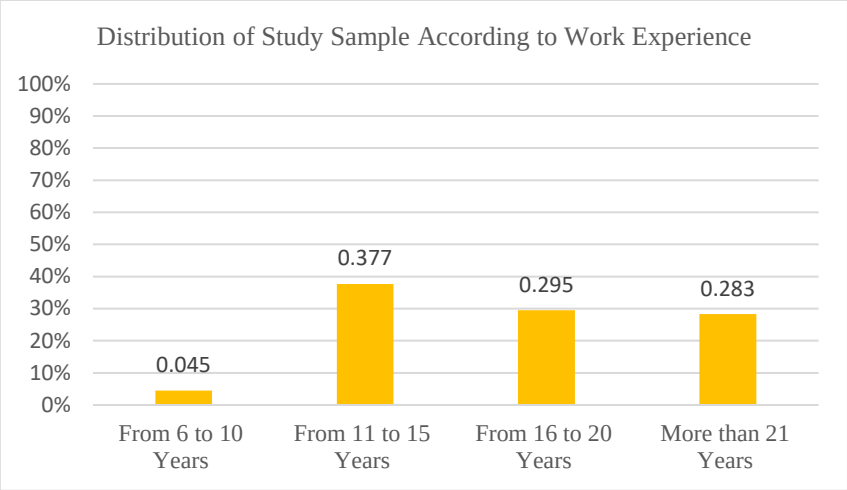


Figure 3.3: Distribution of Study Sample According to Work Experience

Figure (3.4) below shows the respondents' distribution according to the study sample's academic level. The figure shows that 11.4% of the respondents hold a professor degree, 32.7% hold an associate professor degree, and 55.9% hold an assistant professor degree. This result means that most of the study sample hold an assistant professor degree at AQU.

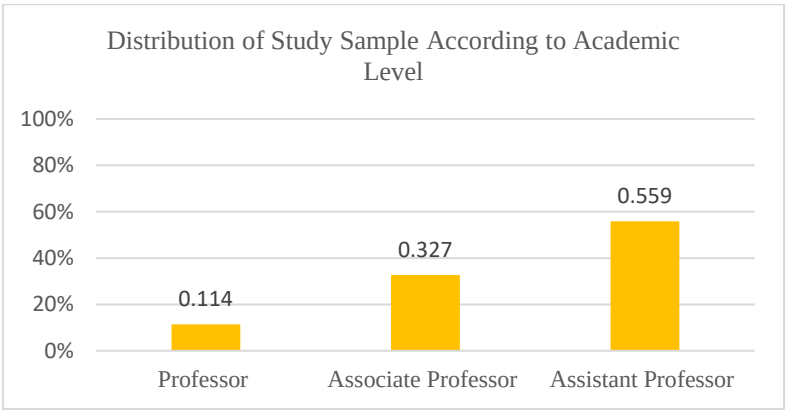


Figure 3.4: Distribution of Study Sample According to Academic Level

3.7 Ethical Consideration:

The questionnaire's introduction has provided brief details of the aims and the objectives of the research. The introduction also included that the data will be confidential and anonymized after data collection and will be used only for research purposes with no exploitation of any benefit from the participants or the university.

3.8 The Validity of the Study Tool

For the context validity, the academic supervisors and arbitrators who have expertise in the study's field have reviewed the questionnaire and confirmed its validity and relevance to its purpose. Additionally, the structural validity was checked by measuring the Pearson Correlation for each questionnaire domain. Table (3.4) below shows the correlations for each domain, indicating a highly excellent internal consistency between domains in the questionnaire. As a result, the questionnaire was suitable to perform the intended measurements.

Table 3.4: Pearson Correlation for each domain of the questionnaire

Domains	Section's Title	Pearson Correlation
1	University Management and Organizational Structure	0.801
2	University Leadership	0.765
3	University Academic Programs and Curriculum	0.730
4	Entrepreneurial Education	0.813
5	Entrepreneurial Culture at the University	0.812
6	University Relationships and Collaborations	0.830
7	University Internationalization	0.794
8	University Tangible Resources	0.810
9	University Reputation	0.740
10	Intellectual abilities of the university community	0.781

3.9 The Reliability of the Study Tool

The reliability of the questionnaire was checked by testing the internal consistency test using Cronbach's Alpha coefficient for each domain and the whole questionnaire. Table (6) below shows the reliability coefficient (Cronbach's Alpha) for each domain of the questionnaire, while table (3.5) below shows the reliability coefficient (Cronbach's Alpha) for the whole questionnaire, which is 0.987 = 98.7%. This value represents a highly excellent internal consistency value.

Table 3.5: Cronbach's alpha coefficient for each domain of the questionnaire

Domains	Section's Title	Cronbach's Alpha
1	University Management and Organizational Structure	0.873
2	University Leadership	0.834
3	University Academic Programs and Curriculum	0.870
4	Entrepreneurial Education	0.950
5	Entrepreneurial Culture at the University	0.892
6	University Relationships and Collaborations	0.942
7	University Internationalization	0.949
8	University Tangible Resources and Services	0.927
9	University Reputation	0.913
10	Intellectual Abilities of the University Community	0.907

Table 3.6: Cronbach's alpha coefficient for the whole questionnaire

Cronbach's Alpha	Number of Items
.987	101

3.10 Statistical Analyses

In this study, the researcher has used the Statistical Package for Social Science (SPSS) version 20 to analyze the collected data from the respondents using the following statistical techniques:

- According to the research's demographic variables, frequencies and percentages were calculated for all categorical variables.
- Means and standard deviations were used as measures of central tendency for Likert-scale variables.
- Cronbach's alpha was calculated for each domain and for the whole questionnaire to check the questionnaire's reliability.
- Pearson correlation was calculated for each domain in the questionnaire to check the questionnaire's validity.
- One Way ANOVA test was conducted to check whether differences exist between respondents' perspectives.
- Kruskal-Wallis test was conducted to determine if there are statistically significant differences between groups of independent variables on an ordinal dependent variable.
- Kaiser-Meyer-Olkin (KMO) test was conducted to measure how suited the collected data is for Factor Analysis.
- Principal Component Analysis (PCA) Test to find which variables are most strongly correlated with each component.
- Factor analysis was conducted to identify which underlying factors are measured by a much larger number of observed variables.
- The significance level is 5%, and P-value, less than .05, was considered statistically significant.

Chapter 4

4 Study Results

This chapter includes a detailed presentation and discussion of the analysis and results of this study. In addition, it reveals the responses to the study questions regarding the transformation of Al-Quds University towards an entrepreneurial university from the respondents' perspective with the aid of statistical tables and graphs.

4.1 The Results of the Study Questions

First Question: What are different possible approaches to transforming a university into an entrepreneurial university?

Based on previous studies about entrepreneurial universities and by adopting prior frameworks mentioned in chapter two, the researcher concludes a proposed framework containing the critical approaches that facilitate universities' transformation into entrepreneurial universities. This proposed framework consists of nine important approaches: the university managements and organizational structure, university leadership, university academic programs and curriculum, entrepreneurial education, entrepreneurial culture at the university, university relationships and collaborations, internationalization, tangible resources and services, reputation, and the intellectual abilities of the university community.

The university management and organizational structure approach contains the following crucial factors: university mission, academic and administrative regulations, governance, strategic management plan, financial sources, and university independence.

The university leadership approach contains the following crucial factors: university management system, academic and administrative development plan, departmental integration, university initiatives, responses, and flexibility.

The university academic programs and curriculum approach focus on university academic programs, academic relationships with local and international universities, and training opportunities for academic staff and students.

The entrepreneurial education approach focuses on training and teaching and learning methodologies such as student-centered learning, brainstorming, cooperative learning, practical hands-on learning, learning-based project strategy, empowering the whole university community (academic and administrative staff, researchers, students, and alumni) to commit to developing the mindset for knowledge generation, creativity, and innovation under uncertainty.

The university entrepreneurial culture approach focuses on enhancing the community's entrepreneurial skills by making decisions, taking initiatives, taking risks, and self-confidence through workshops, training, courses, or activities.

The university relationships and collaborations approach focuses on the university's cooperative relationships and collaborations with the private business sector, the government, and other stakeholders.

The university internationalization approach contains the following crucial factors: international relationships and cooperation, international program accreditations, twinning agreements, and exchange opportunities for academic staff and students.

The university's tangible resources and services approach focuses on the tangible elements and intangible services that the university provides effectively, including human capital, financial, and commercial resources.

The university's reputation approach contains the following crucial factors: university status, prestige, credibility, university performance on local or global levels, networks, alliances, and localization.

The university's intellectual abilities approach contains the following crucial factors: university strategic plan to promote and support innovations, patents, licensing, and joint projects, strategies of consultation, and building offices for technology transfer, commercialization of research results, or establishing start-ups or spin-offs.

The diagram (4.1) below shows the approach of the entrepreneurial university framework that the researcher derived from previous related studies.

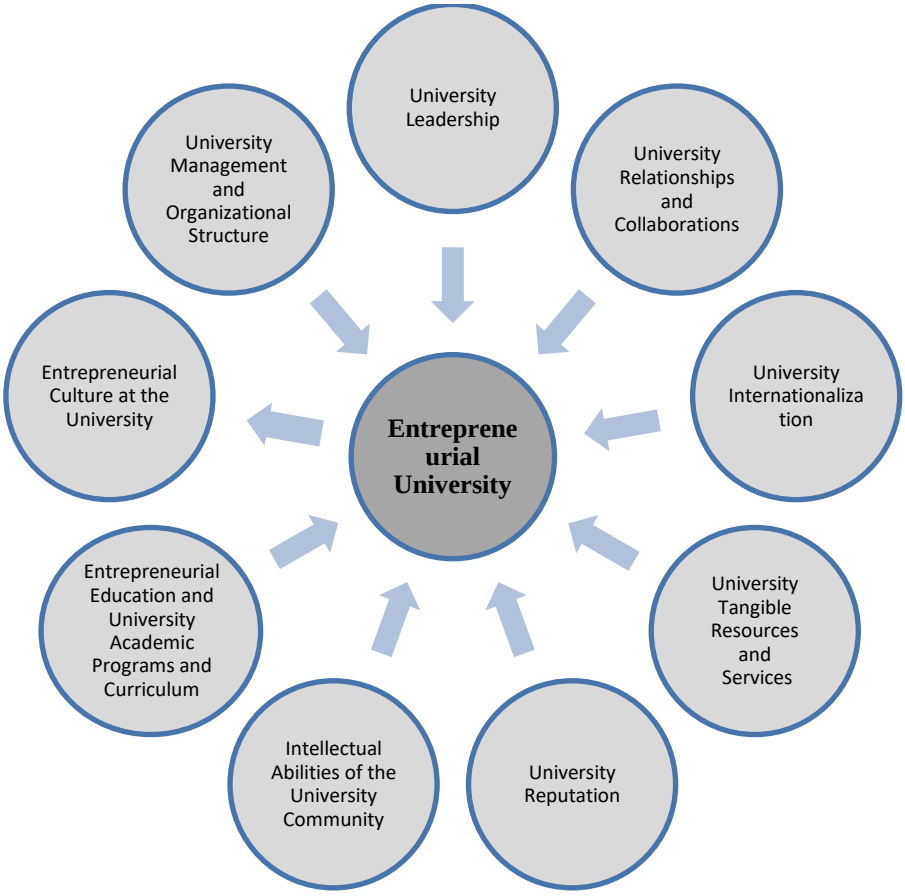


Figure 4.1: Entrepreneurial University Framework Components Proposed by the Researcher

Second Question: What mission, objectives, and strategies are needed to become an entrepreneurial university?

To answer this question, the researcher used the KMO and Bartlett's tests to find overlaps and correlations among the variables in each domain of the study. Then the Principal Component Analysis (PCA) was conducted to find which variables are most strongly correlated with each domain of the study.

Table (4.1) below shows the result of the KMO and Bartlett's test for the university management and organizational structure. KMO values closer to 1.0 are considered ideal, while values less than 0.5 are unacceptable. The result was .832, which indicates that the degree of information among the variables overlaps greatly with a strong partial correlation in the university management and organizational structure domain. Additionally, this result supports conducting the principal factor analysis (PCA).

Table 4.1: KMO and Bartlett's Test for the University Management and Organizational Structure Domain

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.832
Bartlett's Test of Sphericity	Approx. Chi-Square	831.053
	df	45
	Sig.	.000

After conducting the factor analysis test, table (4.1) below reveals the extracted essential factors of the university management and organizational structure domain that met the cut-off criterion or extraction method listed in the "rotation sums of squared loadings" section. As a result, two factors were strongly correlated with the university management and organizational structure domain: "University's organizational structure is clear, and it helps the university achieve its goals" and "The university reviews and updates its academic programs and disciplines regularly". Both factors accounted for 49.72% and 12.58% of the variation,

respectively, before rotation, while after rotation, they accounted for 33.62% and 28.69% of the variance, respectively.

On the other hand, the other factors such as the transparent academic and administrative regulations, the financial and networking plan, or the moral and intensive systems were not strongly correlated with the university management organizational structure domain, likewise, for the university cooperation with other higher education institutions.

However, this result means that Al-Quds University has clear university management and organizational structure that helps the university achieve its goals and regularly reviews and updates its academic programs and disciplines. But, on the other hand, the result stated that Al-Quds University has no a transparent academic, administrative, financial, and networking plan to connect with the private sector and the government. Moreover, it does not cooperate actively with other higher education institutions. In addition to that, it does not apply a transparent moral and intensive system to improve working conditions.

Table 4.2: Principal Component Analysis for the University Management and Organizational Structure Domain

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
University's organizational structure is clear, and it helps the university achieve its goals.	4.972	49.717	49.717	4.972	49.717	49.717	3.362	33.618	33.618

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university reviews and updates its academic programs and disciplines regularly.	1.259	12.587	62.304	1.259	12.587	62.304	2.869	28.686	62.304
The academic regulations of the university are clear for the academic staff.	.988	9.878	72.182						
The administrative regulations of the university are clear for the administrative staff.	.630	6.299	78.481						
The university has a transparent financial plan to support students' and employees' initiatives.	.598	5.985	84.466						
The university has a transparent plan to be integrated with the local and regional community through seminars, workshops, etc.	.457	4.573	89.038						
The university has a transparent plan to be connected with the private sector and the government to achieve its desired goals.	.399	3.995	93.033						

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university has a transparent plan to cooperate with higher education institutions, whether local, regional, or global.	.327	3.270	96.303						
The university has a transparent and applied incentive system that helps the university meet the highest level of job performance and meet its members' loyalty.	.227	2.273	98.575						
The university has a transparent system of moral incentives.	.142	1.425	100.000						

As for Al-Quds University leadership, table (4.3) below shows the result of the KMO and Bartlett's test for the university leadership domain. The result was .807, which indicates that the degree of information among the variables overlaps greatly with a strong partial correlation in the university leadership domain and supports conducting the principal factor analysis (PCA).

Table 4.3: KMO and Bartlett's Test for the University Leadership Domain

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.807
Bartlett's Test of Sphericity	Approx. Chi-Square	570.005
	df	21
	Sig.	.000

After conducting the factor analysis test, table (4.4) below reveals the two factors that were strongly correlated with the university leadership domain: "The university has a clear

development plan to develop its academic and administrative services" and "The university responds to changes in the local environment and offers the necessary initiatives". Both factors accounted for 55.54% and 16.32% of the variation, respectively, before rotation, while after rotation, they accounted for 54.57% and 17.29% of the variance, respectively.

On the other hand, the other factors such as the variety of funding sources, the decentralization of the management system, the faculties collaboration, and the work rotation strategy were not strongly correlated with the university leadership domain.

However, this result stated that Al-Quds University has a centralized development plan to develop its academic and administrative services that helps the university respond to local changes environment and offers the necessary initiatives. Moreover, Al-Quds University follows a centralized management system to manage its administrative and academic departments and units. But, on the other hand, the result revealed that Al-Quds University departments, faculties, and units are not collaboratively proposing or carrying out their tasks. Additionally, the employees don’t participate in proposing the plan and goals of their departments or units (management by goals). As well as Al-Quds University doesn’t have a variety of funding sources to maintain its financial independence.

Table 4.4: Principal Component Analysis for the University Leadership Domain

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university has a clear development plan to develop its academic and administrative services.	3.888	55.537	55.537	3.888	55.537	55.537	3.820	54.571	54.571
The university responds to changes in the local environment and offers the necessary initiatives.	1.143	16.322	71.859	1.143	16.322	71.859	1.210	17.288	71.859
The university has a variety of funding sources to maintain its financial independence.	.638	9.119	80.977						
The university applies a decentralization management system to manage its administrative and academic departments and units.	.510	7.285	88.263						
The university's faculties are integrated to carry out their tasks.	.354	5.057	93.320						

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Employees participate in proposing the plan and goals of their departments or units (management by goals).	.308	4.395	97.715						
The university has a clear strategy for work rotations.	.160	2.285	100.000						

As for Al-Quds University's academic programs and curriculum, table (4.5) below shows the result of the KMO and Bartlett's test for the university's academic programs and curriculum domain. The result was .762, which indicates that the degree of information among the variables overlaps greatly with a strong partial correlation in the university's academic programs and curriculum domain and supports conducting the principal factor analysis (PCA).

Table 4.5: KMO and Bartlett's Test for the University Academic Programs and Curriculum Domain

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.762
Bartlett's Test of Sphericity	Approx. Chi-Square	966.383
	df	36
	Sig.	.000

After conducting the factor analysis test, table (4.6) below reveals the three factors that were strongly correlated with the university's academic programs and curriculum domain: "University departments regularly study the labor market needs", "University departments continuously develop curricula to keep pace with research development (R&D)" and "University departments continuously develop their curricula according to the labor market's needs". All factors accounted for

51.29%, 15.66%, and 12.12% of the variation, respectively, before rotation, while after rotation, they accounted for 39.20%, 22.65%, and 17.20% of the variance, respectively.

On the other hand, the other factors, such as offering distinctive academic disciplines or programs, joint academic programs with local and international universities, and training opportunities for students and employees, were not strongly correlated with the university's academic programs and curriculum domain.

However, this result stated that Al-Quds University continuously studies labor market needs, develops curricula according to labor market needs, and keeps pace with research development (R&D). But, on the other hand, the result revealed that Al-Quds University rarely offers distinctive joint academic programs with local and international universities except for programs at the dual studies college and recent joint Ph.D. programs. Moreover, the respondents revealed that the university does not provide any training programs with the private sector for students and academic staff.

Table 4.6: Principal Component Analysis for the University Academic Programs and Curriculum Domain

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
University departments regularly study the labor market needs.	4.616	51.286	51.286	4.616	51.286	51.286	3.528	39.205	39.205

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
University departments continuously develop curricula to keep pace with research development (R&D).	1.410	15.664	66.949	1.410	15.664	66.949	2.038	22.645	61.849
University departments continuously develop their curricula according to the labor market needs.	1.091	12.120	79.069	1.091	12.120	79.069	1.550	17.220	79.069
University departments continuously offer distinctive academic disciplines or programs.	.628	6.978	86.048						
The current curricula achieve the discipline objectives and the labor market requirements.	.460	5.114	91.162						
University departments offer training opportunities for students and employees who obtain the required skills and knowledge of the private sector.	.352	3.909	95.071						

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
University departments offer master's and doctoral programs considering global changes and the labor market's needs.	.226	2.517	97.588						
University departments offer joint academic programs with local and international universities.	.122	1.360	98.948						
University departments offer joint academic programs with the private sector for training students to meet the local and international labor market's needs.	.095	1.052	100.000						

As for Al-Quds University's entrepreneurial education, table (4.7) below shows the result of the KMO and Bartlett's test for the university's entrepreneurial education domain. The result was .897, which indicates that the degree of information among the variables overlaps greatly with a strong partial correlation in the university's entrepreneurial education domain and supports conducting the principal factor analysis (PCA).

Table 4.7: KMO and Bartlett's Test for the University Entrepreneurial Education Domain

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.897
Bartlett's Test of Sphericity	Approx. Chi-Square	1994.610
	df	66
	Sig.	.000

After conducting the factor analysis test, table (4.8) below reveals the two factors that were strongly correlated with the university's entrepreneurial education domain: "University departments encourage their academic staff to use the student-centered learning strategy in the educational process," and "University departments encourage their academic staff to use interactive teaching methods to enhance students' creative thinking". Both factors accounted for 65.55% and 76.03% of the variation, respectively, before rotation, while after rotation, they accounted for 59.64% and 16.35% of the variance, respectively.

On the other hand, the other factors, such as using different teaching methodologies (brainstorming, cooperative learning, practical hands-on learning, exploration learning, or learning-based project strategies), were not strongly correlated with the university's entrepreneurial education domain.

However, this result stated that Al-Quds University encourages academic staff to use interactive teaching methods such as student-centered learning and creative thinking strategies. But, on the other hand, the result revealed that Al-Quds University rarely offers training or academic activities focused on classroom teaching methods or strategies, such as brainstorming, cooperative learning, practical hands-on learning, and practical hands-on learning strategy.

Table 4.8: Principal Component Analysis for the Entrepreneurial Education Domain

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
University departments encourage their academic staff to use the student-centered learning strategy in the educational process.	7.866	65.550	65.550	7.866	65.550	65.550	7.157	59.639	59.639
University departments encourage their academic staff to use interactive teaching methods to enhance students' creative thinking.	1.258	10.483	76.033	1.258	10.483	76.033	1.967	16.394	76.033
University departments encourage their academic staff to use the brainstorming strategy in the educational process.	.790	6.584	82.616						
Your department encourages the academic staff to use the cooperative learning strategy (group work in groups) in the educational process.	.509	4.240	86.857						

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Your department encourages the academic staff to use the case studies strategy in the educational process.	.385	3.208	90.065						
Your department encourages the academic staff to use the practical hands-on learning strategy.	.364	3.030	93.095						
Your department encourages the academic staff to use the exploration learning strategy (critical thinking and analysis) in the educational process.	.254	2.119	95.214						
Your department encourages the academic staff to use the e-learning methodology in the educational process.	.171	1.425	96.639						
Your department encourages the academic staff to use the learning-based project's strategy in the educational process.	.143	1.188	97.827						

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
University departments offer training for students to train them on formulating ideas and developing projects.	.103	.861	98.687						
University departments offer training for students to develop their persuasion and negotiation skills.	.080	.670	99.357						
University departments offer training for students to develop their problem-solving skills.	.077	.643	100.000						

As for Al-Quds University's entrepreneurial culture, table (4.9) below shows the result of the KMO and Bartlett's test for the university's entrepreneurial culture domain. The result was .761, which indicates that the degree of information among the variables overlaps greatly with a strong partial correlation in the university's entrepreneurial culture domain and supports conducting the principal factor analysis (PCA).

Table 4.9: KMO and Bartlett's Test for the University Entrepreneurial Culture Domain

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.761
Bartlett's Test of Sphericity	Approx. Chi-Square	920.260
	df	21
	Sig.	.000

After conducting the factor analysis test, table (4.10) below reveals the two factors that were strongly correlated with the university's entrepreneurial culture domain: "The university offers workshops on the importance of entrepreneurship" and "The university offers activities to encourage entrepreneurship skills among academic staff and students". Both factors accounted for 63.09% and 16.59% of the variation, respectively, before rotation, while after rotation, they accounted for 48.13% and 31.57% of the variance, respectively.

On the other hand, the other factors such as developing academic staff and students' decision-making and risk-taking skills, converting ideas into projects, supporting academic staff and students' projects, or offering elective and/or mandatory entrepreneurship courses for students were not strongly correlated with the university's entrepreneurial culture domain.

However, this result stated that Al-Quds University offers generic workshops on the importance of entrepreneurship and encourages entrepreneurship skills among academic staff and students. But, on the other hand, the result revealed that Al-Quds University does not offer specialized training in specific areas of entrepreneurship, such as training on developing academic staff and students' decision-making and risk-taking skills, changing problems to opportunities, or converting ideas to projects. Moreover, they stated that Al-Quds University does not provide enough support for academic staff and students' projects to promote the entrepreneurship culture at the university.

Table 4.10: Principal Component Analysis for the University Entrepreneurial Culture Domain

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university offers workshops on the importance of entrepreneurship.	4.417	63.097	63.097	4.417	63.097	63.097	3.369	48.127	48.127
The university offers activities to encourage entrepreneurship skills among academic staff and students.	1.162	16.599	79.696	1.162	16.599	79.696	2.210	31.570	79.696
The university offers training and activities to develop academic staff and students' decision-making and risk-taking skills.	.629	8.981	88.677						
The university offers training programs for academic staff and students to teach them how to convert their ideas into projects.	.354	5.052	93.729						
The university offers elective and/or mandatory entrepreneurship courses for students.	.245	3.503	97.232						
The university provides enough support for academic staff and students' projects.	.100	1.435	98.666						

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university encourages academic staff and students to participate in various entrepreneurial programs or activities, whether inside or outside the university.	.093	1.334	100.000						

As for Al-Quds University's relationships and collaborations, table (4.11) below shows the result of the KMO and Bartlett's test for the university's relationships and collaborations domain. The result was .864, which indicates that the degree of information among the variables overlaps greatly with a strong partial correlation in the university's relationships and collaborations domain and supports conducting the principal factor analysis (PCA).

Table 4.11: KMO and Bartlett's Test for the University Relationships and Collaborations Domain

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.864
Bartlett's Test of Sphericity	Approx. Chi-Square	1852.031
	df	45
	Sig.	.000

After conducting the factor analysis test, table (4.12) below reveals the two factors that were strongly correlated with the university's relationships and collaborations domain: "The university has community service centers" and "The university has various cooperations and agreements with the public and private sectors". Both factors accounted for 67.66% and 81.17%

of the variation, respectively, before rotation, while after rotation, they accounted for 51.91% and 29.26% of the variance, respectively.

On the other hand, the other factors such as offering job opportunities for graduates, increasing the financial sources, or the amount of research that meets the labor market's needs, and developing more academic programs that meet the needs of the local and international markets were not strongly correlated with the university's relationships and collaborations domain.

However, this result stated that Al-Quds University has community service centers and has many cooperation and relationships with the public and private sectors. But, on the other hand, the result revealed that Al-Quds University's relationships and collaborations rarely positively affect the university's development, such as by increasing the financial sources of the university, the amount of research that meets the labor market's needs, the development of university curricula, or creating more job opportunities for graduates.

Table 4.12: Principal Component Analysis for the University Relationships and Collaborations Domain

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university has community service centers	6.766	67.662	67.662	6.766	67.662	67.662	5.191	51.911	51.911
The university has various cooperation and agreements with the public and private sectors.	1.351	13.508	81.170	1.351	13.508	81.170	2.926	29.259	81.170

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university seeks to adopt the triple helix model (the complementary relationship between the university, business sectors, and the government).	.613	6.131	87.301						
The university's relationships and partnerships create job opportunities for graduates.	.491	4.911	92.212						
The university's relationships and partnerships increase the financial sources.	.276	2.757	94.969						
The university's relations and partnerships increase the amount of research that meets the labor market's needs.	.154	1.537	96.506						
The university's relations and partnerships increase its ability to support its projects financially.	.116	1.160	97.666						
University relationships and partnerships contribute to the development of university curricula.	.101	1.014	98.680						

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university's relationships and partnerships develop more academic programs that meet the needs of the local and international markets.	.073	.729	99.409						
The university's relations and partnerships develop projects or services that meet the community's needs.	.059	.591	100.000						

As for Al-Quds University's internationalization, table (4.13) below shows the result of the KMO and Bartlett's test for the university's internationalization domain. The result was .852, which indicates that the degree of information among the variables overlaps greatly with a strong partial correlation in the university's internationalization domain and supports conducting the principal factor analysis (PCA).

Table 4.13: KMO and Bartlett's Test for the University Internationalization Domain

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.852
Bartlett's Test of Sphericity	Approx. Chi-Square	2487.486
	df	91
	Sig.	.000

After conducting the factor analysis test, table (4.14) below reveals the two factors that were strongly correlated with the university's internationalization domain: "The university has a clear vision to become an international university" and "The university has a clear plan to

expand international academic cooperation". Both factors accounted for 63.03% and 11.53% of the variation, respectively, before rotation, while after rotation, they accounted for 41.33% and 33.23% of the variance, respectively.

On the other hand, the other factors such as having an active office of international scholarships and international relations, strategic plan to enhance the university's international rank, providing the academic staff with exchange opportunities in international universities, recruiting distinguished international academic staff to work or teach at it, or establishing twinning agreements or academic programs with international universities were not strongly correlated with the university's internationalization domain.

However, this result stated that Al-Quds University has a clear vision of becoming an international university and expanding its international academic cooperation. But, on the other hand, it does not provide enough academic and non-academic exchange opportunities for academic staff or students in international universities; it rarely invites distinguished scholars to work or teach. Additionally, it does not have any twinning agreements with international universities or any accredited programs internationally.

Table 4.14: Principal Component Analysis for the University Internationalization Domain

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university has a clear vision to become an international university.	8.825	63.036	63.036	8.825	63.036	63.036	5.787	41.333	41.333

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university has a clear plan to expand international academic cooperation.	1.614	11.525	74.561	1.614	11.525	74.561	4.652	33.228	74.561
The university has an active office of International Scholarships and International Relations.	.779	5.565	80.125						
The university's strategic plan aims to enhance the university's international rank.	.693	4.948	85.074						
The university provides its academic staff with exchange opportunities in international universities.	.459	3.278	88.351						
The university recruits distinguished international academic staff to work at it.	.374	2.668	91.019						
The university invites international academic staff as visiting scholars to teach at it.	.334	2.384	93.403						
The university encourages and supports academic staff to participate in international conferences.	.260	1.855	95.258						

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university tries to establish academic programs with international universities.	.235	1.678	96.937						
The university tries to obtain international academic accreditation for its academic programs.	.126	.901	97.837						
The university signs twinning agreements with international universities.	.106	.757	98.594						
The university provides academic exchange opportunities for employees.	.099	.707	99.301						
The university provides academic exchange opportunities for students.	.057	.409	99.710						
The university provides non-academic exchange opportunities for students.	.041	.290	100.000						

As for Al-Quds University's tangible resources and services, table (4.15) below shows the result of the KMO and Bartlett's test for the university's tangible resources and services domain. The result was .824, which indicates that the degree of information among the variables

overlaps greatly with a strong partial correlation in the university's tangible resources and services domain and supports conducting the principal factor analysis (PCA).

Table 4.15: KMO and Bartlett's Test for the University Tangible Resources and Services Domain

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.842
Bartlett's Test of Sphericity	Approx. Chi-Square	1343.079
	df	28
	Sig.	.000

After conducting the factor analysis test, table (4.16) below reveals the two factors that were strongly correlated with the university's tangible resources and services domain: "The university urges the academic staff to publish their research in international refereed journals" and "The university provides the necessary services that facilitate the accomplishment of research projects". Both factors accounted for 67.65% and 14.22% of the variation, respectively, before rotation, while after rotation, they accounted for 66.89% and 14.98% of the variance, respectively.

On the other hand, the other factors such as providing the necessary services that facilitate knowledge generation and development, enough financial support for research projects, local and international cooperation for various joint research projects, the necessary services to link research results with the labor market's needs, or the necessary services to facilitate the commercialization of research results were not strongly correlated with the university's tangible resources and services domain.

However, this result stated that Al-Quds University provides the academic staff with the necessary services to accomplish research projects and publish them in international refereed journals. But, on the other hand, it does not provide the necessary services that facilitate

knowledge generation and development, enough financial support to accomplish their research projects, commercialize their research results, or transform them into innovative products, local and international cooperation opportunities to conduct various joint research projects, link research results with the labor market's needs, facilitate the commercialization of research results, and transform research results into innovative products.

Table 4.16: Principal Component Analysis for the University Tangible Resources and Services Domain

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university urges the academic staff to publish their research in international refereed journals.	5.412	67.645	67.645	5.412	67.645	67.645	5.351	66.887	66.887
The university provides the necessary services that facilitate the accomplishment of research projects.	1.138	14.220	81.865	1.138	14.220	81.865	1.198	14.977	81.865
The university provides the necessary services that facilitate knowledge generation and development.	.537	6.715	88.580						
The university provides enough financial support that facilitate the accomplishment of research projects.	.377	4.711	93.291						

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university provides local and international cooperation opportunities to conduct various joint research projects.	.252	3.152	96.444						
The university provides the necessary services that link research results with the labor market's needs.	.155	1.934	98.377						
The university provides the necessary services that facilitate the commercialization of research results.	.093	1.157	99.534						
The university provides the necessary capabilities to transform research results into innovative products.	.037	.466	100.000						

As for Al-Quds University's reputation, table (4.17) below shows the result of the KMO and Bartlett's test for the university's reputation domain. The result was .774, which indicates that the degree of information among the variables overlaps greatly with a strong partial correlation in the university's reputation domain and supports conducting the principal factor analysis (PCA).

Table 4.17: KMO and Bartlett's Test for the University Reputation Domain

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.774
Bartlett's Test of Sphericity	Approx. Chi-Square	1671.542
	df	66
	Sig.	.000

After conducting the factor analysis test, table (4.18) below reveals the three factors that were strongly correlated with the university's reputation domain: "Do you think the university seeks to enhance its reputation through relationships with the public and private sectors?", "Do you think the university seeks to develop social values and ethical standards for academic staff and students?", and "Do you feel that the university has a systematic plan to improve its performance at local, regional, and global levels?". All factors accounted for 53.64%, 68.33%, and 77.17% of the variation, respectively, before rotation, while after rotation, they accounted for 36.69%, 24.27%, and 16.20% of the variance, respectively.

On the other hand, the other factors such as the availability of spaces, multi-purpose rooms, or laboratories for students and academic staff, or providing the necessary services for students and staff with disabilities, or maintaining the health and safety rules on the campus were not strongly correlated with the university's reputation domain.

However, this result stated that Al-Quds University develops social values and ethical standards for its staff, students, and faculty to enhance its reputation. Additionally, it has a systematic plan to improve its local, regional, and global performance. But, on the other hand, it does not offer different practices and activities to achieve its goals and does not excellently provide services for staff and students. In addition to that, it lacks the necessary services for students and staff with disabilities and lacks enough well-equipped laboratories, classrooms, and medical care centers.

Table 4.18: Principal Component Analysis for the University Reputation Domain

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Do you think the university seeks to enhance its reputation through relationships with the public and private sectors?	6.437	53.639	53.639	6.437	53.639	53.639	4.403	36.692	36.692
Do you think the university seeks to develop social values and ethical standards for academic staff and students?	1.763	14.690	68.329	1.763	14.690	68.329	2.913	24.272	60.965
Do you feel that the university has a systematic plan to improve its local, regional, and global performance?	1.060	8.837	77.166	1.060	8.837	77.166	1.944	16.201	77.166
Do you think the university offers different practices and activities to achieve its goals?	.723	6.028	83.194						
Do you feel that the available spaces at the university are sufficient for students?	.656	5.464	88.658						
Do you think the available multi-purpose rooms at the university are suitable for students?	.364	3.032	91.690						

Do you feel that the available laboratories at the university meet the needs of students and instructors?	.324	2.701	94.391						
Do you think the university provides the necessary services for students and staff with disabilities?	.222	1.846	96.237						
Do you think the university excellently provides services for staff and students?	.175	1.457	97.694						
Do you think the university provides medical care for its students and employees?	.122	1.015	98.709						
Do you think the classrooms are well-equipped with the needed devices, lights, etc.?	.094	.780	99.489						

As for the Al-Quds University community's intellectual abilities, table (4.19) below shows the result of the KMO and Bartlett's test for the university community's intellectual abilities domain. The result was .794, which indicates that the degree of information among the variables overlaps greatly with a strong partial correlation in the university community's intellectual abilities domain and supports conducting the principal factor analysis (PCA).

Table 4.19: KMO and Bartlett's Test for the University Community's Intellectual Abilities Domain

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.794
Bartlett's Test of Sphericity	Approx. Chi-Square	1995.684
	df	66

	Sig.	.000

After conducting the factor analysis test, table (4.20) below reveals the three factors that were strongly correlated with the university community's intellectual abilities domain: "The university seeks to encourage researchers to obtain patents", "The university rewards outstanding researchers", and "The university allows researchers to participate in local and international conferences". All factors accounted for 53.64%, 20.97%, and 8.62% of the variation, respectively, before rotation, while after rotation, they accounted for 37.15%, 34.67%, and 11.40% of the variance, respectively.

On the other hand, the other factors such as attracting international students and academics to participate in educational or research projects, building supportive communities for the university's vision, encouraging students and academics to become innovators by finding solutions to local and global problems, commercializing their research results, or establishing start-up companies were not strongly correlated with the university community's intellectual abilities domain.

However, this result stated that Al-Quds University rewards outstanding researchers, encourage them to participate in local and international conferences, and obtain patents. But, still needs to change the nature, goals, and the purpose of research from knowledge production to value, innovation, and technique creation by having a clear strategic plan and changing the organizational structure of the scientific research deanship. Furthermore, this strategic plan should support and urge the engagement of researchers with industrial partners to further their research objectives and transform research results and knowledge into products, processes, services, or practical applications and solutions for local or global problems.

Moreover, Al-Quds University sometimes needs to specify the research areas and support research in critical areas that society needs to achieve balanced development and increase profit for individuals or the university. Consequently, a clear strategic plan for research will help Al-Quds University to become self-financial dependent on the research and educational activities to generate profit primarily through research and projects.

Table 4.20: Principal Component Analysis for the Intellectual Abilities of the University Community

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university seeks to encourage researchers to obtain patents.	6.436	53.636	53.636	6.436	53.636	53.636	4.458	37.152	37.152
The university rewards outstanding researchers.	2.516	20.969	74.605	2.516	20.969	74.605	4.161	34.671	71.823
The university allows researchers to participate in local and international conferences.	1.035	8.622	83.226	1.035	8.622	83.226	1.368	11.403	83.226
The university attracts international students and academics to participate in educational or research projects.	.486	4.051	87.277						
The university seeks to build supportive communities for the university's vision.	.417	3.477	90.754						

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university has a clear policy to encourage students and academics to become innovators by finding solutions to local and global problems.	.342	2.846	93.600						
The university has a clear policy to encourage researchers to commercialize their research results.	.248	2.064	95.664						
The university has a clear policy to encourage students and academic staff to establish start-up companies.	.160	1.333	96.997						
The university provides students and academic staff with sufficient support to establish their start-up.	.126	1.047	98.044						
The university has a clear policy to provide the necessary licenses for commercializing students or academic staff's research results.	.117	.978	99.022						

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The university has a center for innovation and entrepreneurship and a technology transfer office.	.073	.609	99.631						
The university seeks to exploit its research results to establish new companies.	.044	.369	100.000						

Third Question: Are there significant differences in entrepreneurship reality at Al-Quds University based on the respondents' work experience and academic level?

To answer this question, the researcher used the One-way Analysis of Variance (ANOVA) test to check if there were differences between the respondents' evaluation of the reality of entrepreneurship at Al-Quds university according to their work experience and academic levels.

After that, the Kruskal-Wallis test was conducted to understand whether the reality of entrepreneurship at Al-Quds University differed in each category of the work experience and academic levels variables and in favor of whom the results were more significant.

Section (1): The Reality of Entrepreneurship at Al-Quds University According to the Respondents' Academic Level.

Table (4.21) below shows a statistically significant difference between the means of the academic levels groups (assistant professors, associate professors, and professors) with a *p*-

value less than the .05 alpha level for all domains of the study: the university management and organizational structure, university leadership, university academic programs and curriculum, entrepreneurial education, entrepreneurial culture at the university, university relationships and collaborations, university internationalization, university tangible resources and services, university reputation, and the intellectual abilities of the university community.

Table 4.21: ANOVA Result for the Domains and the Academic Level

The Reality of Entrepreneurship		Sum of Squares	df	Mean Square	F	Sig.
University Management and Organizational Structure	Between Groups	4.993	2	2.496	3.586	.030
University Leadership	Between Groups	15.340	2	7.670	15.534	.000
University Academic Programs and Curriculum	Between Groups	4.181	2	2.090	5.876	.003
Entrepreneurial Education	Between Groups	10.517	2	5.258	9.908	.000
Entrepreneurial Culture at the University	Between Groups	13.425	2	6.712	10.292	.000
University Relationships and Collaborations	Between Groups	47.965	2	23.983	21.898	.000
University Internationalization	Between Groups	34.441	2	17.220	19.986	.000
University Tangible Resources and Services	Between Groups	12.403	2	6.202	7.824	.001
University Reputation	Between Groups	10.669	2	5.334	9.133	.000
Intellectual Abilities of the University Community	Between Groups	11.935	2	5.968	6.285	.002

Based on the Kruskal-Wallis H test results for all domains, table (4.22) below shows that all academic levels (assistant professors, associate professors, and professors) highly support Al-Quds university's current university management and organizational structure.

Table 4.22: Kruskal-Wallis (H test) for all Domains with the Academic Level

The Reality of Entrepreneurship	Academic Level	N	Mean Rank	Kruskal-Wallis H	p-value
University Management and Organizational Structure	Assistant Professor	89	84.60	2.861	0.2390
	Associate Professor	52	72.39		
	Professor	18	79.25		
	Total	159			

But for the other domains, table (4.23) below shows that assistant professors have the highest rank, supporting the remaining domains, while the lowest rank was for professors. This result reveals that the highest academic level less supports Al-Quds university's leadership, academic programs and curriculum, entrepreneurial education, entrepreneurial culture, relationships and collaborations, internationalization, tangible resources and services, reputation, and the intellectual abilities of the university community.

Table 4.23: Kruskal-Wallis (H test) for all Domains with the Academic Level

The Reality of Entrepreneurship	Academic Level	N	Mean Rank	Kruskal-Wallis H	p-value
University Leadership	Assistant Professor	89	92.74	15.717	0.000
	Associate Professor	52	63.06		
	Professor	18	65.97		
	Total	159			
University Academic Programs and Curriculum	Assistant Professor	89	91.95	15.697	0.000
	Associate Professor	52	69.31		
	Professor	18	51.81		
	Total	159			
Entrepreneurial Education	Assistant Professor	89	90.79	14.718	0.001
	Associate Professor	52	72.34		
	Professor	18	48.78		
	Total	159			

The Reality of Entrepreneurship	Academic Level	N	Mean Rank	Kruskal -Wallis H	p-value
Entrepreneurial Culture at the University	Assistant Professor	89	87.47	12.791	0.002
	Associate Professor	52	79.29		
	Professor	18	45.11		
	Total	159			
University Relationships and Collaborations	Assistant Professor	89	91.49	25.023	0.000
	Associate Professor	52	76.67		
	Professor	18	32.81		
	Total	159			
University Internationalization	Assistant Professor	89	92.17	18.181	0.000
	Associate Professor	52	70.99		
	Professor	18	45.83		
	Total	159			
University Tangible Resources and Services	Assistant Professor	89	93.21	19.152	0.000
	Associate Professor	52	68.17		
	Professor	18	48.86		
	Total	159			
University Reputation	Assistant Professor	89	93.02	17.416	0.000
	Associate Professor	52	66.79		
	Professor	18	53.81		
	Total	159			
Intellectual Abilities of the University Community	Assistant Professor	89	87.07	7.478	0.024
	Associate Professor	52	76.31		
	Professor	18	55.72		
	Total	159	84.60		

Section (2): The Reality of Entrepreneurship at Al-Quds University According to the Respondents' Work Experience.

Table (4.24) below shows no statistically significant difference between the means of the work experience groups (from 6 to 10 years, from 10 to 15 years, from 16 to 20 years, and more than 21 years) for the following domains of the study: the university management and organizational structure, university leadership, university academic programs and curriculum, university tangible resources and services, university reputation, and the intellectual abilities of the university community.

Table 4.24: ANOVA Result for the Domains and the Work Experience

The Reality of Entrepreneurship		Sum of Squares	df	Mean Square	F	Sig.
University Management and Organizational Structure	Between Groups	1.841	3	.614	.851	.468
University Leadership	Between Groups	3.575	3	1.192	2.080	.105
University Academic Programs and Curriculum	Between Groups	2.021	3	.674	1.811	.148
University Tangible Resources and Services	Between Groups	2.442	3	.814	.944	.421
University Reputation	Between Groups	1.619	3	.540	.835	.476
Intellectual Abilities of the University Community	Between Groups	1.355	3	.452	.441	.724

On the other hand, table (4.25) below shows a statistically significant difference between the means of the work experience groups (from 6 to 10 years, from 10 to 15 years, from 16 to 20 years, and more than 21 years) with a *p*-value less than the .05 alpha level for the following domains of the study: entrepreneurial education, entrepreneurial culture at the university, university relationships and collaborations, and university internationalization.

Table 4.25: ANOVA Result for the Domains and the Work Experience

The Reality of Entrepreneurship	Sum of Squares	df	Mean Square	F	Sig.

Entrepreneurial Education	Between Groups	4.555	3	1.518	2.652	.051
Entrepreneurial Culture at the University	Between Groups	6.787	3	2.262	3.236	.024
University Relationships and Collaborations	Between Groups	20.940	3	6.980	5.467	.001
University Internationalization	Between Groups	23.099	3	7.700	8.188	.000

Based on the Kruskal-Wallis H test results for all domains, table (4.26) below shows all work experience (from 6 to 10 years, from 10 to 15 years, from 16 to 20 years, and more than 21 years) highly support Al-Quds university's current entrepreneurial education.

Table 4.26: Kruskal-Wallis (H test) for Entrepreneurial Education Domain with the Work Experience

The Reality of Entrepreneurship	Work Experience	N	Mean Rank	Kruskal-Wallis H	p-value
Entrepreneurial Education	From 6 to 10 years	7	87.21	2.14	0.544
	From 10 to 15 years	60	74.08		
	From 16 to 20 years	47	86.59		
	More than 21 years	45	79.89		
	Total	159			

On the other hand, table (4.27) below shows that all work experience groups except the more than 21 years group support Al-Quds university's current entrepreneurial culture, university relationships and collaborations, and university internationalization. This result reveals that the highest work experience less supports those domains.

Table 4.27: Kruskal-Wallis (H test) for all Domains with the Work Experience

The Reality of Entrepreneurship	Work Experience	N	Mean Rank	Kruskal-Wallis H	p-value
	From 6 to 10 years	7	88.29	19.781	0.000

Entrepreneurial Culture at the University	From 10 to 15 years	60	87.31		
	From 16 to 20 years	47	86.00		
	More than 21 years	45	62.70		
	Total	159			
University Relationships and Collaborations	From 6 to 10 years	7	88.79	16.936	0.001
	From 10 to 15 years	60	84.23		
	From 16 to 20 years	47	96.65		
	More than 21 years	45	55.60		
	Total	159			
University Internationalization	From 6 to 10 years	7	100.57	7.998	0.046
	From 10 to 15 years	60	87.19		
	From 16 to 20 years	47	90.23		
	More than 21 years	45	56.52		
	Total	159			

Fourth Question: From the respondents' perspective, what are the requirements for Al-Quds University to become an entrepreneurial university?

As for Al-Quds University's requirements to transform into an entrepreneurial university, the respondents revealed the important requirements necessary to transform Al-Quds University into an entrepreneurial university from the most important to the least. Figure (4.2) below shows that university internationalization is the most important requirement, followed by entrepreneurial education, university relationships and collaborations, university reputation, and university leadership. Next are the Intellectual abilities of the university community, university entrepreneurial culture, academic programs and curriculum, university management and organizational structure, and finally, the university's tangible resources and services.

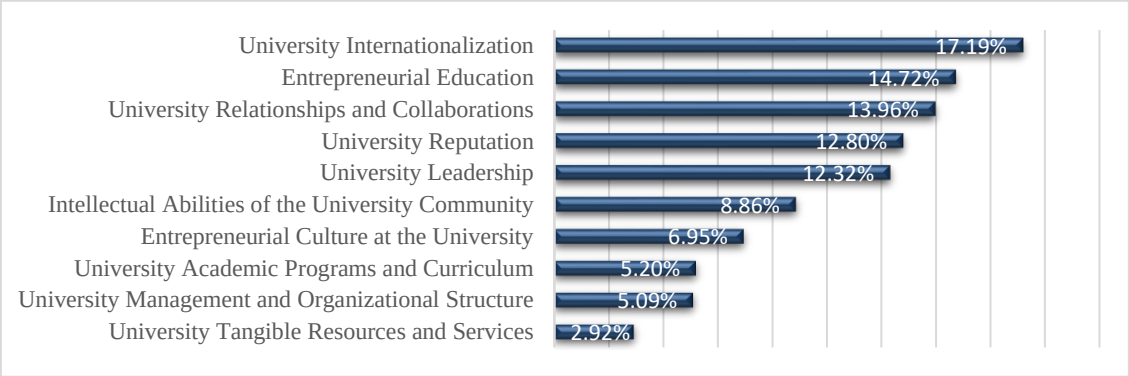


Figure 4.2: Al-Quds University Requirements to transform into an Entrepreneurial University

Chapter 5

5 Study Findings

This chapter summarizes the study's main findings, recommendations, implications, and conclusions. The primary goal of this study is to determine the requirements to transform a traditional university into an entrepreneurial university. Therefore, this study sought to provide answers to this main goal by answering the following sub-questions:

- What are different possible approaches to transforming a university into an entrepreneurial university?
- What mission, objectives, and strategies are needed to become an entrepreneurial university?
- Are there significant differences in entrepreneurship reality at Al-Quds University based on the respondents' work experience and academic level?
- What are the requirements for Al-Quds University to become an entrepreneurial university?

5.1 The Findings of the Study

5.1.1 What are different possible approaches to transforming a university into an entrepreneurial university?

Based on the results mentioned in chapter four, the results revealed the ambition of Al-Quds University to transform into an entrepreneurial university. Furthermore, for the university management and organizational structure domain, the findings showed the importance of having

clear university management and organizational structure that helps the university achieve its goals and regularly reviews and updates its academic programs and disciplines.

But, on the other hand, the findings showed that the university should have transparent academic and administrative regulations and clear financial and networking plans to connect with the private sector and the government. Moreover, the university needs to cooperate actively with other higher education institutions and apply a transparent moral and intensive system to improve working conditions. These findings are consistent with Dinh's (2020) finding that universities should enhance their strategies and improve their organizational structure, including an internal motivation system and entrepreneurial activities to facilitate and foster universities' transformation into entrepreneurial universities.

As for the university's leadership domain, the findings showed the importance of having a centralized development plan to develop the academic and administrative services that help the university respond to local changes environment and offer the necessary initiatives. Moreover, the finding showed that Al-Quds University follows a centralized management system to manage its administrative and academic departments and units.

But, on the other hand, the findings showed that the university departments, faculties, and units should collaboratively propose and carry out their tasks. Moreover, the employees should participate in proposing the plan and goals of their departments or units. These findings are consistent with Flores's (2019) finding that universities should have a comprehensive and effective strategic management plan to foster their transformation into entrepreneurial universities. Additionally, the findings showed that the university should have a variety of funding sources to maintain its financial independence. This finding is consistent with

Emelyanovichet al. (2019) and Aracil et al.'s (2017) finding that universities should attract extra-budgetary funds and find additional funds for teaching, research, technology transfer, commercialization to achieve its financial independence and become more entrepreneurial.

As for the university's academic programs and curriculum domain, the findings showed that Al-Quds University continuously studies labor market needs, develops curricula according to labor market needs, and keeps pace with research development (R&D). But, on the other hand, the finding showed that the university should offer distinctive joint academic programs with local and international universities except for programs at the dual studies college and recent joint Ph.D. programs. Moreover, the university should provide more training programs for students and academic staff in the private sector. These findings are consistent with Huub et al.'s (2017) finding that universities should expand their academic roles, partner with local, regional, national, and international stakeholders, and respond to the changes and challenges in their local and national environments to become more entrepreneurial universities.

As for the university's entrepreneurial education domain, the findings showed that Al-Quds University encourages academic staff to use interactive teaching methods such as student-centered learning and creative thinking strategies. But, on the other hand, the findings showed that the university should offer more training or academic activities focused on classroom teaching methods or strategies, such as brainstorming, cooperative learning, practical hands-on learning, and practical hands-on learning strategy to foster their entrepreneurial mindset and skills. Likewise, to Joensuu-Salo et al.'s (2021) findings that universities should use various teaching methods designed to foster and enhance students' entrepreneurial skills and competencies and promote entrepreneurship culture in universities.

As for the university's entrepreneurial culture domain, the findings showed that Al-Quds University offers generic workshops on the importance of entrepreneurship and encourages entrepreneurship skills among academic staff and students. But, on the other hand, the findings showed that the university should focus more on offering specialized training in specific areas in entrepreneurship, such as training on developing academic staff and students' decision-making and risk-taking skills, changing problems to opportunities, or converting ideas to projects. Moreover, the university needs to provide enough support for academic staff and students' projects to promote the entrepreneurship culture at the university. This finding is consistent with the Peris-Ortiz et al.'s (2017) finding that universities must encourage entrepreneurship through their study plans and provide students with the skills and training to implement their business ideas.

As for the university's relationships and collaborations domain, the findings showed that Al-Quds University has community service centers and has many cooperation and relationships with the public and private sectors. But, on the other hand, the findings showed that the university should build relationships and collaborations that positively affect the university's development, such as by increasing the financial sources of the university, the amount of research that meets the labor market's needs, the development of university curricula, or creating more job opportunities for graduates. This finding is consistent with the Talla et al.'s (2020) finding that universities should continuously enhance its policies, regulations, and training to create more connection with external stakeholders, train more and better human capital, and improve its financing services to attract a greater quantity and quality of innovations, and enhance the development of the market.

As for the university's internationalization domain, the findings showed that Al-Quds University has a clear vision of becoming an international university and expanding its international academic cooperation. But, on the other hand, it should provide more academic and non-academic exchange opportunities for academic staff or students in international universities and invite distinguished scholars to work or teach. Additionally, it must establish twinning agreements with international universities and obtain international academic accreditation for its academic programs.

As for the university's tangible resources and services domain, the findings showed that Al-Quds University provides the academic staff with the necessary services to accomplish research projects and publish them in international refereed journals. But, on the other hand, it needs to focus more on providing the necessary services that facilitate knowledge generation and development, enough financial support to accomplish their research projects, commercializing their research results, or transforming them into innovative products. Moreover, it should build local and international cooperation opportunities to conduct joint research projects, link research results with the labor market's needs, facilitate the commercialization of research results, and transform research results into innovative products. This finding is consistent with the Gutíerrez et al.'s (2020) finding that universities to become self-financial dependent and generate profit primarily through projects should support research and educational activities.

As for the university's reputation domain, the findings showed that Al-Quds University develops social values and ethical standards for its staff, students, and faculty to enhance its reputation. Additionally, it has a systematic plan to improve its local, regional, and global performance. But, on the other hand, it needs to offer more different practices and activities to

achieve its goals. It should also provide its services excellently for staff and students, including well-equipped laboratories, classrooms, and medical care centers. In addition to that, it should provide the necessary services for students and staff with disabilities.

As for the university community's intellectual abilities domain, the findings showed that Al-Quds University rewards outstanding researchers, encourage them to participate in local and international conferences, and obtain patents. But, on the other hand, it should work on having a clear policy to encourage students and academics to become innovators by finding solutions to local and global problems, commercializing their unique ideas or research results, establishing start-up companies. Moreover, it should activate its center for innovation and entrepreneurship and build a technology transfer office. Additionally, it should attract international students and academics to participate in educational or research projects or exploit its research results to establish new companies. This finding is consistent with the Gutíerrez et al.'s (2020) finding that universities to become more entrepreneurial should empower the whole of its community (academic and administrative staff, researchers, students, and alumni) and develop a mindset for knowledge generation, creativity, and innovation.

5.1.2 What mission, objectives, and strategies are needed to become an entrepreneurial university?

The findings showed the ambition of Al-Quds University to transform into an entrepreneurial university by applying most of the needed requirements. However, the university's mission and strategies still need to redefine and expand its mission statement and work more on its internal strategies, policies, and plans to implement organizational changes successfully. This finding is consistent with Arnaut's (2019) and Taucean's (2017) finding

universities should make changes in their mission statements and strategies to facilitate and foster their transformation into entrepreneurial universities. Similarly, it is consistent with Neumeyer and Santos's (2019) finding the main mission of an entrepreneurial university is to go beyond its traditional role for teaching and research to stimulate its surrounding entrepreneurship ecosystem and contribute to social development and economic growth.

The finding showed that the university's internal strategies need a common central strategy-oriented towards entrepreneurship in all activities and shared with its faculties, departments, and units to hold the changes successfully. This common central strategy will integrate all departments and units to collaborate, become entrepreneurial units, and ensure the university's transformation. This finding is consistent with Sánchez-Barrioluengo & Benneworth's (2019) finding universities need to shape a shared strategy towards 'entrepreneurship' including its institutional strategies, administrative machinery, support structures, and academic incentives to contribute more systematically to knowledge-based development. Similarly, it is consistent with Wegner et al.'s (2019) finding universities to become more entrepreneurial and accommodate socio-economic obligations, they need a new entrepreneurial strategy integration.

As for the university-business relationships, the findings showed that the university needs to enhance and strengthen its university-business relationships with the labor market sector to develop and deliver efficient curricula that meet labor market requirements and support entrepreneurial activities and behaviors. Additionally, it needs to enhance its internal collaboration between the faculties to encourage effective internal knowledge flows to develop multidisciplinary approaches to offer distinctive academic programs up-to-date with recent research findings and focus on solving complex world challenges. These findings are consistent

with Epure's (2017) finding "universities should have structured university-business corporations to abetter adapt their curriculum to meet labor market requirements." Also, this finding is consistent with Dinh's (2020) finding universities should provide students with multidisciplinary knowledge and training to generate new insights and solve society's problems and crises to become entrepreneurial and creative centers.

As for the entrepreneurial university's objectives, the findings showed that the university needs to contribute to socio-economic development by expanding its academic role on having an exact role in designing learning environments and providing more training and workshops for academic staff on innovative learning and teaching methodologies to inspire entrepreneurial actions and skills and stimulate entrepreneurial mindsets, and transfer academic knowledge to companies. This finding is consistent with the European Commission's (2012) finding that universities should have an important role in designing learning environments that stimulate entrepreneurial mindsets, thinking, practices, and activities. Also, it is consistent with Dalmarco, Hulsink, and Blois's (2018) findings entrepreneurial university's objective is to promote the transfer of academic knowledge to companies and foster socio-economic development.

Additionally, the entrepreneurial university aims to promote an entrepreneurial culture and mindset, support research commercialization, and set up new companies and start-ups. The findings showed that the university needs to empower entrepreneurship culture at the university by appreciating, recognizing, rewarding outstanding academic staff and students and providing more training, activities, workshops on entrepreneurship in collaboration with the labor market sector to empower its whole community (academic and administrative staff, researchers, students, and graduates) and develop a mindset for knowledge generation, creativity, and

innovation. This finding is consistent with Czerniachowicz and Wieczorek-Szymańska's (2019) finding that encouraging the entrepreneurship culture in the university is a pillar that is important in changing universities toward entrepreneurial universities.

As a result, the university should have a well-defined framework including a clear mission, strategies, and objectives to transform into an entrepreneurial university successfully.

5.1.3 Are there significant differences in entrepreneurship reality at Al-Quds University based on the respondents' work experience and academic level?

Based on the work experience, the findings showed no significant differences between the respondents' perspectives for the following domains of the study: the university management and organizational structure, university leadership, university academic programs and curriculum, university tangible resources and services, university reputation, and the intellectual abilities of the university community. In contrast, the findings showed significant differences for the following domains: entrepreneurial education, entrepreneurial culture at the university, university relationships and collaborations, and university internationalization. Additionally, the findings showed that all work experience groups except the more than 21 years group support Al-Quds university's current entrepreneurial culture, university relationships and collaborations, and internationalization.

Based on the previous, we can conclude that there are differences between the responses based on work experience in some domains. Those with the highest work experience less support Al-Quds university's current entrepreneurial culture, university relationships, collaborations, and internationalization.

As for the findings based on the academic levels of the respondents, the findings showed significant differences between the respondents' perspectives for all domains of the study: the university management and organizational structure, university leadership, university academic programs and curriculum, entrepreneurial education, entrepreneurial culture at the university, university relationships and collaborations, university internationalization, university tangible resources and services, university reputation, and the intellectual abilities of the university community. Additionally, the findings showed that all academic levels (assistant professors, associate professors, and professors) highly support Al-Quds university's current university management and organizational structure. On the other hand, the findings showed that assistant professors have the highest rank, supporting the remaining domains, while the lowest rank was for professors.

Based on the previous, we can conclude that the highest academic level less supports Al-Quds university's leadership, academic programs and curriculum, entrepreneurial education, entrepreneurial culture, relationships and collaborations, internationalization, tangible resources and services, reputation, and the intellectual abilities of the university community.

5.1.4 What are the requirements for Al-Quds University to become an entrepreneurial university?

The findings showed the priorities of the requirements to transform Al-Quds University into an entrepreneurial university. The consensus of the respondents was that the university's internationalization prioritized transforming Al-Quds University into an entrepreneurial university, while the university's tangible resources and services were the least for the university's transformation.

The findings also showed the requirements that facilitate Al-Quds University's transformation into an entrepreneurial university according to their importance from the respondents' perspective. Consequently, the arrangement was: university internationalization is the most important requirement, followed by entrepreneurial education, university relationships and collaborations, university reputation, and university leadership. Next are the Intellectual abilities of the university community, university entrepreneurial culture, academic programs and curriculum, university management and organizational structure, and finally, the university's tangible resources and services.

From the findings mentioned above, it is obvious that Al-Quds University applies most of the requirements unevenly. But the fact is that all these requirements are related to each other, and it should apply all of them just as important. Consequently, the absence of one of them hinders the transformation into an entrepreneurial university. These findings are consistent with Taucean et al.'s (2018) finding that "there is no "unique" approach for transformation, but higher education institutions need to have an integrated variety of approaches to facilitate its transformation into entrepreneurial universities or act entrepreneurially". Additionally, most researchers conclude that different transformation approaches could be implemented differently depending on universities' situations, resources, and environment (Gutíerrez et al., 2020).

5.2 Study Recommendations

At the end of this study, the researcher proposed the following recommendations that could facilitate the university transformation into an entrepreneurial university:

- The university needs to develop a shared central strategic plan to build effective university-business relationships to contribute to socio-economic development.

- The university needs to develop a systematic methodology to study the labor market's needs to develop and deliver efficient curricula that meet labor market requirements and support entrepreneurial activities and behaviors.
- The university needs to improve its policies, regulations, and strategies to empower entrepreneurship in all aspects.
- The university needs to develop a reward system to incentivize university members' entrepreneurial achievements and successes.
- The university needs to expand its academic role on having an exact role in designing learning environments to inspire the entrepreneurial mindset, skills, and actions of its community's members.
- The university needs to exploit its tangible resources and services that may achieve financial returns and improve its financial situation.
- The university needs to attract more funds and diversify its funding resources to achieve financial independence.
- The university needs to change the research purpose and goals to generate profit by transforming research results and knowledge into products, processes, services, or practical applications and solutions for local or global problems.
- The university needs to provide enough financial support for new ventures, and start-ups.
- The university needs to develop a strategic plan to connect researchers with external parties and commercialize their research outputs. Therefore, creating a technology transfer office (TTO) is essential.

- The university needs to attract more distinguished international scholars to teach or work at the university.
- Developing a strategic plan to overcome the university's financial issues and improve its situation.

5.3 Study Conclusion

The purpose of this study was to explore the entrepreneurial university phenomenon and determine the needed requirements for universities to transform into entrepreneurial universities. Consequently, this study demonstrated the necessary formal and informal factors that affect the creation and development of entrepreneurial universities by adopting different frameworks and models. In this study, the researcher concludes that the literature showed a consensus in the definitions of entrepreneurial universities as universities have substantial organizational characters that allow them to innovate, create and exploit opportunities, respond to challenges, compete with others to arrive at a more promised future.

After that, this study proposed a theoretical framework that analyzed the essential formal and informal factors that affect entrepreneurial universities' creation and development. The formal factors were considered the university organizational structure, governance, companies, academic programs, curriculum, teaching methodologies, and resources. On the other side, the informal factors were the university community entrepreneurship attitude, role models, reward systems, and capabilities. Additionally, this study provided the needed changes on universities' mission, objectives, and strategies to facilitate their transformation into entrepreneurial universities. The mission should be oriented toward contributing to social development and economic growth. The strategies should be centered and shared with all university units, and the

objectives should be oriented towards empowering and supporting entrepreneurship for the whole university's community.

As a final result, figure (5.1) below presents the model for the entrepreneurial university transformation that the researcher proposed. Furthermore, the requirements are linked to each other, taking into consideration that the absence of any of these requirements will cause a disorder in the achievement of Al-Quds University's entrepreneurship vision as required.

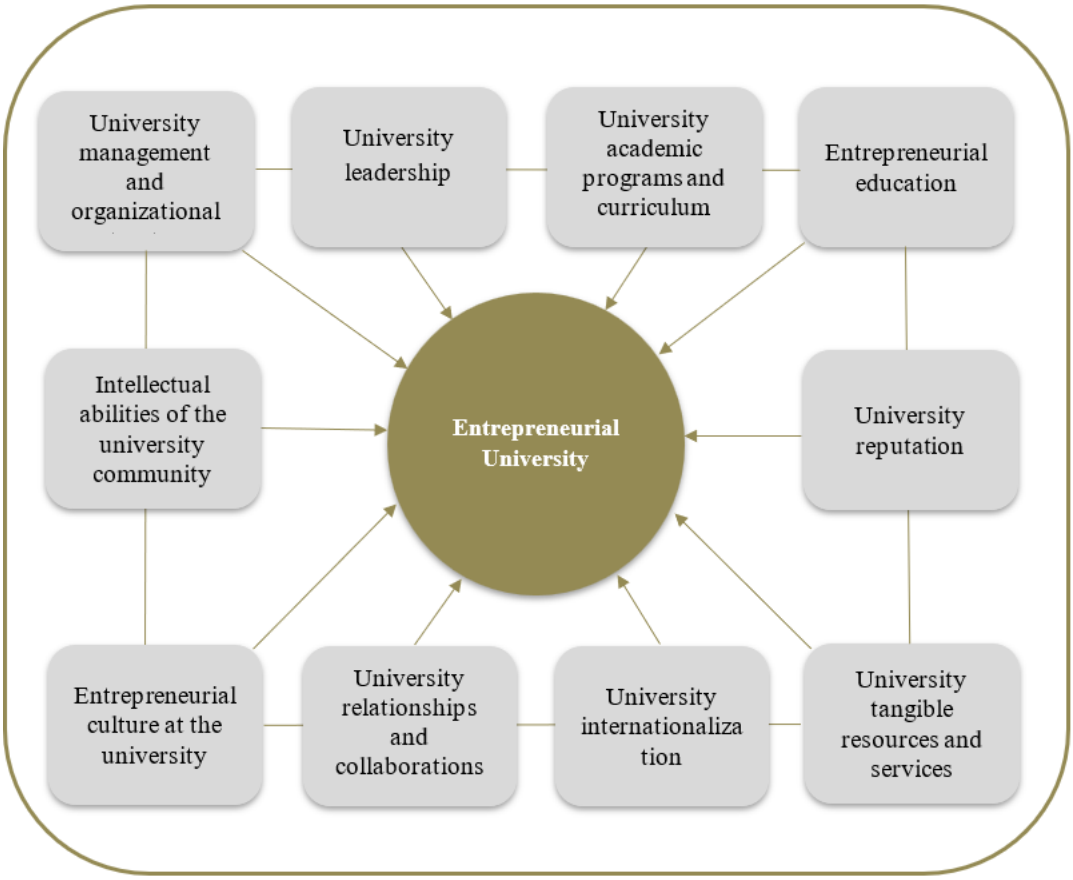


Figure 5.1: The Model for The Entrepreneurial University Transformation

Figure (11) below presents the model for the entrepreneurial university transformation including the processes that facilitate university's transformation into an entrepreneurial university. Finally, this study provided a comprehensive analysis of the reality of entrepreneurship at Al-Quds university, which could be used as a reference for other Palestinian universities to apply.

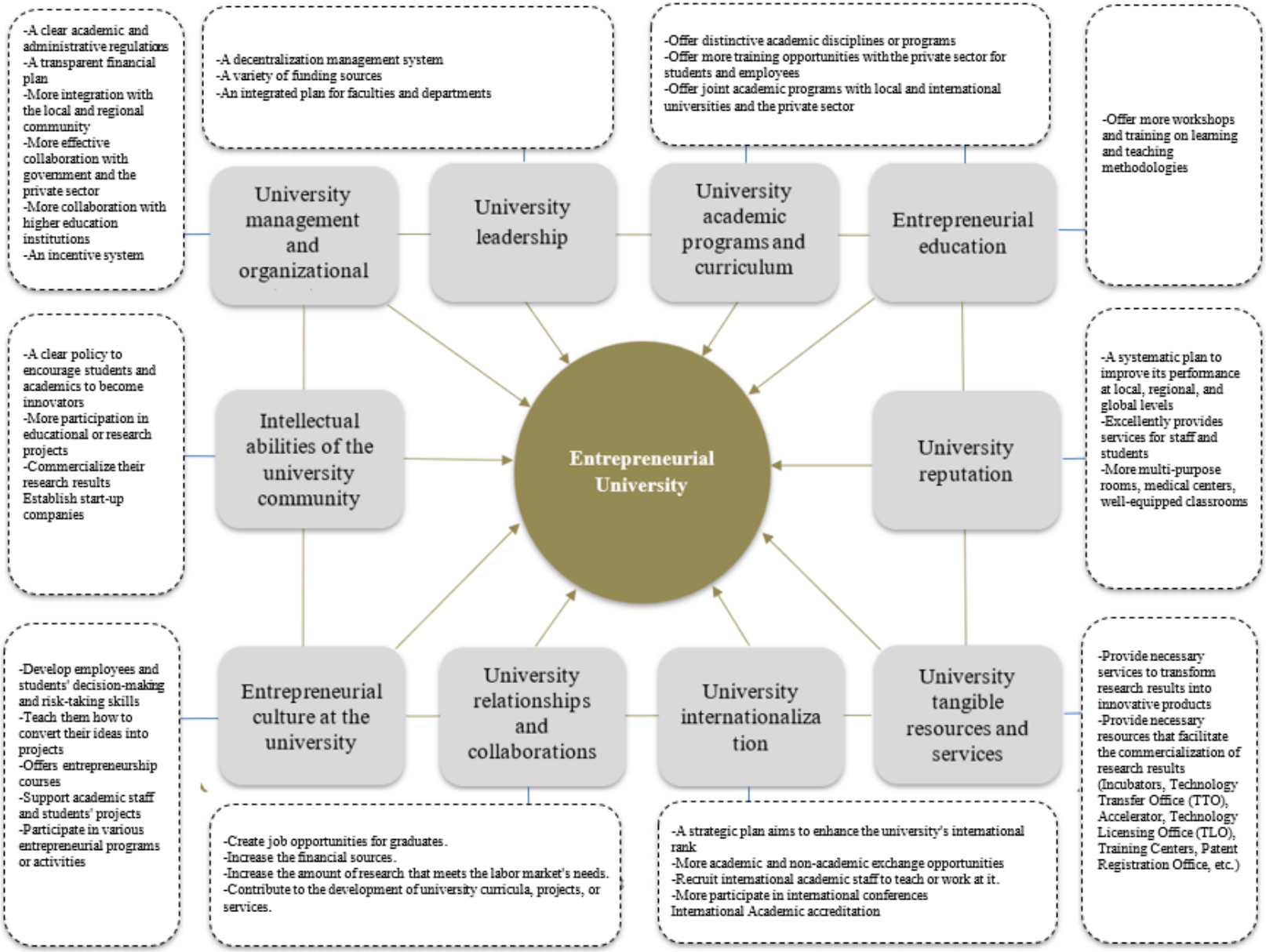


Figure 5.2: Entrepreneurial University Model with Processes

References

Abu Labhan, M. (2018): Towards an entrepreneurial university in Egypt: a proposed vision, Faculty of Education Journal, Tanta University, College of Education, Egypt. [In Arabic]

Adela G. A., Elena, C. M., Fernando, J. S., and Monica, A. V. (2013). What might an entrepreneurial university constitute? *Management of Innovation Policies*.

Ahmad, M. (2019). Factors Affecting Attitudes Towards Entrepreneurship: A Case Study of CBA Students at Kuwait University. *Journal Of Corporate Governance Research*, *3*(1), 64. DOI: 10.5296/jcgr.v3i1.15412

Al Shobaki, M., Abu Naser, S., Abu Amuna, Y., & El Talla, S. (2018). The Level of Promotion of Entrepreneurship in Technical Colleges in Palestine. *International Journal Of Engineering And information Systems(IJEAIS)*, *2*(1), 168-189. Retrieved from https://core.ac.uk/reader/146502390

Alayoubi, M. M., Al Shobaki, M. J., & Abu-Naser, S. S. (2020). Requirements for Applying the Strategic Entrepreneurship as an Entry Point to Enhance Technical Innovation: Case Study-Palestine Technical College-Deir al-Balah.

Albats, E., Alexander, A., Cunningham, J. and Miller, K. (2018). Entrepreneurial academics and academic entrepreneurs: a systematic literature review. *International Journal of Technology Management*, 77(1/2/3), p.9.

Alexander, A., Miller, K., & Fielding, S. (2015). Open For Business: Universities, Entrepreneurial Academics And Open Innovation. *International Journal Of Innovation Management*, *19*(06), 1540013. doi: 10.1142/s1363919615400137

Alghamdi, M. Azala. (2020). Transforming into Entrepreneurial Universities: EU-OECD as a Framework for Saudi Universities, *Journal of Educational Leadership and Policy Studies*, 4(1)

Allinson, R. (2013). A Guiding Framework for Entrepreneurial Universities, http://www.university-industry.com/

Al-Shammari, A. (2010). The five requirements for an Entrepreneurial University", Article.[In Arabic], retrieved from the website: (https://www.aleqt.com/2010/02/14/article_349311.html)

Al-Sirr, D. (2017). The availability of education requirements in leading the Palestinian universities in the Gaza Strip and ways of strengthening them, M.A. thesis, education college, Islamic university, Gaza, Palestine. [In Arabic]

Arnaut, D. (2019). Towards the Entrepreneurial University. *SSRN Electronic Journal*, 3(1), pp.135-152.

Audretsch, D. (2014). From the entrepreneurial university to the university for the entrepreneurial society. *The Journal Of Technology Transfer*, *39*(3), 313-321. doi: 10.1007/s10961-012-9288-1

Benneworth, P. & Osborne, M. (2015). Understanding universities and entrepreneurship education: towards a comprehensive future research agenda. *CHEPS-CR&DALL Working Paper CHEPS 08/2015*, Glasgow (UK).

Beyhan, B., & Findik, D. (2018). Student and graduate entrepreneurship: ambidextrous universities create more nascent entrepreneurs. *The Journal Of Technology Transfer*, *43*(5), 1346-1374. doi: 10.1007/s10961-017-9590-z

Bezanilla, M., García-Olalla, A., Paños-Castro, J. and Arruti, A. (2020). Developing the Entrepreneurial University: Factors of Influence. *Sustainability*, 12(3), p.842.

Bezanilla, M., García-Olalla, A., Paños-Castro, J., & Arruti, A. (2020). Developing the Entrepreneurial University: Factors of Influence. *Sustainability*, *12*(3), 842. doi: 10.3390/su12030842

Bilyalova, A., Salimova, D. and Zelenina, T. (2019). October. Higher Education in Digital Age. In The 2018 International Conference on Digital Science (pp. 207-219). Springer, Cham.

Blackmore, J., 2020. The carelessness of entrepreneurial universities in a world risk society: a feminist reflection on the impact of Covid-19 in Australia. *Higher Education Research & Development*, 39(7), pp.1332-1336.

Blenker, P., Trolle Elmholdt, S., Hedeboe Frederiksen, S., Korsgaard, S., & Wagner, K. (2014). Methods in entrepreneurship education research: a review and integrative framework. *Education + Training*, *56*(8/9), 697-715. doi: 10.1108/et-06-2014-0066

Boldureanu, G., Ionescu, A., Bercu, A., Bedrule-Grigoruță, M., & Boldureanu, D. (2020). Entrepreneurship Education through Successful Entrepreneurial Models in Higher Education Institutions. *Sustainability*, *12*(3), 1267. doi: 10.3390/su12031267

Brătucu, G., Lixăndroiu, R., Constantin, C., Tecău, A., Chițu, I., & Trifan, A. (2020). Entrepreneurial University: Catalyst for Regional Sustainable Development. *Sustainability*, *12*(10), 4151. doi: 10.3390/su12104151

Brunner, J. J., & Labraña, J. (2020). The Transformation of Higher Education in Latin America: From Elite Access to Massification and Universalisation. In Higher Education in Latin America and the Challenges of the 21st Century (pp. 31-41). Springer, Cham.

Chang, C. H., Garnsey, E., & Ruan, Y. (2019). Opportunity Discovery and Creation in Disruptive Innovation.

Chen, C., & Esangbedo, M. (2018). Evaluating University Reputation Based on Integral Linear Programming with Grey Possibility. *Mathematical Problems In Engineering*, *2018*, 1-17. doi: 10.1155/2018/5484326

Clark, B. (1998). The entrepreneurial university: Demand and response. *Tertiary Education & Management*, 4(1), 5-16.

Coduras, A., Saiz-Alvarez, J., & Ruiz, J. (2016). Measuring readiness for entrepreneurship: An information tool proposal. *Journal Of Innovation & Knowledge*, *1*(2), 99-108. doi: 10.1016/j.jik.2016.02.003

Cvijić, M., Tatarski, J., Katić, I., Vekić, A. and Borocki, J. (2019). Entrepreneurial Orientation of Public Universities in Republic of Serbia-Empirical Study. *Sustainability*, 11(6), p.1509.

Czerniachowicz, B. and Wieczorek-Szymańska, A., 2019. Selected Problems of an Entrepreneurial University - a Theoretical Perspective. *Balkan Region Conference on Engineering and Business Education*, 3(1), pp.426-437.

Dalmarco, G., Hulsink, W., & Blois, G. (2018). Creating entrepreneurial universities in an emerging economy: Evidence from Brazil. *Technological Forecasting And Social Change*, *135*, 99-111. doi: 10.1016/j.techfore.2018.04.015\

Dal-Soto, F., de Souza, Y., & Benner, M. (2021). The Entrepreneurial Orientation in the Transformation of Universities. *Brazilian Business Review*, *18*(3), 255-277. doi: 10.15728/bbr.2021.18.3.2

Dalmarco, G., Hulsink, W. and Blois, G., 2018. Creating entrepreneurial universities in an emerging economy: Evidence from Brazil. *Technological Forecasting and Social Change*, 135, pp.99-111.

Davey, T., Hannon, P., & Penaluna, A. (2019). Entrepreneurship education and the role of universities in entrepreneurship. *Industry And Higher Education*, *30*(3), 171-182. doi: 10.1177/0950422216656699

Davey, T., Hannon, P., & Penaluna, A. (2019). Entrepreneurship education and the role of universities in entrepreneurship. *Industry And Higher Education*, *30*(3), 171-182. doi: 10.1177/0950422216656699

Diandra, D., & Azmy, A. (2020). Understanding Definition of Entrepreneurship. *International Journal Of Management, Accounting And Economics*, *7*(5), 301-306.

Dilli, S., Elert, N., & Herrmann, A. M. (2018). Varieties of entrepreneurship: exploring the institutional foundations of different entrepreneurship types through 'Varieties-of-Capitalism'arguments. Small Business Economics, 51(2), 293-320.

Dimitrova, G. and Dimitrova, T. (2017). Competitiveness of the universities: measurement capabilities. *Trakia Journal of Science,* 15(Suppl.1), pp.311-316.

Dinh, V. (2020). The Entrepreneurial University Model and Policy Implications for University Governance in Vietnam Public Universities. *Journal Of Economics, Finance And Management Studies*, *04*(03). doi: 10.47191/jefms/v4-i3-08

Duygulu, E., Hakan Çıraklar, N., Özeren, E., Boran Sezgin, O. and Işıldar, P., (2018). What Makes an Innovative and Entrepreneurial University? A Descriptive Study on visible-invisible impediments. *ResearchGate*, pp.23-25.

Dwyer, P., Mc Gowan and A. Hampton. (2016). Some Reflections from the Entrepreneurship Educator's Mirror, All Ireland Journals of Teaching & Learning in Higher Education, Vol. (8).

El Talla, S. A., Al Shobaki, M. J., Abusharekh, N. H., & Abu-Naser, S. S. (2020). Enhancing the Competitive Advantage in the University of Palestine: Between Reality and Ambition.

Elbousserghini, J., Berger, D. S. and Jamal, Y. (2015). Dimensions de l'orientation entrepreneuriale et RSE en PME, 9e Congrès de l'Académie de l'Entrepreneuriat et de l'Innovation.

El-Farra, M. (2017). Entrepreneurship Development In Palestine: An Empirical Study on the Gaza Strip.

Elia, G., Secundo, G. and Passiante, G. (2017). Pathways towards the entrepreneurial university for creating entrepreneurial engineers: an Italian case. *International Journal of Entrepreneurship and Innovation Management*, 21(1/2), 27-48

Eliakis, S., Kotsopoulos, D., Karagiannaki, A. and Pramatari, K. (2020). Survival and Growth in Innovative Technology Entrepreneurship: A Mixed-Methods Investigation. *Administrative Sciences*, 10(3), p.39.

Emel'yanovich, A., Koval, S. and Dyachenko, D. (2019). Attracting Business Practice in Educational Environment: Expectations and Reality. *Bulletin of Kemerovo State University. Series: Political, Sociological and Economic sciences*, 2019(4), pp.376-386.

Etzkowitz, H. (1984). Entrepreneurial scientists and entrepreneurial universities in American academic science. *Minerva*, *21*(2-3), 198-233. doi: 10.1007/bf01097964

Etzkowitz, H. (2004). The evolution of the entrepreneurial university. *International Journal Of Technology And Globalisation*, *1*(1), 64. doi: 10.1504/ijtg.2004.004551

Etzkowitz, H., & Leydesdorff, L. (2000). The dynamics of innovation: from National Systems and "Mode 2" to a Triple Helix of university–industry–government relations. *Research Policy*, *29*(2), 109-123. doi: 10.1016/s0048-7333(99)00055-4

Etzkowitz, H., Webster, A., Gebhardt, C., & Terra, B. (2000). The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm. *Research Policy*, *29*(2), 313-330. doi: 10.1016/s0048-7333(99)00069-4

Epure, M., 2017. University-business cooperation: adapting the curriculum and educational package to labor market requirements. *Proceedings of the International Conference on Business Excellence*, 11(1), pp.339-349.

European Commission. (2012). Entrepreneurship education, Website. [Online], Last visited on: 15/06/2020, retrieved from the website: (https://ec.europa.eu/growth/smes/promoting-entrepreneurship/support/education_en)

Facer, K. (2020). Co-Produced Research in the Entrepreneurial University. Philosophy and Theory in Higher Education, 2(1), 19-43.

Fairlie, R., & Fossen, F. (2018). Opportunity versus Necessity Entrepreneurship: Two Components of Business Creation. *SSRN Electronic Journal*, 1-45. doi: 10.2139/ssrn.3169864

Feola, R., Parente, R. & Cucino, V. (2021). The Entrepreneurial University: How to Develop the Entrepreneurial Orientation of Academia. *J Knowl Econ* 12, 1787–1808 (2021). https://doi.org/10.1007/s13132-020-00675-9

Feola, R., Parente, R., & Cucino, V. (2020). The Entrepreneurial University: How to Develop the Entrepreneurial Orientation of Academia. *Journal Of The Knowledge Economy*, *12*(4), 1787-1808. doi: 10.1007/s13132-020-00675-9

Fernandez-Nogueira, Donna & Arruti, Arantza & Markuerkiaga, Leire & Sáenz, Nerea. (2018). The entrepreneurial university: A selection of good practices. Journal of Entrepreneurship Education. 21.

Flores, P. (2019). The entrepreneurial culture in the Nicaraguan University.

García, J. C. S., Ward, A., Sánchez, B. H., & Flores, L. (2017). Entrepreneurship education: State of the art. Propósitos y representaciones, 5(2), 401-473.

Germain-Alamartine, E. (2020). *Doctoral education in the entrepreneurial university*. Linköping: Linköping University Electronic Press.

Global Entrepreneurship Network (2020) Global Entrepreneurship Index, The Global Entrepreneurship and Development Institute, Washington, D.C., USA. https://www.gemconsortium.org/file/open?fileId=50691

Grecu, V., & Denes, C. (2017). Benefits of entrepreneurship education and training for engineering students. *MATEC Web Of Conferences*, *121*, 12007. doi: 10.1051/matecconf/201712112007

Grimaldi, R., Kenney, M., Siegel, D., & Wright, M. (2011). 30 years after Bayh–Dole: Reassessing academic entrepreneurship. *Research Policy*, *40*(8), 1045-1057. doi: 10.1016/j.respol.2011.04.005

Guerrero, M., Urbano, D. and Fayolle, A. (2014). Entrepreneurial activity and regional competitiveness: evidence from European entrepreneurial universities. *The Journal of Technology Transfer*, 41(1), pp.105-131.

Guerrero, M., Urbano, D. and Fayolle, A. (2014). Entrepreneurial activity and regional competitiveness: evidence from European entrepreneurial universities. *The Journal of Technology Transfer*, 41(1), pp.105-131.

Guerrero, M., Urbano, D., Fayolle, A., Klofsten, M., & Mian, S. (2021). Entrepreneurial universities: emerging models in the new social and economic landscape. Retrieved 23 December 2021, from http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-129394

Guerrero, M., Urbano, D., Fayolle, A., Klofsten, M., & Mian, S. (2016). Entrepreneurial universities: emerging models in the new social and economic landscape. *Small Business Economics*, *47*(3), 551-563. doi: 10.1007/s11187-016-9755-4

Gustomo, A., & Ghina, A. (2017). Building a systematic framework for an entrepreneurial university. *International Journal Of ADVANCED AND APPLIED SCIENCES*, *4*(7), 116-123. doi: 10.21833/ijaas.2017.07.017

Gutíerrez, E., Lindström, G., Baur, P., Groen, A., Belousova, O., Ouendag, A., Baeyens Lázaro, E., Ángel Nuevo Pérez, M., Nuevo Pérez, B. and Rodriguez Blanco, L. (2020). *LISTO Toolkit for Entrepreneurial Universities*. 1st ed. Sweden: Uppsala University, pp.1-37.

Haboush, I. (2017). The Role that Palestinian Universities in Gaza Governorates Play in Reinforcing and Developing Their Students Entrepreneurship Skills, M.A. Thesis, education Faculty, Islamic University, Gaza, Palestine. [In Arabic]

Harness, Jill. (2021). Definition of Tangible Resources. *bizfluent.com*. Retrieved from https://bizfluent.com/info-8127118-definition-tangible-resources.html

Peris-Ortiz, M., Gómez, J., Merigó-Lindahl, J., & Rueda-Armengot, C. (2017). Entrepreneurial universities: exploring the academic and innovative dimensions of entrepreneurship in higher education. *Higher Education*, *76*(1), 183-186. doi: 10.1007/s10734-017-0197-y

Huq, A., & Gilbert, D. (2017). All the world's a stage: transforming entrepreneurship education through design thinking. *Education + Training*, *59*(2), 155-170. doi: 10.1108/et-12-2015-0111

Huub, M., Anita Primaswari, W. and Anas Miftah, F. (2017). Entrepreneurial University Transformation in Indonesia: A Comprehensive Assessment of IPB. *GSTF Journal on Business Review (GBR)*, 5(1), pp.46-61.

Innoway. (2020). Innovation, Invention, and Creativity: definition, difference, and examples. [Online], Last visited on: 31/5/2020, retrieved from the website: (https://innoway.me/innovation-definition/)

Jun-Hwa, Y. (2018). The Effect of Entrepreneurship Education on Entrepreneurial Leadership of University Students. *Asia-Pacific Journal of Business Venturing and Entrepreneurship*, 13(3),

Kalenyuk, I., & Dyachenko, A. (2016). Entrepreneurial universities in a world educational system. *International Economic Policy*, *25*, 59-74.

Kapaya, S. M., Shayo, F. A., Jaensson, J.-E. and Stanslaus, V. (2018). The role of entrepreneurial orientation on business performance: Empirical evidence from selected Tanzanian SME's. *The Pan-African Journal of Business Management*, 2(1).

Kireeva, N., Slepenkova, E., Shipunova, T., & Iskandaryan, R. (2018). Competitiveness of higher education institutions and academic entrepreneurship.

Klofsten, M., Fayolle, A., Guerrero, M., Mian, S., Urbano, D. and Wright, M. (2019). The entrepreneurial university as driver for economic growth and social change - Key strategic challenges. *Technological Forecasting and Social Change*, 141, pp.149-158.

Kogabayev, T. and Maziliauskas, A. (2017). The definition and classification of innovation. *HOLISTICA – Journal of Business and Public Administration*, 8(1), pp.59-72.

Kološta, S. and Flaška, F. (2017). The entrepreneurial university model and its possibilities in Slovakia as a post-communist country. *6th Central European Conference in Regional Science*, [online] pp.528-539. Available at: <http://www.cers.umb.sk/wp-content/uploads/proceedings/53-the-entrepreneurial-university-model-and.pdf>.

Kozubíková, L., Sopková, G., Krajčík, V., & Tyll, L. (2017). Differences in innovativeness, proactiveness and competitive aggressiveness in relation to entrepreneurial motives. *Journal Of International Studies*, *10*(4), 207-218. doi: 10.14254/2071-8330.2017/10-4/16

Kuratko, D. F., McMullen, J. S., Hornsby, J. S., & Jackson, C. (2017). Is your organization conducive to the continuous creation of social value? Toward a social corporate entrepreneurship scale. Business Horizons, 60(3), 271-283.

Latif, N., Abdullah, A., & Jan, N. (2016). A Pilot Study of Entrepreneurial Orientation towards Commercialization of University Research Products. *Procedia Economics And Finance*, *37*, 93-99. doi: 10.1016/s2212-5671(16)30098-3

Liu, S. and van der Sijde, P. (2021). Towards the Entrepreneurial University 2.0: Reaffirming the Responsibility of Universities in the Era of Accountability. *Sustainability*, 13(6), p.3073.

Marefa. (2020). Entrepreneurship. [Online], Last visited: 31/5/2020, retrieved from the website: (https://bit.ly/2LPnghS)

Mark, P., Michael, L., Fetters and Patricia, G. (2014). University-based entrepreneurship ecosystems: a global study of six educational institutions, *Int. J. Entrepreneurship and Innovation Management*, Vol. (18)

Martinez Dy, A. (2020). Not all entrepreneurship is created equal: Theorising entrepreneurial disadvantage through social positionality. *European Management Review*, 17(3), 687-699.

Maseno, M., & Wanyoike, C. (2020). Social Entrepreneurship as Mechanisms for Social Transformation and Social Impact in East Africa An Exploratory Case Study Perspective. *Journal of Social Entrepreneurship*, 1-26.

Meissner, D., Erdil, E., & Chataway, J. (2018). Innovation and the Entrepreneurial University. *Science, Technology And Innovation Studies*, *327*(1). doi: 10.1007/978-3-319-62649-9

Mercy Corps. (2015). Mercy Corps And Rogue Venture Partners To Launch First Business Accelerator In The Gaza Strip, Retrieved 1/5/2015. Https://Www.Mercycorps.Org/Press-Room/Releases/MercyCorps-And-Rogue-Venture-Partners-Launch-First-BusinessAccelerator-Gaza

Mian, S., Lamine, W., & Fayolle, A. (2016). Technology Business Incubation: An overview of the state of knowledge. *Technovation, 50-51*, 1-12. doi: 10.1016/j.technovation.2016.02.005

Mirani, M. and Yusof, M. (2016). Entrepreneurial Engagements of Academics in Engineering Universities of Pakistan. *Procedia Economics and Finance*, 35, pp.411-417.

Mittelmeier, J., Rienties, B., Gunter, A., & Raghuram, P. (2020). Conceptualizing Internationalization at a Distance: A “Third Category” of University

Internationalization. *Journal Of Studies In International Education*, *25*(3), 266-282. doi: 10.1177/1028315320906176

Mytsiuk, S. (2019). Features of the innovative forms of integration for the entrepreneurial universities. *Actual Problems Of International Relations*, (140), 80-88. doi: 10.17721/apmv.2019.140.1.80-88

Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The Impact of Entrepreneurship Education in Higher Education: A Systematic Review and Research Agenda. *Academy Of Management Learning & Education*, *16*(2), 277-299. doi: 10.5465/amle.2015.0026

Naderibeni, N., Salamzadeh, A., & Radović-Marković, M. (2020). Providing an entrepreneurial research framework in an entrepreneurial university. International Review, (1-2), 43-56.

Nambisan, S., Siegel, D., & Kenney, M. (2018). On open innovation, platforms, and entrepreneurship. *Strategic Entrepreneurship Journal*, *12*(3), 354-368. doi: 10.1002/sej.1300

Neumeyer, X. and Santos, S., 2019. A lot of different flowers make a bouquet: The effect of gender composition on technology-based entrepreneurial student teams. *International Entrepreneurship and Management*

Obschonka, M., & Fisch, C. (2018). Entrepreneurial personalities in political leadership. Small Business Economics, 50(4), 851-869.

OECD and EC. (2012). A Guiding Framework for Entrepreneurial Universities. Paris, France: OECD and EC.

Oliver, D., & Kwong, W. (2021). Organizational Structure: Definition, Types & Examples. (2017, December 27). Retrieved from

https://study.com/academy/lesson/organizational-structure-definition-types-examples.html.

Olutuase, S., Brijlal, P., & Yan, B. (2020). Model for stimulating entrepreneurial skills through entrepreneurship education in an African context. *Journal Of Small Business & Entrepreneurship*, 1-21. doi: 10.1080/08276331.2020.1786645

Padilla-Meléndez, A., Del Aguila-Obra, A., Lockett, N., & Fuster, E. (2020). Entrepreneurial Universities and Sustainable Development. The Network Bricolage Process of Academic Entrepreneurs. *Sustainability*, *12*(4), 1403. doi: 10.3390/su12041403

Padilla-Meléndez, A., Del Aguila-Obra, A., Lockett, N., & Fuster, E. (2020). Entrepreneurial Universities and Sustainable Development. The Network Bricolage Process of Academic Entrepreneurs. *Sustainability*, *12*(4), 1403. doi: 10.3390/su12041403

Perkmann, M., Tartari, V., McKelvey, M., Autio, E., Broström, A., & D'Este, P. et al. (2014). Academic engagement and commercialisation: A review of the literature on university–industry relations. *Research Policy*, *42*(2), 423-442. doi: 10.1016/j.respol.2012.09.007

Pilegaard, M., Moroz, P., & Neergaard, H. (2010). An Auto-Ethnographic Perspective on Academic Entrepreneurship: Implications for Research in the Social Sciences and Humanities. *Academy Of Management Perspectives*, *24*(1), 46-61. doi: 10.5465/amp.2010.50304416

Pugh, R., Lamine, W., Jack, S., & Hamilton, E. (2018). The entrepreneurial university and the region: what role for entrepreneurship departments?. European Planning Studies, 26(9), 1835-1855.

Rasmussen, E., Mosey, S., & Wright, M. (2015). The influence of university departments on the evolution of entrepreneurial competencies in spin-off ventures. *Research Policy*, *43*(1), 92-106. doi: 10.1016/j.respol.2013.06.007

Ratten, V. (2020). Coronavirus (Covid-19) and the entrepreneurship education community. *Journal Of Enterprising Communities: People And Places In The Global Economy*, *14*(5), 753-764. doi: 10.1108/jec-06-2020-0121

Rhoades, G., & Stensaker, B. (2017). Bringing Organisations and Systems Back Together: Extending Clark's Entrepreneurial University. Higher education quarterly, 71(2), 129-140.

Rippa, P., & Secundo, G. (2019). Digital academic entrepreneurship: The potential of digital technologies on academic entrepreneurship. *Technological Forecasting And Social Change*, *146*, 900-911. doi: 10.1016/j.techfore.2018.07.013

Riviezzo, A., Napolitano, M.R., Fusco, F. (2020). Along the Pathway of University Missions: A Systematic Literature Review of Performance Indicators. In Examining the Role of Entreprenuerial Universities in Regional Development; Daniel, A.D., Teixeira, A.A.C., Torres Preto, M., Eds.; Igi-Global: Hershey, PA, USA, 2020.

Salamzadeh, A., Salamzadeh, Y. and Daraei, M.R. (2011). Toward a Systematic Framework for an Entrepreneurial University: A Study in Iranian Context with an IPOO Model. *Global Business & Management Research*, 3, 30-37.

Salamzadeh, A., Tajpour, M., & Hosseini, E. (2019). Corporate entrepreneurship in University of Tehran: does human resources management matter. *International Journal Of Knowledge-Based Development*, *10*(3), 276. doi: 10.1504/ijkbd.2019.103218

Salem, M. (2014). Higher Education As A Pathway To Entrepreneurship. *International Business & Economics Research Journal (IBER)*, 13(2), p.289.

Salihu, M. J., Nayel, M. R., & Rabiatul-Adawiah, A. R. (2020). Sustainable higher education leadership: A conceptual approach from the functionalist paradigm for higher institutions of learning. Humanities & Social Sciences Reviews-(HSSR), 8(2), 8-12.

Samadi, H., & Samadi, H. (2018). Entrepreneurial University, a Necessity for Knowledge-Based Economy; Evaluation and Explanation of Entrepreneurial Capacity of University of Mazandaran. *International Journal Of Social Sciences (IJSS)*, *8*(3), 53-66. Retrieved from https://ijss.srbiau.ac.ir/article_13729_0d1bc3423e30fc8b0e6ed58fb5c2ca14.pdf

Samo, A. and Huda, N. (2019). Triple Helix and academic entrepreneurial intention: understanding motivating factors for academic spin-off among young researchers. *Journal of Global Entrepreneurship Research*, 9(1).

Sánchez-Barrioluengo, M., & Benneworth, P. (2019). Is the entrepreneurial university also regionally engaged? Analysing the influence of university's structural configuration on third mission performance. *Technological Forecasting And Social Change*, *141*, 206-218. doi: 10.1016/j.techfore.2018.10.017

Sánchez-Barrioluengo, M., Uyarra, E., & Kitagawa, F. (2019). Understanding the evolution of the entrepreneurial university. The case of English Higher Education institutions. *Higher Education Quarterly*, *73*(4), 469-495. doi: 10.1111/hequ.12230

Schmitz, A., Urbano, D., Dandolini, G., de Souza, J. and Guerrero, M. (2016). Innovation and entrepreneurship in the academic setting: a systematic literature review. *International Entrepreneurship and Management Journal*, 13(2), pp.369-395.

Shekhar, P., Huang-Saad, A., & Libarkin, J. (2019). Developing a Conceptual Framework to Understand Student Participation in Entrepreneurship Education Programs. *2019 ASEE Annual Conference & Exposition Proceedings*. doi: 10.18260/1-2—32630

Sidrat, S., & Boujelbene, Y. (2020). Towards an Entrepreneurial University: Case of Tunisia. *Journal Of Enterprising Culture*, *28*(01), 31-57. doi: 10.1142/s0218495820500028

Silva, C., Esteves, F., Narcizo, R., & Cardoso, R. (2018). Concepts and Criteria for the Characterization of the Entrepreneurial University: A Systematic Literature Review. *Journal Of Economics, Business And Management*, *6*(3), 65-71. doi: 10.18178/joebm.2018.6.3.552

Sperrer, M., Müller, C. and Soos, J. (2016). The Concept of the Entrepreneurial University Applied to Universities of Technology in Austria: Already Reality or a Vision of the Future?. *Technology Innovation Management Review*, 6(10), pp.37-44.

Sultan, S. (2017). Moving from a Traditional into an Entrepreneurial University: Evidencing from Palestine.

Sun, L., Tang, Y., & Zuo, W. (2020). Coronavirus pushes education online. *Nature Materials*, *19*(6), 687-687. doi: 10.1038/s41563-020-0678-8

Tajpour, M. (2021). Towards the Entrepreneurial University. *SSRN Electronic Journal*. doi: 10.2139/ssrn.3838535

Tatarski, J., Brkanlić, S., Sanchez Garcia, J., Esteve, E., Brkić, I., Petrović, M. and Okanović, A. (2020). Measuring Entrepreneurial Orientation of University Employees in Developing Countries Using the ENTRE-U Scale. *Sustainability*, 12(21), p.8911.

Taucean, I., Strauti, A., & Tion, M. (2018). Roadmap to Entrepreneurial University – Case study. *Procedia - Social And Behavioral Sciences*, *238*, 582-589. doi: 10.1016/j.sbspro.2018.04.038

Taylor, P. (2013). The Effect of Entrepreneurial Orientation on the Internationalization of SMEs in Developing Countries (May 21, 2013). African Journal of Business

Management 17 (19), 21 May 2013, Available at SSRN: https://ssrn.com/abstract=2323672

Usman, B. and Hashim, S. (2020). A Conceptual Paper Approach of the influence of Risk-taking Orientation Behaviour towards Ex-Juvenile Entrepreneurs Delinquent Behavioral Change in Katsina State, Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 10(9).

Vega-Gomez, F., Miranda, F., Chamorro Mera, A., & Pérez Mayo, J. (2018). The Spin-Off as an Instrument of Sustainable Development: Incentives for Creating an Academic USO. *Sustainability*, *10*(11), 4266. doi: 10.3390/su10114266

Villasana, M., Alcaraz-Rodríguez, R., & Alvarez, M. M. (2016). Examining entrepreneurial attributes of Latin American female university students. *Gender and Education*, 28, 148–166. doi:10.1080/09540253.2015.1093100

Wang, C., & Chugh, H. (2014). Entrepreneurial Learning: Past Research and Future Challenges. *International Journal Of Management Reviews*, *16*(1), 24-61. doi: 10.1111/ijmr.12007

Wangari, R. W. (2017). Factors affecting the performance of businesses owned by female entrepreneurs in Kenya (Doctoral dissertation, United States International University-Africa).

Wegner, D., Thomas, E., Teixeira, E., & Maehler, A. (2019). University entrepreneurial push strategy and students' entrepreneurial intention. *International Journal Of Entrepreneurial Behavior & Research*, *26*(2), 307-325. doi: 10.1108/ijebr-10-2018-0648

Wynn, M. and Jones, P. (2017). Knowledge Transfer Partnerships and the entrepreneurial university. *Industry and Higher Education*, 31(4), pp.267-278.

Yi, H., Amenuvor, F. and Boateng, H. (2021). The Impact of Entrepreneurial Orientation on New Product Creativity, Competitive Advantage and New Product Performance in SMEs: The Moderating Role of Corporate Life Cycle. *Sustainability*, 13(6), p.3586.

Yoon, H. (2018). Exploring the Role of Entrepreneurial Team Characteristics on Entrepreneurial Orientation. *SAGE Open*, 8(2), p.215824401877702.

Yordanova, D. and Filipe, J. (2019). Towards Entrepreneurial Universities: Barriers, Facilitators, and Best Practices in Bulgarian and Portuguese Universities. *International Journal of Economics and Business Administration*, 7(4), pp.213-227.

Ziyae, B., Rezvani, M., Mobarki, M.H., & Tajpour, M. (2019). The Impact of Academic Spinoffs Components in Development of Internationalization of Universities. *Iranian Higher Education*, 11(3), 27-48

Appendix (A): Study Questionnaire

Towards an Entrepreneurial University Model and Possibilities of Implementation in Palestine: Evidence from Al-Quds University

First Section: Personal Data

Kindly put an (X) next to the box that applies to you

1. Gender

☐ Male ☐ Female

2. Age

☐ Less than 40 years ☐ From 41-50 years ☐ 51 years and more

3. Academic Level

☐ Professor ☐ Associate Professor ☐ Assistant Professor

4. Work Experience

☐ Less than 6 years ☐ From 6-10 years ☐ From 11 to 15 years

☐ From 16-20 years ☐ More than 20 years

Second Section: The Reality of Entrepreneurship at The Al-Quds University

Kindly put (√) next to the statement that reflects your point of view according to the following domains.

The First Domain: University Management and Organizational Structure

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
1.	University's organizational structure is clear, and it helps the university achieve its goals.						
2.	The university reviews and updates its academic programs and disciplines regularly.						
3.	The academic regulations of the university are clear for the academic staff.						
4.	The administrative regulations of the university are clear for the administrative staff.						

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
5.	The university has a transparent financial plan to support students' and employees' projects and initiatives.						
6.	The university has a transparent plan to be integrated with the local and regional community through seminars, workshops, meetings, contests, etc.						
7.	The university has a transparent plan to be connected with the private sector and the government to achieve its desired goals.						
8.	The university has a transparent plan to cooperate with higher education institutions, whether local, regional, or global.						
9.	The university has a transparent and applied incentive system (such as rewards, contributions in profits, bonuses, etc.) that helps the university meet the highest level of job performance and meet its members' loyalty.						
10.	The university has a transparent system of moral incentives (such as appreciating employees' efforts, work stability, improving working conditions, etc.).						

The Second Domain: University Leadership

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
1.	The university has a clear development plan to develop its academic and administrative services.						
2.	The university responds to changes in the local environment and offers the necessary initiatives.						
3.	The university has a variety of funding sources to maintain its financial independence.						
4.	The university applies a decentralization management system to manage its administrative and academic departments and units.						
5.	The university's faculties are integrated to carry out their tasks.						
6.	Employees participate in proposing the plan and goals of their departments or units (management by goals).						
7.	The university has a clear strategy for work rotations.						

The Third Domain:

A) University Academic Programs and Curriculum

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
1.	University departments regularly study the labor market needs.						
2.	University departments continuously develop curricula to keep pace with research development (R&D).						
3.	University departments continuously develop their curricula according to the labor market's needs.						
4.	University departments continuously offer distinctive academic disciplines or programs.						
5.	The current curricula achieve the discipline objectives and the labor market requirements.						
6.	University departments offer training opportunities for students and employees who obtain the required skills and knowledge of the private sector.						
7.	University departments offer master's and doctoral programs considering global changes and the labor market's needs.						
8.	University departments offer joint academic programs with local and international universities.						
9.	University departments offer joint academic programs with the private sector for training students to meet the local and international labor market's needs.						

B) Entrepreneurial Education

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
1.	University departments encourage their academic staff to use the student-centered learning strategy in the educational process.						
2.	University departments encourage their academic staff to use interactive teaching methods to enhance students' creative thinking.						
3.	University departments encourage their academic staff to use the brainstorming strategy in the educational process.						
4.	Your department encourages the academic staff to use the cooperative learning strategy (group work in groups) in the educational process.						
5.	Your department encourages the academic staff to use the case studies strategy in the educational process.						

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
6.	Your department encourages the academic staff to use the practical hands-on learning strategy.						
7.	Your department encourages the academic staff to use the exploration learning strategy (critical thinking and analysis) in the educational process.						
8.	Your department encourages the academic staff to use the e-learning methodology in the educational process.						
9.	Your department encourages the academic staff to use the learning-based project's strategy in the educational process.						
10.	University departments offer training for students to train them on formulating ideas and developing projects.						
11.	University departments offer training for students to develop their persuasion and negotiation skills.						
12.	University departments offer training for students to develop their problem-solving skills.						

The Fourth Domain: Entrepreneurial Culture at the University

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
1.	The university offers workshops on the importance of entrepreneurship.						
2.	The university offers activities to encourage entrepreneurship skills among academic staff and students.						
3.	The university offers training and activities to develop academic staff and students' decision-making and risk-taking skills.						
4.	The university offers training programs for academic staff and students to teach them how to convert their ideas into projects.						
5.	The university offers elective and/or mandatory entrepreneurship courses for students.						
6.	The university provides enough support for academic staff and students' projects.						
7.	The university encourages academic staff and students to participate in various entrepreneurial programs or activities, whether inside or outside the university.						

The Fifth Domain: University Relationships and Collaborations

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
1.	The university has community service centers						
2.	The university has various cooperations and agreements with the public and private sectors.						
3.	The university seeks to adopt the triple helix model (the complementary relationship between the university, business sectors, and the government).						
4.	The university's relationships and partnerships create job opportunities for graduates.						
5.	The university's relationships and partnerships increase the financial sources.						
6.	The university's relations and partnerships increase the amount of research that meets the labor market's needs.						
7.	The university's relations and partnerships increase its ability to support its projects financially.						
8.	University relationships and partnerships contribute to the development of university curricula.						
9.	The university's relationships and partnerships develop more academic programs that meet the needs of the local and international markets.						
10.	The university's relations and partnerships develop projects or services that meet the community's needs.						

The Sixth Domain: University Internationalization

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
1.	The university has a clear vision to become an international university.						
2.	The university has a clear plan to expand international academic cooperation.						
3.	The university has an active office of International Scholarships and International Relations.						
4.	The university's strategic plan aims to enhance the university's international rank.						
5.	The university provides its academic staff with exchange opportunities in international universities.						
6.	The university recruits distinguished international academic staff to work at it.						
7.	The university invites international academic staff as visiting scholars to teach at it.						

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
8.	The university encourages and supports academic staff to participate in international conferences.						
9.	The university tries to establish academic programs with international universities.						
10.	The university tries to obtain international academic accreditation for its academic programs.						
11.	The university signs twinning agreements with international universities.						
12.	The university provides academic exchange opportunities for employees.						
13.	The university provides academic exchange opportunities for students.						
14.	The university provides non-academic exchange opportunities for students.						

The Seventh Domain: University Tangible Resources and Services

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
1.	The university urges the academic staff to publish their research in international refereed journals.						
2.	The university provides the necessary services that facilitate the accomplishment of research projects.						
3.	The university provides the necessary services that facilitate knowledge generation and development.						
4.	The university provides enough financial support that facilitate the accomplishment of research projects.						
5.	The university provides local and international cooperation opportunities to conduct various joint research projects.						
6.	The university provides the necessary services that link research results with the labor market's needs.						
7.	The university provides the necessary services that facilitate the commercialization of research results.						
8.	The university provides the necessary capabilities to transform research results into innovative products.						

The Eighth Domain: University Reputation

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
1.	Do you think the university seeks to enhance its reputation through relationships with the public and private sectors?						
2.	Do you think the university seeks to develop social values and ethical standards for academic staff and students?						
3.	Do you feel that the university has a systematic plan to improve its performance at local, regional, and global levels?						
4.	Do you think the university offers different practices and activities to achieve its goals?						
5.	Do you feel that the available spaces at the university are sufficient for students?						
6.	Do you think the available multi-purpose rooms at the university are suitable for students?						
7.	Do you feel that the available laboratories at the university meet the needs of students and instructors?						
8.	Do you think the university provides the necessary services for students and staff with disabilities?						
9.	Do you think the university excellently provides services for staff and students?						
10.	Do you think the university provides medical care for its students and employees?						
11.	Do you think the classrooms are well-equipped with the needed devices, lights, etc.?						
12.	Do you think the university maintains health and safety rules?						

The ninth Domain: Intellectual Abilities of the University Community

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
1.	The university seeks to encourage researchers to obtain patents.						
2.	The university rewards outstanding researchers.						
3.	The university allows researchers to participate in local and international conferences.						
4.	The university attracts international students and academics to participate in educational or research projects.						
5.	The university seeks to build supportive communities for the university's vision.						
6.	The university has a clear policy to encourage students and academics to become innovators						

No.	Item	Always	Usually	Sometimes	Rarely	Never	I Don't Know
	by finding solutions to local and global problems.						
7.	The university has a clear policy to encourage researchers to commercialize their research results.						
8.	The university has a clear policy to encourage students and academic staff to establish start-up companies.						
9.	The university provides students and academic staff with sufficient support to establish their start-up.						
10.	The university has a clear policy to provide the necessary licenses for commercializing students or academic staff's research results.						
11.	The university has a center for innovation and entrepreneurship and a technology transfer office.						
12.	The university seeks to exploit its research results to establish new companies.						

Third Section: Ranking Question (Requirements for transforming from a classical university to an entrepreneurial University)

Rank the following ten factors in terms of how important they are for you? You should rank the most important item as 1, the next in importance as 2, and so on until you have ranked each of them 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10.

Number 1 is the most important, while number 10 is the less important.

No.	Element	Order
1.	University management and organizational structure	
2.	University leadership	
3.	University academic programs and curriculum	
4.	Entrepreneurial education	
5.	Entrepreneurial culture at the university	
6.	University relationships and collaborations	
7.	University internationalization	
8.	University tangible resources and services	
9.	University reputation	
10.	Intellectual abilities of the university community	

Would you please add any other relevant comments not included in the questionnaire section?

.....

.....

.....

.....

I appreciate your cooperation

Appendix (B): Factor Analysis Explanation, Analysis and Results

Factor Analysis

Factor analysis is a controversial technique that represents the variables of a dataset y1, y2, ⋯, yp, as linearly related to random, unobservable variables called factors, denoted f1, f2, ⋯, fm where (m<p) . The factors are representative of 'latent variables' underlying the original variables. The existence of the factors is hypothetical as they cannot be measured or observed. Thus factor analysis remains controversial among statisticians (Rencher, 2002, pp. 443) and continues to be heavily researched. The goal of factor analysis, similar to principal component analysis, is to reduce the original variables into a smaller number of factors that allows for easier interpretation. PCA and factor analysis still defer in several respects. One difference is principal components are defined as linear combinations of the variables while factors are defined as linear combinations of the underlying latent variables.

There are several methods for estimating the factor loadings and communalities, including the principal component method, principal factor method, the iterated principal factor method and maximum likelihood estimation. The principal component method is one of the most common approaches to estimation and will be employed on the rootstock data seen in previous posts.

The principal component method is rather misleading in its naming it that no principal components are calculated. The approach of the principal component method is to calculate the sample covariance matrix S from a sample of data and then find an estimator, denoted Λ^ that can be used to factor S

$$S = \Lambda\hat{}\Lambda\hat{}'$$

Another term, Ψ, is added to the estimate of S, making the above $S = \Lambda\hat{}\Lambda\hat{}' + \Psi\hat{}.\Psi\hat{}$ is a diagonal matrix of the specific variances $(\psi 1\hat{}, \psi 2\hat{}, \cdots, \psi_p\hat{}).\Psi.\Psi$ is estimated in other approaches to factor analysis, such as the principal factor method and its iterated version but is excluded in the principal component method of factor analysis. The term's exclusion is since Ψ^ equals the specific variances of the variables, it models the diagonal of S exactly.

Spectral decomposition is employed To factor S into:

$$S = CDC'$$

Where C is an orthogonal matrix of the normalized eigenvectors of S as columns and D is a diagonal matrix equaling the eigenvalues of S. Recall that all covariance matrices are positive semidefinite. Thus the eigenvalues must be either positive or zero, which allows us to factor the diagonal matrix D into:

$$D = D^{1/2}D^{1/2}$$

The above factor of D is substituted into the decomposition of S

$$S = CDC' = CD^{1/2}D^{1/2}\,C'$$

Then rearranging:

$$S = \left(CD^{\frac{1}{2}}\right)\left(D^{\frac{1}{2}}\right)'$$

Which yields the form $S = \hat{\Lambda}\hat{\Lambda}'$. Since we are interested in finding m factors in the data, we want to find a $\hat{\Lambda}$ that is pXm with $m$smaller than p. Thus D can be defined as a diagonal matrix with m eigenvalues (making it mXm) on the diagonal and C is therefore pXm with the corresponding eigenvectors, which makes $\hat{\Lambda}$ $p \times m$. There are numerous ways to select the number of factors, some of which include finding the number of eigenvalues greater than the average eigenvalue or plotting a scree plot.

However, once we have determined that it is appropriate to factor analyze the correlation matrix, then identify the number of factors that account for the correlations among the variables. Potential considerations/strategies: (a) Eigenvalue cutoff rule (not generally recommended with PAF; (b) scree test; (c) parallel analysis; (d) retain as many factors as account for a certain percentage of the variation; (e) factor meaningfulness (this last is considered by examining factor loadings; see next). See discussion by Pituch & Stevens (2016). Then name and describe factors. Most often, this involves first performing some type of rotation and then interpreting the factor loadings. Factors are named by considering those measured variables loading at some minimum threshold (e.g., .30, .32, or .40) on them. Pituch and Stevens (2016) we use threshold of .40. Also, KMO test conducted to examine the strength of the partial correlation (how the factors explain each other) between the variables. KMO

values closer to 1.0 are consider ideal while values less than 0.5 are unacceptable. Recently, most scholars argue that a KMO of at least 0.70 are good enough for factor analysis to commence. Below is a tabular chart for your perusal.

The Five-Step Exploratory Factor Analysis Protocol:

Step 1: Is the data suitable for factor analysis?

Sample Size

The sample size is important in factor analysis, there are varying opinions, and several guiding rules of thumb are cited in the literature. The lack of agreement is noted by the authors for the acceptable sample size and it can be classified as: 100 as poor, 200 as fair, 300 as good, 500 as very good, and 1000 or more as excellent. However, our sample size is 159, and it can be classified as fair enough to conduct the Exploratory Factor Analysis

Sample to Variable Ratio (N:p ratio)

Sample to Variable Ratio (N:p ratio) Another set of recommendations also exist providing researchers with guidance regarding how many participants are required for each variable, often termed the sample to variable ratio, often denoted as N:p ratio where N refers to the number of participants and p refers to the number of variables. The same disparate recommendations also occur for sample to variable ratios as they do for determining adequate sample sizes. In our research it will be 16:1 is good according to Hogarty et al. and MacCallum et al

Factorability of the correlation matrix

A correlation matrix should be used in the EFA process displaying the relationships between individual variables. Henson and Roberts pointed out that a correlation matrix is most popular among investigators. Tabachnick and Fidell recommended inspecting the correlation matrix (often termed Factorability of R) for correlation coefficients over 0.30. Hair et al. (1995) categorized these loadings using another rule of thumb as ±0.30=minimal, ±0.40=important, and ±.50=practically significant, however ,we take the rule of thumb ±0.40, In other words, a factorability of 0.4 indicates that the factors account for approximately 30% relationship within the data, or in a practical sense, it would indicate that a third of the variables share too much variance, and hence becomes impractical to determine if the variables are correlated with each other or the dependent variable (multicollinearity).

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy/Bartlett's Test of Sphericity

Prior to the extraction of the factors, several tests should be used to assess the suitability of the respondent data for factor analysis. These tests include Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy, and Bartlett's Test of Sphericity. The KMO index, in particular, is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from 0 to 1, with 0.50 considered suitable

for factor analysis. The Bartlett's Test of Sphericity should be significant ($p < 0.5$) for factor analysis to be suitable.

Step 2: How will the factors be extracted?

However, PCA and PAF are used most commonly in the published literature. We used the principal components analysis (PCA) for the reason of high reliability according to Pett et al. (2003) suggested using PCA in establishing preliminary solutions in EFA.

Step 3: What criteria will assist in determining factor extraction?

No single criteria are assumed to determine factor extraction for the confusing nature of the factors in our study, so we will do many extraction rules and approaches exist including Kaiser" s criteria (eigenvalue > 1 rule), the Scree test, and the cumulative percent of variance extracted.

Step 4: Selection of Rotational Method

There are two common rotation techniques: orthogonal rotation and oblique rotation. Researchers have several methods to choose from both rotation options, for example, orthogonal varimax/quartimax or oblique olbimin/promax. Orthogonal Varimax rotation first developed by Thompson is the most common rotational technique used in factor analysis, which produce factor structures that are uncorrelated. In contrast, oblique rotation produces factors that are correlated, which is often seen as producing more accurate results for research involving human behaviors, or when data does not meet priori assumptions. Regardless of which rotation method is used, the main objectives are to provide easier interpretation of results, and produce a solution that is more parsimonious. However, we obtain SPSS to select the best method rather than select it.

Step 5: Interpretation

1.1. Factor Analysis for the University Management and Organizational Structure

The table below show KMO and Bartlett's Test for the University Management and Organizational Structure.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.832
Bartlett's Test of Sphericity	Approx. Chi-Square	831.053
	df	45
	Sig.	.000

From our result, we had a KMO value of .832. This indicates that the degree of information among the variables overlap greatly/the presence of a strong partial correlation. In the University Management and Organizational Structure. Hence, it is plausible to conduct factor analysis.

The table below shot the principal component analysis related to the University Management and Organizational Structure

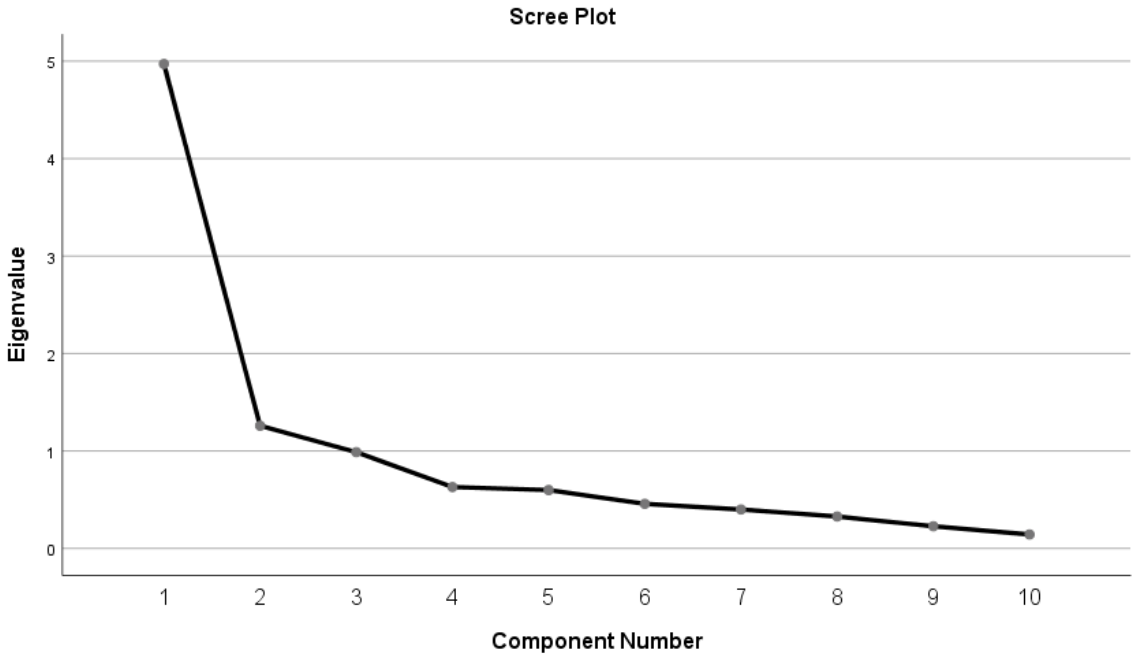
Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.972	49.717	49.717	4.972	49.717	49.717	3.362	33.618	33.618
2	1.259	12.587	62.304	1.259	12.587	62.304	2.869	28.686	62.304
3	.988	9.878	72.182						
4	.630	6.299	78.481						
5	.598	5.985	84.466						
6	.457	4.573	89.038						
7	.399	3.995	93.033						
8	.327	3.270	96.303						
9	.227	2.273	98.575						
10	.142	1.425	100.000						

Extraction Method: Principal Component Analysis.

The table above shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met your cut-off criterion (extraction method). In the University Management and Organizational Structure domain, there were two factors with eigenvalues greater than 1. Prior to rotation, Factors 1 and 2 accounted for 49.72% and 12.58%of the variation, respectively. Following rotation, the factors accounted for 33.62% and 28.69% of the variance, respectively. The table on the left contains random eigenvalues from a PCA, whereas the table on the right contains the eigenvalues from the data. We see that the first three eigenvalues based on the original data are greater than the random eigenvalues. This suggests a two-factor solution. We will use a loading criterion of .40 (in absolute value), as recommended by Pituch & Stevens (2016). To make the table of factor loadings easier to read, we will click on "Suppress small coefficients" and type in ".40".

Also, the figure below shows the scree plot and this led us to a slightly to the same conclusion.



The items pq 1,2,3,5,6,7,9 and pq10 all loaded unambiguously onto factor 1. These items all reflected "Rarely the university management and organizational structure". The positively-worded items all have positive loadings (representing affirmation of interest and involvement), whereas the negatively-worded items have negative loadings (representing sentiments opposing interest and involvement). The Items 2,3,4,7,8,9 and 10 loaded onto factor 2 and appear to represent "The university management and organizational structure sometimes".

Rotated Component Matrix[a]		
	Component	
	1	2
University's organizational structure is clear, and it helps the university achieve its goals.	.865	
The university reviews and updates its academic programs and disciplines regularly.	.478	.489
The academic regulations of the university are clear for the academic staff.	.532	.459
The administrative regulations of the university are clear for the administrative staff.		.810
The university has a transparent financial plan to support students' and employees' projects and initiatives.	.783	

The university has a transparent plan to be integrated with the local and regional community through seminars, workshops, meetings, competitions, etc.	.695	
The university has a transparent plan to be connected with the private sector and the government to achieve its desired goals.	.715	.458
The university has a transparent plan to cooperate with higher education institutions, whether local, regional, or global.		.658
The university has a transparent and applied incentive system (such as rewards, participation in profits, bonuses, etc.) that helps the university reach the highest level of job performance and earn its members' loyalty.	.502	.678
The university has a transparent system of moral incentives (such as appreciating employees' efforts, work stability, improving working conditions, etc.).	.486	.679
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]		
a. Rotation converged in 3 iterations.		

1.2. Factor Analysis for the University Leadership

The table below show KMO and Bartlett's Test for the university leadership.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.807
Bartlett's Test of Sphericity	Approx. Chi-Square	570.005
	df	21
	Sig.	.000

From our result, we had a KMO value of .807. This indicates that the degree of information among the variables overlap greatly/the presence of a strong partial correlation. In the university leadership. Hence, it is plausible to conduct factor analysis.

The table below shot the principal component analysis related to the university leadership

Total Variance Explained

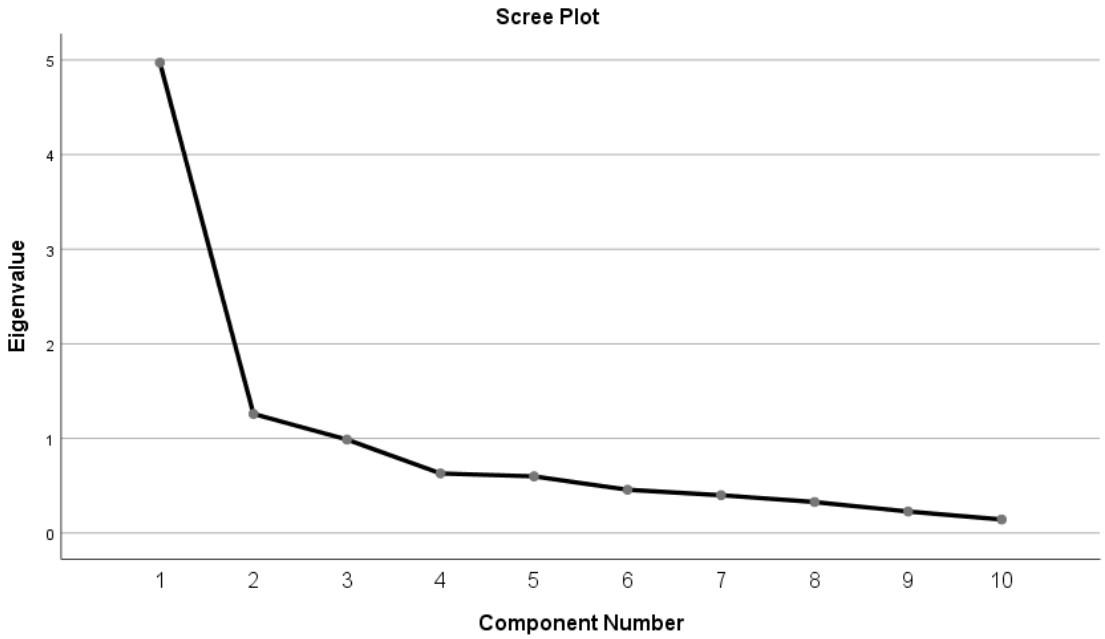
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.888	55.537	55.537	3.888	55.537	55.537	3.820	54.571	54.571

2	1.143	16.322	71.859	1.143	16.322	71.859	1.210	17.288	71.859
3	.638	9.119	80.977						
4	.510	7.285	88.263						
5	.354	5.057	93.320						
6	.308	4.395	97.715						
7	.160	2.285	100.000						

Extraction Method: Principal Component Analysis.

The table above shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met your cut-off criterion (extraction method). In the university leadership domain, there were two factors with eigenvalues greater than 1. Prior to rotation, Factors 1 and 2 accounted for 55.54% and 16.32% of the variation, respectively. Following rotation, the factors accounted for 54.57% and 17.29% of the variance, respectively. The table on the left contains random eigenvalues from a PCA, whereas the table on the right contains the eigenvalues from the data. We see that the first three eigenvalues based on the original data are greater than the random eigenvalues. This suggests a two-factor solution. We will use a loading criterion of .40 (in absolute value), as recommended by Pituch & Stevens (2016). To make the table of factor loadings easier to read, we will click on "Suppress small coefficients" and type in ".40".

Also, the figure below shows the scree plot and this lead us to a slightly to the same conclusion.



The items pq 1,2,4,5 and pq7 all loaded unambiguously onto factor 1. These items all reflected "The university leadership rarely". The positively-worded items all have positive loadings (representing affirmation of interest and involvement), whereas the negatively-worded items have negative loadings (representing sentiments opposing interest and involvement). The Items 3 and 5 loaded onto factor 2 and appear to represent "The university leadership sometimes".

Rotated Component Matrix[a]		
	Component	
	1	2
The university has a clear development plan to develop its academic and administrative services.	.858	
The university responds to changes in the local environment and offers the necessary initiatives.	.802	
The university has a variety of funding sources to maintain its financial independence.		.834
The university applies a decentralization management system to manage its departments and units.	.776	
The university's faculties are integrated to carry out their tasks.	.674	-.618
Employees participate in proposing the plan and goals of their departments or units (management by goals).	.826	
The university has a clear strategy for work rotations.	.746	
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]		
a. Rotation converged in 3 iterations.		

1.3. Factor Analysis for the University Academic Programs and Curriculum

The table below show KMO and Bartlett's Test for the university academic programs and curriculum.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.762
Bartlett's Test of Sphericity	Approx. Chi-Square	966.383
	df	36
	Sig.	.000

From our result, we had a KMO value of .762. This indicates that the degree of information among the variables overlap enogh/the presence of a strong partial correlation. In the university academic programs and curriculum. Hence, it is plausible to conduct factor analysis.

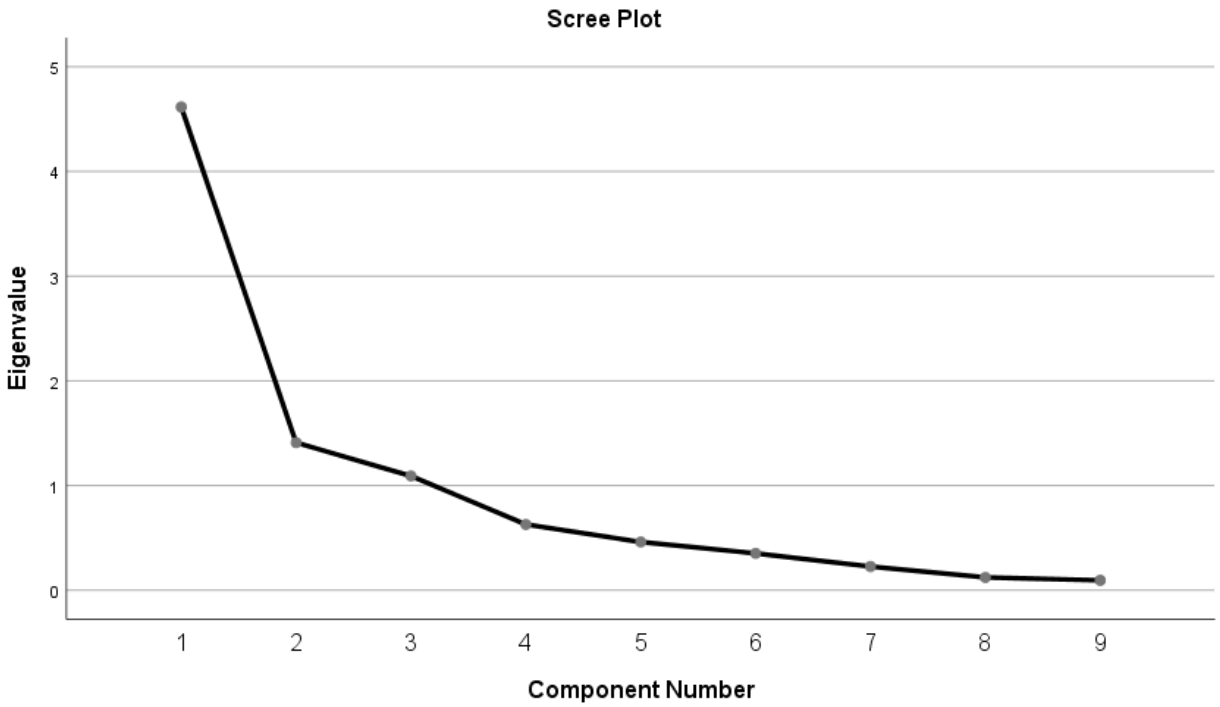
The table below shot the principal component analysis related to the academic programs and curriculum

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.616	51.286	51.286	4.616	51.286	51.286	3.528	39.205	39.205
2	1.410	15.664	66.949	1.410	15.664	66.949	2.038	22.645	61.849
3	1.091	12.120	79.069	1.091	12.120	79.069	1.550	17.220	79.069
4	.628	6.978	86.048						
5	.460	5.114	91.162						
6	.352	3.909	95.071						
7	.226	2.517	97.588						
8	.122	1.360	98.948						
9	.095	1.052	100.000						

Extraction Method: Principal Component Analysis.

The table above shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met your cut-off criterion (extraction method). In the university academic programs and curriculum domain, there were three main factors with eigenvalues greater than 1. Prior to rotation, Factors 1, 2 and 3 accounted for 51.29%, 15.66% and 12.12% of the variation, respectively. Following rotation, the factors accounted for 39.20%, 22.65% and 17.220% of the variance, respectively. This suggests a three-factor solution. We will use a loading criterion of .40 (in absolute value), as recommended by Pituch & Stevens (2016). To make the table of factor loadings easier to read, we will click on "Suppress small coefficients" and type in ".40". Also, the figure below shows the scree plot and this lead us to a slightly to the same conclusion.



The items 1,2,3 and 4 all loaded unambiguously onto factor 1. These items all reflected "University Academic Programs and Curriculum rarely". The positively-worded items all have positive loadings (representing affirmation of interest and involvement), whereas the negatively-worded items have negative loadings (representing sentiments opposing interest and involvement). The Items 5,6 and 9 loaded onto factor 2 and appear to represent "The university academic programs and curriculum sometimes". The Items 7 and 8 loaded onto factor 3 and appear to represent "The university academic programs and curriculum frequently".

Rotated Component Matrix[a]			
	Component		
	1	2	3
University departments regularly study the needs of the labor market.	.768		
University departments continuously develop their curricula to keep pace with scientific development.	.909		
University departments continuously develop their curricula according to the needs of the labor market.	.892		

University departments continuously offer distinguished academic disciplines or programs.	.853		
The current curricula achieve the objectives of the discipline and the requirements of the labor market		.652	
University departments offer training opportunities for students and employees in the private sector to obtain the required skills and knowledge.		.867	
University departments offer masters and doctoral programs according to global changes and the needs of the labor market and global changes.	.578		.719
University departments offer joint academic programs with local and international universities.			.921
University departments offer joint academic programs with the private sector that focus on training students to meet the local and international labor market needs.		.679	
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]			
a. Rotation converged in 6 iterations.			

1.4. Factor Analysis for the Entrepreneurship of Education

The table below show KMO and Bartlett's Test for the university entrepreneurship education.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.897
Bartlett's Test of Sphericity	Approx. Chi-Square	1994.610
	df	66
	Sig.	.000

From our result, we had a KMO value of .897. This indicates that the degree of information among the variables overlap greatly/the presence of a strong partial correlation. In the entrepreneurship education. Hence, it is plausible to conduct factor analysis.

The table below shot the principal component analysis related to the entrepreneurship education

Total Variance Explained

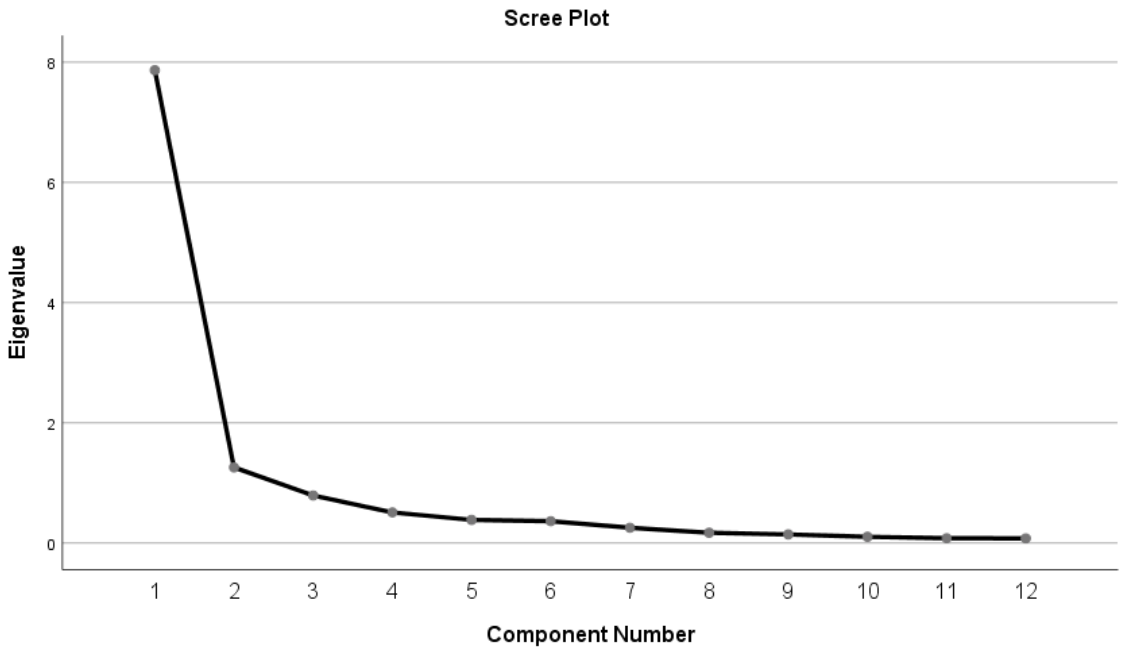
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %

1	7.866	65.550	65.550	7.866	65.550	65.550	7.157	59.639	59.639
2	1.258	10.483	76.033	1.258	10.483	76.033	1.967	16.394	76.033
3	.790	6.584	82.616						
4	.509	4.240	86.857						
5	.385	3.208	90.065						
6	.364	3.030	93.095						
7	.254	2.119	95.214						
8	.171	1.425	96.639						
9	.143	1.188	97.827						
10	.103	.861	98.687						
11	.080	.670	99.357						
12	.077	.643	100.000						

Extraction Method: Principal Component Analysis.

The table above shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met your cut-off criterion (extraction method). In the entrepreneurship education domain, there were two main factors with eigenvalues greater than 1. Prior to rotation, Factors 1 and 2 accounted for 65.55%, and 76.03% of the variation, respectively. Following rotation, the factors accounted for 59.64% and 16.35% of the variance, respectively. This suggests a two-factor solution. We will use a loading criterion of .40 (in absolute value), as recommended by Pituch & Stevens (2016). To make the table of factor loadings easier to read, we will click on "Suppress small coefficients" and type in ".40".

Also, the figure below shows the scree plot and this lead us to a slightly to the same conclusion.



The items 1,2,3,4,5,7,9,10,11 and 12 all loaded unambiguously onto factor 1. These items all reflected "The entrepreneurship education rarely". The positively-worded items all have positive loadings (representing affirmation of interest and involvement), whereas the negatively-worded items have negative loadings (representing sentiments opposing interest and involvement). The Items 6 and 8 loaded onto factor 2 and appear to represent "The entrepreneurship education sometimes".

Rotated Component Matrix[a]		
	Component	
	1	2
University departments encourage their academic staff to use the student-centered learning strategy in the educational process.	.837	
University departments encourage their academic staff to use interactive teaching methods to enhance students' creative thinking.	.899	
University departments encourage their academic staff to use the brainstorming strategy in the educational process.	.815	
The department encourages its academic staff to use the cooperative learning strategy (group work in groups) in the educational process.	.808	
The department encourages its academic staff to use the case studies strategy in the educational process.	.763	

The department encourages its academic staff to use the practical hands-on learning strategy.		.861
The department encourages its academic staff to use the exploration learning strategy (critical thinking and analysis) in the educational process.	.818	
The department encourages its academic staff to use the e-learning methodology in the educational process.		.881
The department encourages its academic staff to use the learning-based project's strategy in the educational process.	.896	
University departments offer training for students to train them on formulating ideas and developing projects.	.833	
University departments offer training for students to develop their persuasion and negotiation skills.	.837	
University departments offer training for students to develop their problem-solving skills.	.894	
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]		
a. Rotation converged in 3 iterations.		

1.5. Factor Analysis for the Entrepreneurial Culture at the University

The table below show KMO and Bartlett's Test for the entrepreneurial culture at the university.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.761
Bartlett's Test of Sphericity	Approx. Chi-Square	920.260
	df	21
	Sig.	.000

From our result, we had a KMO value of .761. This indicates that the degree of information among the variables overlap enogh/the presence of a strong partial correlation. In the entrepreneurial culture at the university. Hence, it is plausible to conduct factor analysis.

The table below shot the principal component analysis related to the entrepreneurial culture at the university.

Total Variance Explained

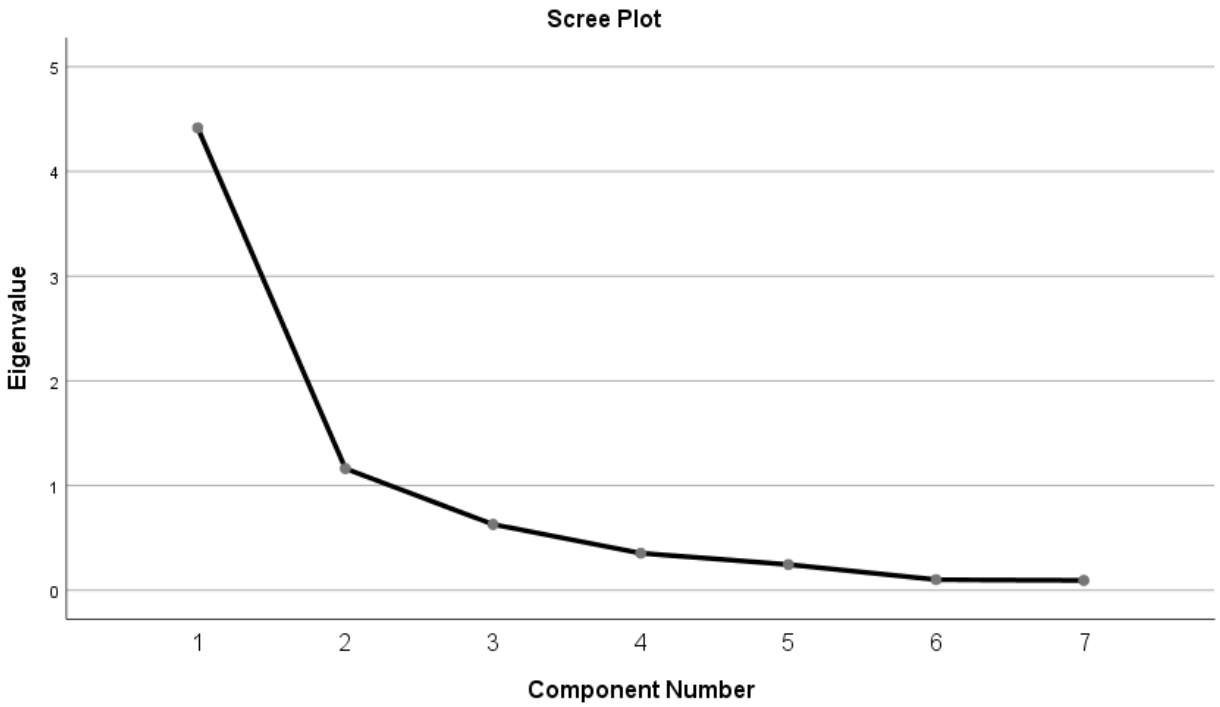
Compone		Extraction Sums of Squared	
nt	Initial Eigenvalues	Loadings	Rotation Sums of Squared Loadings

	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.417	63.097	63.097	4.417	63.097	63.097	3.369	48.127	48.127
2	1.162	16.599	79.696	1.162	16.599	79.696	2.210	31.570	79.696
3	.629	8.981	88.677						
4	.354	5.052	93.729						
5	.245	3.503	97.232						
6	.100	1.435	98.666						
7	.093	1.334	100.000						

Extraction Method: Principal Component Analysis.

The table above shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met your cut-off criterion (extraction method). In the entrepreneurial culture at the university domain, there were two main factors with eigenvalues greater than 1. Prior to rotation, Factors 1 and 2 accounted for 63.09%, and 16.59% of the variation, respectively. Following rotation, the factors accounted for 48.13% and 31.57% of the variance, respectively. This suggests a two-factor solution. We will use a loading criterion of .40 (in absolute value), as recommended by Pituch & Stevens (2016). To make the table of factor loadings easier to read, we will click on "Suppress small coefficients" and type in ".40".

Also, the figure below shows the scree plot and this lead us to a slightly to the same conclusion.



The items 1,2,3,4 and 7 all loaded unambiguously onto factor 1. These items all reflected "the entrepreneurial culture at the university rarely". The positively-worded items all have positive loadings (representing affirmation of interest and involvement), whereas the negatively-worded items have negative loadings (representing sentiments opposing interest and involvement). The Items 5 and 6 loaded onto factor 2 and appear to represent "the entrepreneurial culture at the university sometimes".

Rotated Component Matrix[a]		
	Component	
	1	2
The university offers workshops about entrepreneurship and its importance.	.823	
The university offers activities to encourage entrepreneurship skills among academic staff and students.	.797	.458
The university offers training and activities to develop academic staff and students' decision-making and risk-taking skills.	.886	
The university offers training programs for academic staff and students to teach them how to turn their ideas into projects.	.729	.586
The university offers elective or mandatory courses in entrepreneurship for students.		.899

The university provides the necessary support for academic staff and students' projects.		.843
The university encourages academic staff and students to participate in various entrepreneurial programs or activities, whether inside or outside the university.	.824	
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]		
a. Rotation converged in 3 iterations.		

1.6. Factor Analysis for the University Relationships and Collaborations

The table below show KMO and Bartlett's Test for the university relationships and collaborations.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.864
Bartlett's Test of Sphericity	Approx. Chi-Square	1852.031
	df	45
	Sig.	.000

From our result, we had a KMO value of .864. This indicates that the degree of information among the variables overlap greatly/the presence of a strong partial correlation. In the university leadership. Hence, it is plausible to conduct factor analysis.

The table below shot the principal component analysis related to the university relationships and collaborations

Total Variance Explained

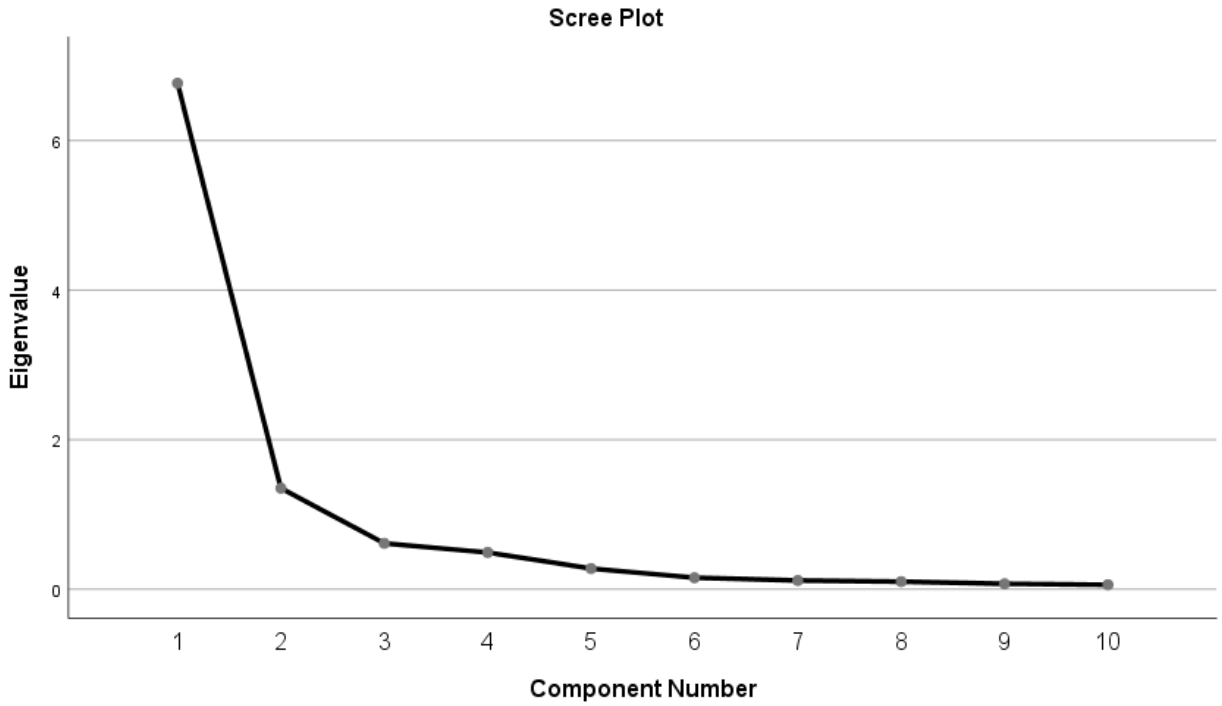
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.766	67.662	67.662	6.766	67.662	67.662	5.191	51.911	51.911
2	1.351	13.508	81.170	1.351	13.508	81.170	2.926	29.259	81.170
3	.613	6.131	87.301						
4	.491	4.911	92.212						
5	.276	2.757	94.969						
6	.154	1.537	96.506						
7	.116	1.160	97.666						
8	.101	1.014	98.680						

9	.073	.729	99.409						
10	.059	.591	100.000						

Extraction Method: Principal Component Analysis.

The table above shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met your cut-off criterion (extraction method). In the university leadership domain, there were two factors with eigenvalues greater than 1. Prior to rotation, Factors 1 and 2 accounted for 67.66% and 81.17% of the variation, respectively. Following rotation, the factors accounted for 51.91% and 29.26% of the variance, respectively. his suggests a two-factor solution. We will use a loading criterion of .40 (in absolute value), as recommended by Pituch & Stevens (2016). To make the table of factor loadings easier to read, we will click on "Suppress small coefficients" and type in ".40".

Also, the figure below shows the scree plot and this lead us to a slightly to the same conclusion.



The items 3,4,5,6,7,8,9 and 10 all loaded unambiguously onto factor 1. These items all reflected "the university relationships and collaborations rarely". The positively-worded items all have positive loadings (representing affirmation of interest and involvement), whereas the negatively-worded items have negative loadings (representing sentiments opposing interest and involvement). The Items 1 and 2 loaded onto factor 2 and appear to represent "the university relationships and collaborations sometimes".

Rotated Component Matrix[a]		
	Component	
	1	2
The university has community service centers		.795
The university has various cooperations and agreements with the public and private sectors.		.907
The university seeks to adopt the triple helix model (the complementary relationship between the university, business sectors, and the government).	.683	.639
University relationships and partnerships create more job opportunities for graduates.	.759	.580
The university's relationships and partnerships increase its financial sources.	.816	
The university's relations and partnerships increase the amount of research that meets the needs of the labor market.	.799	
The university's relations and partnerships increase its ability to support its projects financially.	.803	.491
University relations and partnerships enrich and develop university curricula.	.860	
The university's relations and partnerships develop more academic programs that meet the needs of the local and international markets.	.919	
University's relations and partnerships develop projects or services that meet the community's needs.	.757	.567
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]		
a. Rotation converged in 3 iterations.		

1.7. Factor Analysis for the University Internationalization

The table below show KMO and Bartlett's Test for the university internationalization.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.852
Bartlett's Test of Sphericity	Approx. Chi-Square	2487.486
	df	91
	Sig.	.000

From our result, we had a KMO value of .864. This indicates that the degree of information among the variables overlap greatly/the presence of a strong partial correlation. In the university internationalization. Hence, it is plausible to conduct factor analysis.

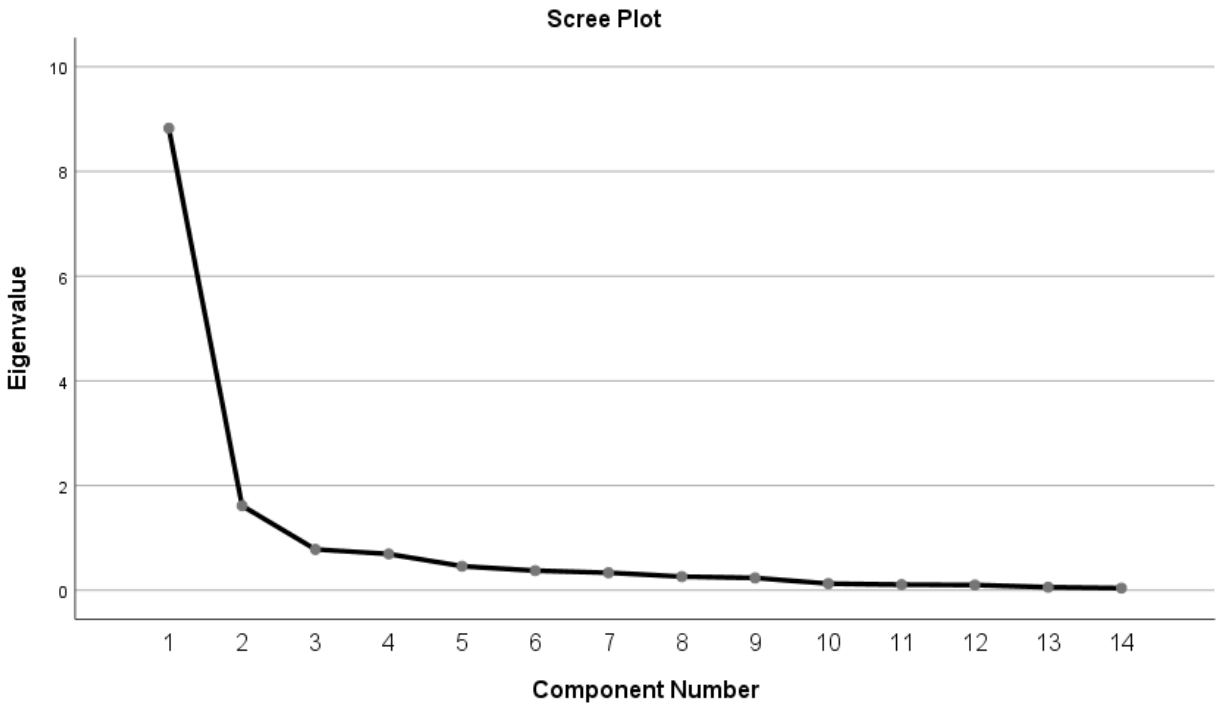
The table below shot the principal component analysis related to the university internationalization

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.825	63.036	63.036	8.825	63.036	63.036	5.787	41.333	41.333
2	1.614	11.525	74.561	1.614	11.525	74.561	4.652	33.228	74.561
3	.779	5.565	80.125						
4	.693	4.948	85.074						
5	.459	3.278	88.351						
6	.374	2.668	91.019						
7	.334	2.384	93.403						
8	.260	1.855	95.258						
9	.235	1.678	96.937						
10	.126	.901	97.837						
11	.106	.757	98.594						
12	.099	.707	99.301						
13	.057	.409	99.710						
14	.041	.290	100.000						

Extraction Method: Principal Component Analysis.

The table above shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met your cut-off criterion (extraction method). In the university internationalization domain, there were two factors with eigenvalues greater than 1. Prior to rotation, Factors 1 and 2 accounted for 63.03% and 11.53% of the variation, respectively. Following rotation, the factors accounted for 41.33% and 33.23% of the variance, respectively. This suggests a two-factor solution. We will use a loading criterion of .40 (in absolute value), as recommended by Pituch & Stevens (2016). To make the table of factor loadings easier to read, we will click on "Suppress small coefficients" and type in ".40". Also, the figure below shows the scree plot and this lead us to a slightly to the same conclusion.



The items 6,7,8,9,10,11,12 and 14 all loaded unambiguously onto factor 1. These items all reflected "the university internationalization rarely". The positively-worded items all have positive loadings (representing affirmation of interest and involvement), whereas the negatively-worded items have negative loadings (representing sentiments opposing interest and involvement). The Items 1,2,3,4,5 and 13 loaded onto factor 2 and appear to represent "the university internationalization sometimes".

Rotated Component Matrix[a]		
	Component	
	1	2
The university has a clear vision to become an international university.	.609	.655
The university has a clear plan to expand its international academic cooperation.	.647	.680
The university has an active office of International Scholarships and International Relations.		.786
The university's strategic plan aims to enhance the university's international rank.	.535	.700
The university provides its academic staff with exchange opportunities in international universities.	.526	.719
The university recruits distinguished international academics to work at it.	.753	

The university invites international academics as visiting professors to teach at it.	.677	
The university supports and encourages academic staff to participate in international conferences.	.793	
The university tries to establish academic programs with international universities.	.875	
The university tries to obtain international academic accreditation for its academic programs.	.649	.606
The university signs twinning agreements with international universities.	.772	.428
The university provides academic exchange opportunities for its employees.	.735	.477
The university provides academic exchange opportunities for students.		.872
The university provides non-academic exchange opportunities for students.	.638	.573
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]		
a. Rotation converged in 3 iterations.		

1.8. Factor Analysis for the University Tangible Resources

The table below show KMO and Bartlett's Test for the university internationalization.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.824
Bartlett's Test of Sphericity	Approx. Chi-Square	1343.079
	df	28
	Sig.	.000

From our result, we had a KMO value of .864. This indicates that the degree of information among the variables overlap greatly/the presence of a strong partial correlation. In the university tangible resources. Hence, it is plausible to conduct factor analysis.

The table below shot the principal component analysis related to the university tangible resource

Total Variance Explained

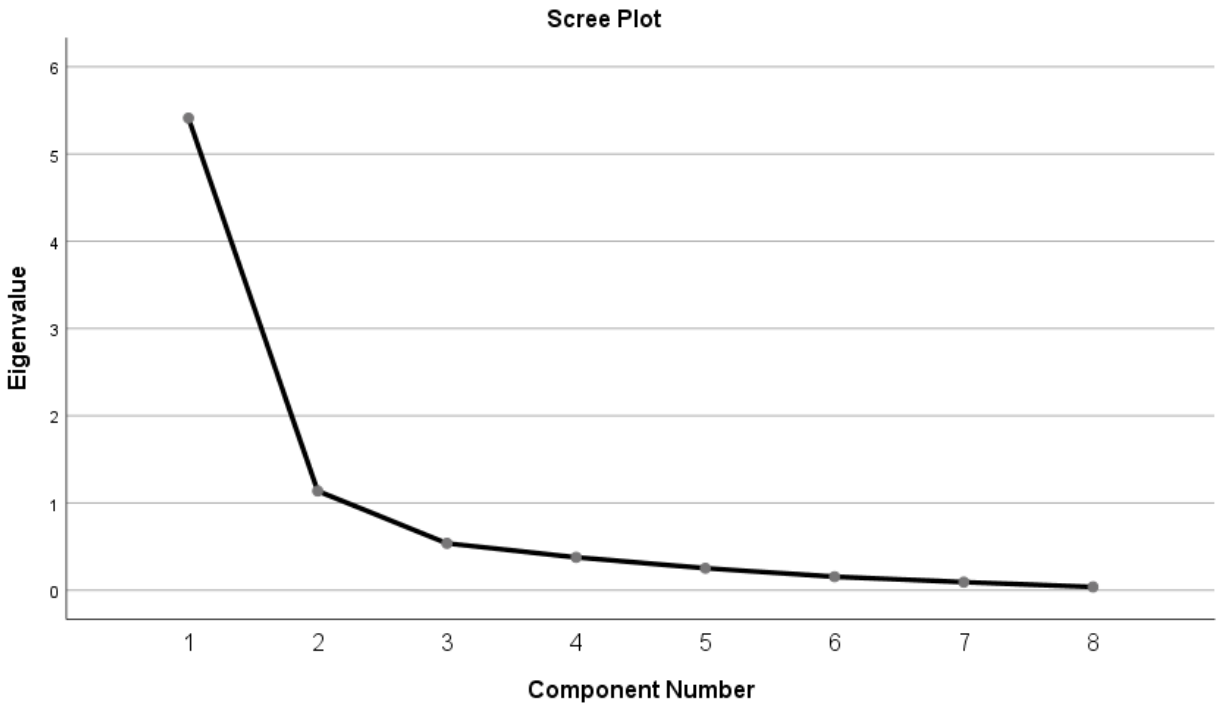
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %

1	5.412	67.645	67.645	5.412	67.645	67.645	5.351	66.887	66.887
2	1.138	14.220	81.865	1.138	14.220	81.865	1.198	14.977	81.865
3	.537	6.715	88.580						
4	.377	4.711	93.291						
5	.252	3.152	96.444						
6	.155	1.934	98.377						
7	.093	1.157	99.534						
8	.037	.466	100.000						

Extraction Method: Principal Component Analysis.

The table above shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met your cut-off criterion (extraction method). In the university tangible resources domain, there were two factors with eigenvalues greater than 1. Prior to rotation, Factors 1 and 2 accounted for 67.65% and 14.22% of the variation, respectively. Following rotation, the factors accounted for 66.89% and 14.98% of the variance, respectively. We see that the first three eigenvalues based on the original data are greater than the random eigenvalues. This suggests a two-factor solution. We will use a loading criterion of .40 (in absolute value), as recommended by Pituch & Stevens (2016). To make the table of factor loadings easier to read, we will click on "Suppress small coefficients" and type in ".40".

Also, the figure below shows the scree plot and this lead us to a slightly to the same conclusion.



The items 2,3,4,5,6,7 and 8 all loaded unambiguously onto factor 1. These items all reflected "the university tangible resources rarely". The positively-worded items all have positive loadings (representing affirmation of interest and involvement), whereas the negatively-worded items have negative loadings (representing sentiments opposing interest and involvement). The Items 1 loaded onto factor 2 and appear to represent "the university tangible resources sometimes".

Rotated Component Matrix[a]		
	Component	
	1	2
The university urges its academic staff to publish their research in journals.		.960
The university provides the necessary services that facilitate the accomplishment of research projects.	.818	
The university provides the necessary services that facilitate knowledge generation and development.	.917	
The university provides the necessary financial support that facilitates the accomplishment of research projects.	.786	
The university provides local and international cooperation opportunities to conduct various joint research or projects.	.791	

The university provides the necessary services that link research results with the needs of the labor market.	.945	
The university provides the necessary services that facilitate the commercialization of research results.	.943	
The university provides the necessary capabilities to transform research results into innovative products.	.902	
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]		
a. Rotation converged in 3 iterations.		

1.9. Factor Analysis for the University Reputation

The table below show KMO and Bartlett's Test for the university reputation.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.774
Bartlett's Test of Sphericity	Approx. Chi-Square	1671.542
	df	66
	Sig.	.000

From our result, we had a KMO value of .774. This indicates that the degree of information among the variables overlap enogh/the presence of a strong partial correlation. In the university reputation. Hence, it is plausible to conduct factor analysis.

The table below shot the principal component analysis related to the university reputation.

Total Variance Explained

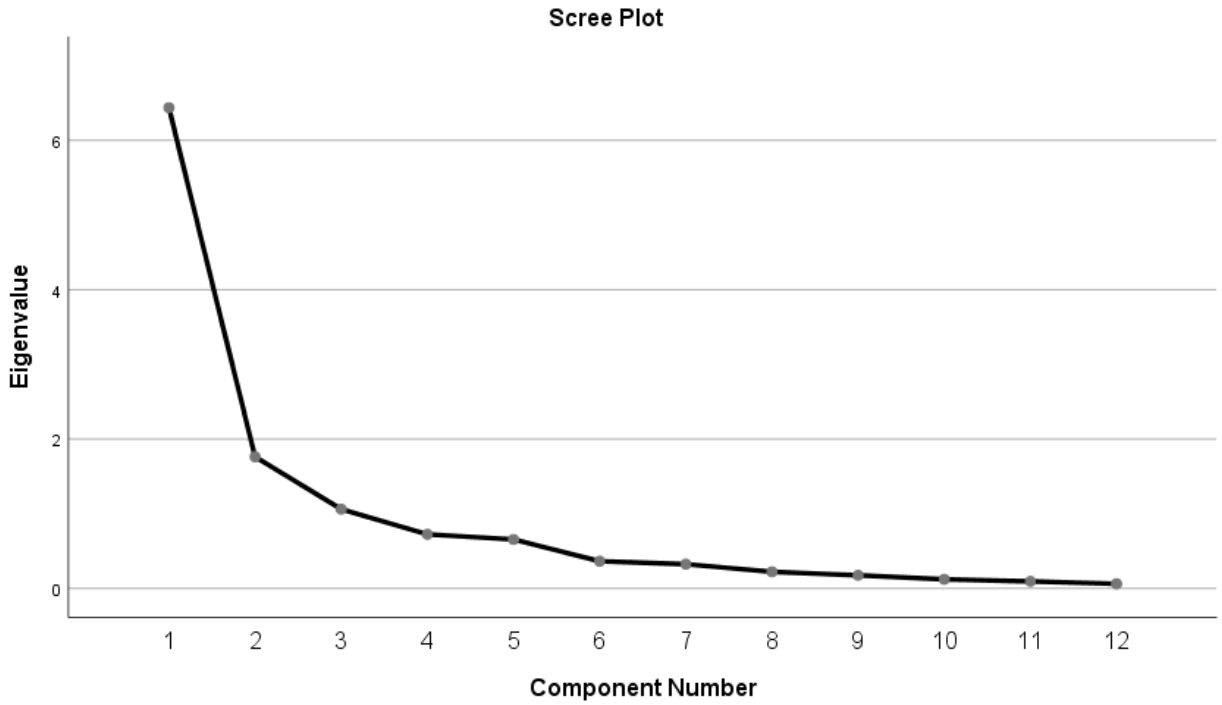
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.437	53.639	53.639	6.437	53.639	53.639	4.403	36.692	36.692
2	1.763	14.690	68.329	1.763	14.690	68.329	2.913	24.272	60.965
3	1.060	8.837	77.166	1.060	8.837	77.166	1.944	16.201	77.166
4	.723	6.028	83.194						
5	.656	5.464	88.658						
6	.364	3.032	91.690						
7	.324	2.701	94.391						

8	.222	1.846	96.237						
9	.175	1.457	97.694						
10	.122	1.015	98.709						
11	.094	.780	99.489						
12	.061	.511	100.000						

Extraction Method: Principal Component Analysis.

The table above shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met your cut-off criterion (extraction method). In the university reputation domain, there were three factors with eigenvalues greater than 1. Prior to rotation, Factors 1, 2 and 3 accounted for 53.64%, 68.33% and 77.17% of the variation, respectively. Following rotation, the factors accounted for 36.69%, 24.27% and 16.20% of the variance, respectively. This suggests a three-factor solution. We will use a loading criterion of .40 (in absolute value), as recommended by Pituch & Stevens (2016). To make the table of factor loadings easier to read, we will click on "Suppress small coefficients" and type in ".40".

Also, the figure below shows the scree plot and this lead us to a slightly to the same conclusion.



The items 5,6,7,9,10,11 and 12 all loaded unambiguously onto factor 1. These items all reflected "the university reputation rarely". The positively-worded items all have positive loadings (representing affirmation of interest and involvement), whereas the negatively-worded items have negative loadings (representing sentiments opposing interest and involvement). The Items 1,3 and 4 loaded onto factor 2 and appear to represent "The university reputation sometimes". The Items 2 and 8 loaded onto factor 3and appear to represent "The university reputation frequently".

Rotated Component Matrix[a]

	Component		
	1	2	3
Do you think the university seeks to enhance its reputation through relationships with the public and private sectors?	.504	.768	
Do you think the university seeks to develop social values and ethical standards for its students and academic staff?			.871
Do you feel that the university has a systematic plan to improve its performance at the local, regional and global levels?		.938	
Do you think the university offers different practices and activities to achieve its institutional goals?		.846	
Do you feel that the available spaces at the university are sufficient for students?	.857		
Do you think the available multi-purpose rooms at the university are sufficient for students?	.696		
Do you feel that the available laboratories at the university meet the needs of students and teachers?	.745		
Do you think the university provides the necessary services for students and staff with disabilities?			.854
Do you think the university excellently provides its services?	.636	.445	.432
Do you think the university provides medical care for its students and employees?	.712		
Do you think the classrooms are well-equipped with the needed devices, lights, etc.?	.705	.411	

Do you think the university maintains health and safety rules?	.843		
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]			
a. Rotation converged in 5 iterations.			

1.10. Factor Analysis for the Community and Intellectual Potential of the University

The table below show KMO and Bartlett's Test for the community and intellectual potential of the university.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.794
Bartlett's Test of Sphericity	Approx. Chi-Square	1995.684
	df	66
	Sig.	.000

From our result, we had a KMO value of .794. This indicates that the degree of information among the variables overlap enogh/the presence of a strong partial correlation. In the community and intellectual potential of the university. Hence, it is plausible to conduct factor analysis.

The table below shot the principal component analysis related to the community and intellectual potential of the university.

Total Variance Explained

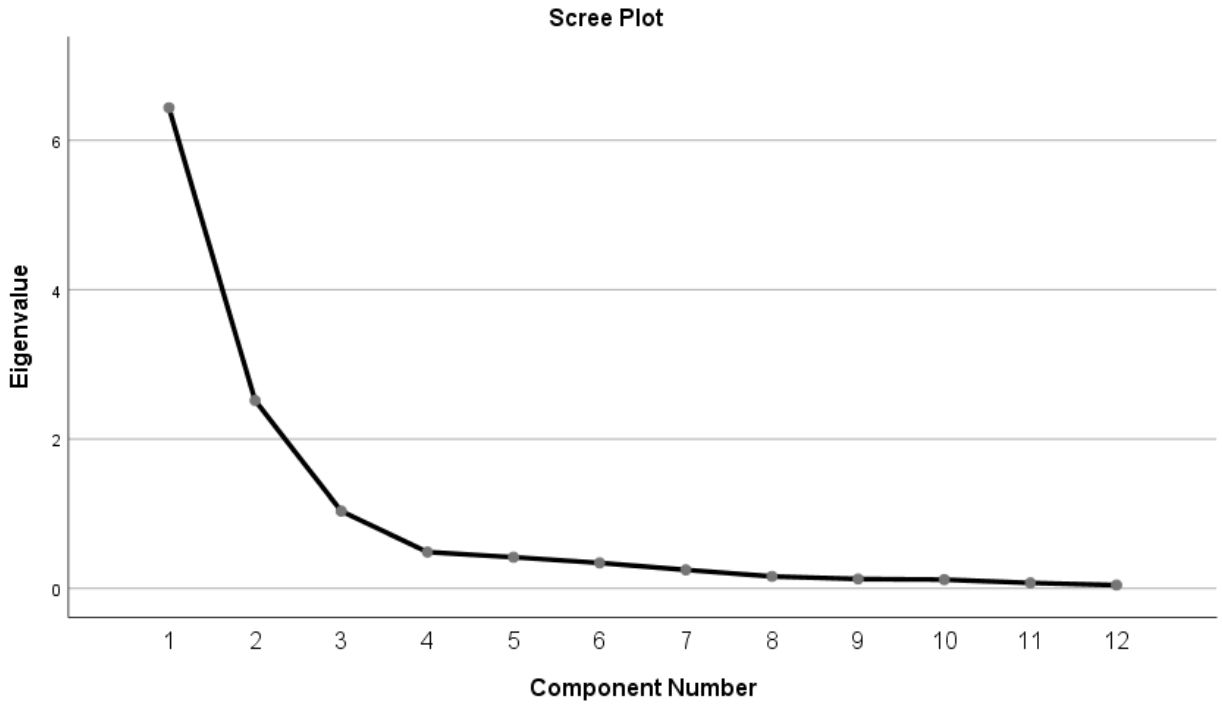
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.436	53.636	53.636	6.436	53.636	53.636	4.458	37.152	37.152
2	2.516	20.969	74.605	2.516	20.969	74.605	4.161	34.671	71.823
3	1.035	8.622	83.226	1.035	8.622	83.226	1.368	11.403	83.226
4	.486	4.051	87.277						
5	.417	3.477	90.754						
6	.342	2.846	93.600						
7	.248	2.064	95.664						
8	.160	1.333	96.997						
9	.126	1.047	98.044						
10	.117	.978	99.022						
11	.073	.609	99.631						

12	.044	.369	100.000						

Extraction Method: Principal Component Analysis.

The table above shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met your cut-off criterion (extraction method). In the community and intellectual potential of the university domain, there were three factors with eigenvalues greater than 1. Prior to rotation, Factors 1, 2 and 3 accounted for 53.64%, 20.97% and 8.62% of the variation, respectively. Following rotation, the factors accounted for 37.15%, 34.67% and 11.40% of the variance, respectively. This suggests a three-factor solution. We will use a loading criterion of .40 (in absolute value), as recommended by Pituch & Stevens (2016). To make the table of factor loadings easier to read, we will click on "Suppress small coefficients" and type in ".40".

Also, the figure below shows the scree plot and this lead us to a slightly to the same conclusion.



The items 6,8,9,10,11 and 12 all loaded unambiguously onto factor 1. These items all reflected "the community and intellectual potential of the university rarely". The positively-worded items all have positive loadings (representing affirmation of interest and involvement), whereas the negatively-worded items have negative loadings (representing sentiments opposing interest and involvement). The Items 2,3,4,5 and 7 loaded onto factor 2 and appear to represent "The community and intellectual potential of

the university sometimes". Items 1 loaded onto factor 3and appear to represent "The community and intellectual potential of the university frequently".

Rotated Component Matrix[a]			
	Component		
	1	2	3
The university seeks to increase its patents.			.930
The university rewards outstanding researchers.		.916	
The university allows researchers to participate in local and international conferences.		.917	
The university attracts international students and academics to participate in educational or research projects.		.906	
The university seeks to build supportive communities for the university's vision.	.611	.674	
The university has a clear policy to encourage students and academic staff to become innovators by finding solutions to local and global problems.	.743		.495
The university has a clear policy to encourage researchers to commercialize their research results.	.620	.701	
The university has a clear policy to encourage students and academic staff to establish start-up companies.	.629	.513	
The university provides students and academic staff the necessary support to establish their start-up companies, including financial support.	.812		
The university has a clear policy to provide the necessary licenses for commercializing students or academic staff's research results.	.846		
The university has a center for innovation and entrepreneurship and a technology transfer office.	.858		
The university seeks to exploit its research results to establish new companies.	.738		
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]			
a. Rotation converged in 5 iterations.			

1.11. Factor Analysis for All Domains that Describe the Reality of Entrepreneurship at the University.

The table below show KMO and Bartlett's Test for the reality of entrepreneurship at the university.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.912
Bartlett's Test of Sphericity	Approx. Chi-Square	1959.593
	df	45
	Sig.	.000

From our result, we had a KMO value of .912. This indicates that the degree of information among the variables overlap greatly/the presence of a strong partial correlation. In the university tangible resources. Hence, it is plausible to conduct factor analysis.

The table below shot the principal component analysis related to the reality of entrepreneurship at the university.

Total Variance Explained

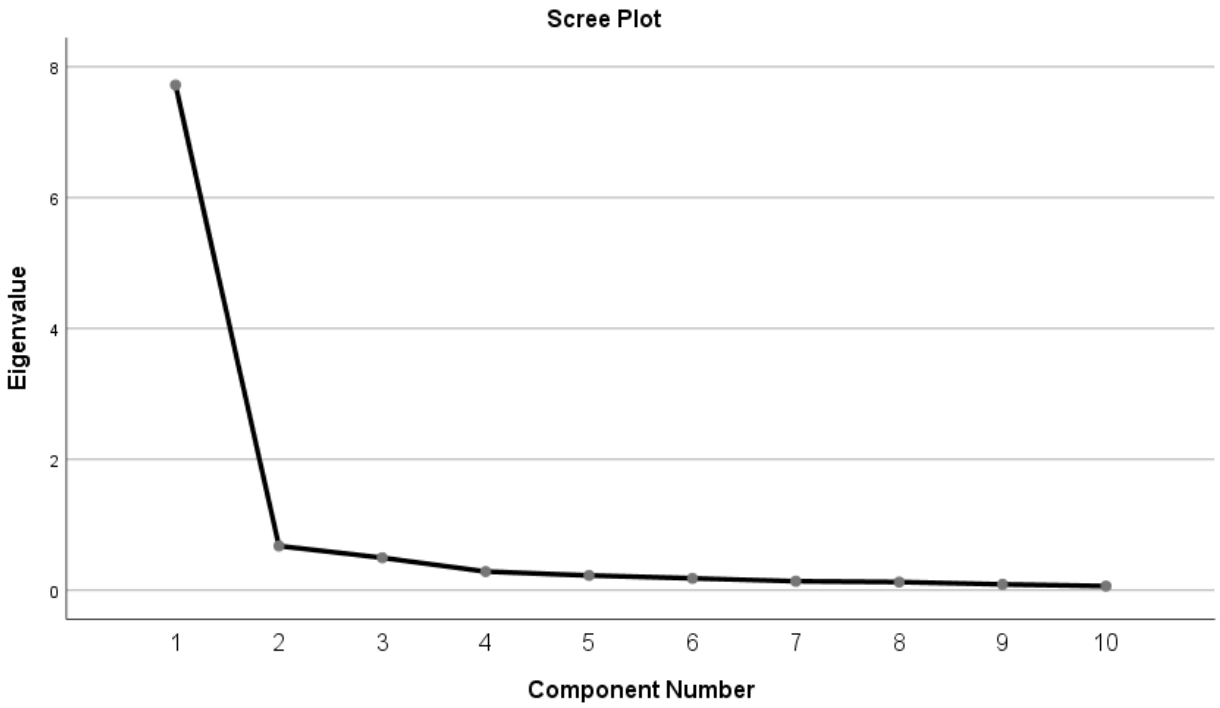
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.721	77.209	77.209	7.721	77.209	77.209
2	.676	6.761	83.970			
3	.496	4.957	88.927			
4	.285	2.851	91.778			
5	.225	2.252	94.030			
6	.182	1.815	95.846			
7	.137	1.374	97.219			
8	.125	1.254	98.473			
9	.090	.897	99.370			
10	.063	.630	100.000			

Extraction Method: Principal Component Analysis.

The table above shows the actual factors that were extracted. If you look at the section labeled "Rotation Sums of Squared Loadings," it shows you only those factors that met your cut-off criterion (extraction method). In the reality of entrepreneurship at the university, there were only one factor with eigenvalues greater than 1. Prior to rotation, Factors 1 accounted for 77.21% of the variation, respectively. Following rotation, the factors accounted for 77.21% of the variance, respectively. This suggests a one-factor solution. We will use a loading criterion of .40 (in absolute value), as recommended by Pituch & Stevens

(2016). To make the table of factor loadings easier to read, we will click on "Suppress small coefficients" and type in ".40".

Also, the figure below shows the scree plot and this lead us to a slightly to the same conclusion.



Component Matrix[a]	
	Component
	1
University Management and Organizational Structure	.837
University Leadership	.900
Programs and Curriculum	.832
Entrepreneurship Education	.869
Entrepreneurial Culture at the University	.756
Relationships and Collaborations	.922
University Internationalization	.911
University Tangible Resources	.919
University Reputation	.908
Community and Intellectual Potential of the University	.918
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

All The items from 1 - 10 loaded unambiguously onto factor 1. These items all reflected the domains that describe the reality of entrepreneurship at the university rarely. The positively-worded items all have positive loadings (representing affirmation of interest and involvement), whereas the negatively-worded items have negative loadings (representing sentiments opposing interest and involvement).