



T.C.

TOKAT GAZİOSMANPAŞA UNIVERSITY

GRADUATE EDUCATION INSTITUTE

DEPARTMENT OF BUSINESS ADMINISTRATION

BRANCH OF MANAGEMENT AND ORGANIZATION

**THE IMPACT OF UNIVERSITY-INDUSTRY COLLABORATION
ON STUDENTS' CAREER DEVELOPMENT: COMPARATIVE
STUDY OF COUNTRIES**

Doctor of Philosophy (Ph.D.)

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TOKAT – 2025

SCIENTIFIC ETHICS PAGE

According to the thesis writing guide of Tokat Gaziosmanpasa University Institute of Social Sciences, Graduate Education Institute, My Doctorate thesis titled “The Impact of University-Industry Collaboration on Students’ Career Development: Comparative Study of Countries” that I have prepared under the consultancy of “Prof. Dr. Çetin BEKTAŞ” is based on scientific ethical values and rules. I hereby declare that it is appropriate, original work, and I will accept any legal sanctions if it is determined otherwise.

09/ 02/ 2025

Abbiha WAQAR

JURY ACCEPTANCE AND APPROVAL PAGES

ACKNOWLEDGEMENT

I want to express my sincere gratitude to my supervisor, Prof. Dr. Çetin BEKTAŞ for their untiring supervision, serenity, and priceless support throughout this doctoral journey. His mentorship and inspiration have been instrumental in shaping this thesis.

I am enormously thankful to my committee members, Prof. Dr. Sema POLATCI, and Doç. Dr. Serap BARIŞ, for their insightful feedback and expert advice throughout, which greatly enriched the quality of this work.

I am obligated to Tokat Gaziosmanpaşa University for providing resources, facilities, and a conducive environment for research.

I extend my deepest appreciation to my family members, Malik Waqar Hussain Awan, Riffat Waqar, Muhammad Umer Jamal and Malik Iftikhar Hussain Awan, for their untiring love, understanding, and inspiration during this challenging yet rewarding pursuit.

I want to acknowledge the innumerable individuals, friends, and colleagues whose inspiration, deliberations, and sustenance have contributed in various ways to the completion of this thesis. Your credence in me has been a constant source of inspiration. Special thanks to Prof. Dr. Asta Savanevičienė, whose unwavering support and insightful discussions were invaluable throughout this journey during my Erasmus studies.

I am immensely grateful to my office colleagues for their unwavering support and camaraderie. Their reassurance and understanding made this journey more rewarding. Special thanks to Prof. Dr. İlhan EROGLU for their continuous support and belief in my academic pursuits. Lastly, I would like to thank the Rector of Lahore School of Economics, Dr. Shahid Amjad Chaudhry, for granting me the opportunity to pursue my PhD and Head of the branches of Eureka School, Karolina Hiksé for throughout help and understanding during my PhD studies.

This work would not have been possible without the communal support and inspiration of all these individuals, and for that, I am sincerely thankful.

DEDICATION

I dedicate this thesis to the cherished memory of my parents and husband, Malik Waqar Hussain Awan, Riffat Waqar and Muhammad Umer Jamal, who held steadfast dreams of witnessing my PhD. journey. Their enduring aspirations and unwavering support have been an everlasting source of inspiration. To my dear siblings, Muhammad Hussnain Murtaza, Rabiha Waqar and Zahra Waqar, your continuous encouragement and support have been a pillar of strength throughout this pursuit. Additionally, I pay honor to the loving memory of my late grandfather, whose presence and untiring belief in my capabilities continue to guide and inspire me. This work stands as a testament to the dreams they carried, the unwavering support provided by my siblings and the enduring spirit of my parents and husband.

ABSTRACT

THE IMPACT OF UNIVERSITY-INDUSTRY COLLABORATION ON STUDENTS' CAREER DEVELOPMENT: COMPARATIVE STUDY OF COUNTRIES

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Management and Organization Program

Supervisor: Prof. Dr. Çetin BEKTAŞ

February 2025, xix+ 150 pages

The purpose of this study is to reveal the impact of university-industry collaboration on student's career development in developed and developing countries. There are various alternatives to the word "University-industry Collaboration" (UIC) comprising University-Industry Linkages (UIL), University-Industry Partnership (UIP) etc. In light of the literature, "University-Industry collaboration is defined as the collaboration seeking to accelerate expertise and knowledge transfer between the learning system and industry". New ideas and technology are constantly in high demand around the world. Collaboration between universities and industries can foster innovation and provide fresh methods for problems. Robust university links between universities and industries can accelerate local economies and train a more qualified labor force. Thus, university-industry collaboration has a substantial influence on the country's economy, particularly on student career development. These university-industry collaborations typically result in a larger network of resources and contacts, which can serve as a platform for future collaborations. Collaborations between universities and industries benefit both parties by generating a competent employee and supporting students with the handy experience they demand while studying. These university-industry relationships advance employees by providing prospects for skilled progress and growth. Industry executives that serve on university advisory boards contribute to the design and improvement of curriculum and academic programmes, preparing students for successful careers. Through industry mentorship, students can obtain tailored coaching and possibilities for career progress that

are not possible in a traditional classroom perspective. The research has been conducted through quantitative and qualitative cross-sectional studies. To get a detailed universal overview of UIC, questionnaires were conducted in Pakistan, Türkiye and Lithuania among business and engineering students from various universities and qualitative data is gathered through university websites. The questionnaire was developed in two languages (English & Turkish). The questionnaires were disseminated online through google forms. A simple random sampling technique was used to gather the responses from a total sample of around 557 students. The findings show that UIC generates value for the university, students, and industry. More value is created, particularly for students, and business can benefit from this increased value. Students benefit from real-world knowledge and project-based education, resulting in a richer learning experience. Furthermore, contact with industry increases students' employment opportunities. Students can use UIC to advance their careers. Furthermore, students provide a new viewpoint, introspection, inspiration, energy, and passion. Through collaboration, companies and universities have access to fresh knowledge and innovation tools. Collaborating with students can also help businesses to get future employees.

Keywords: Comparative Study, Countries, Student's Career Development, University-Industry Collaboration.

ÖZET

ÜNİVERSİTE-SANAYİ İŞBİRLİĞİNİN ÖĞRENCİLERİN KARIYER GELİŞİMLERİNE ETKİSİ: ÜLKELERİN KARŞILAŞTIRMALI İNCELENMESİ

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Danışman: Prof. Dr. Çetin BEKTAŞ

Şubat, 2025, xix + 150 sayfa

Bu çalışmanın amacı, gelişmiş ve gelişmekte olan ülkelerde üniversite-sanayi iş birliğinin öğrencilerin kariyer gelişimi üzerindeki etkisini ortaya koymaktır. “Üniversite-sanayi iş birliği” (ÜSİB) kelimesine Üniversite-Sanayi Bağlantıları (ÜSB), Üniversite-Sanayi Ortaklığı (ÜSO) vb. gibi çeşitli alternatifler bulunmaktadır. Literatür ışığında, “Üniversite-sanayi iş birliği, öğrenme sistemi ile sanayi arasında uzmanlık ve bilgi transferini hızlandırmayı amaçlayan iş birliği” olarak tanımlanmaktadır. Yeni fikirlere ve teknolojiye dünya çapında sürekli olarak yüksek talep vardır. Üniversiteler ile sanayi arasındaki iş birliği, inovasyonu teşvik edebilir ve sorunlara yönelik yeni yöntemler sağlayabilir. Üniversiteler ile sanayi arasındaki sağlam üniversite bağlantıları, yerel ekonomileri hızlandırabilir ve daha nitelikli bir işgücü yetiştirebilir. Dolayısıyla, üniversite-sanayi iş birliğinin ülke ekonomisi üzerinde, özellikle öğrenci kariyer gelişimi üzerinde önemli bir etkisi vardır. Söz konusu üniversite-sanayi iş birlikleri, genellikle gelecekteki iş birlikleri için bir platform görevi görebilecek daha geniş bir kaynak ve iletişim ağıyla sonuçlanır. Üniversiteler ve endüstriler arasındaki işbirlikleri, yetenekli bir çalışan yaratarak ve öğrencilere öğrenimleri sırasında talep ettikleri kullanışlı deneyimi sağlayarak her iki tarafa da fayda sağlar. Bu Üniversite-endüstri ilişkileri, yetenekli ilerleme ve büyüme için beklentiler sağlayarak çalışanları ilerletir. Üniversite danışma kurullarında görev alan endüstri yöneticileri, müfredat ve akademik programların tasarımına ve iyileştirilmesine katkıda bulunarak, öğrencileri başarılı kariyerlere hazırlar. Endüstri rehberliği aracılığıyla öğrenciler, geleneksel bir sınıf perspektifinde mümkün olmayan özel koçluk ve kariyer ilerlemesi olanakları elde edebilirler. Bu araştırma, nicel

ve nitel kesitsel çalışmalar yoluyla yürütülmüştür. Üniversite-sanayi iş birliğinin ayrıntılı bir evrensel genel görünümünü elde etmek için; Pakistan, Türkiye ve Litvanya'da çeşitli üniversitelerden işletme ve mühendislik öğrencileri arasında anket yapılmış ve nitel veriler üniversitelerin web siteleri aracılığıyla toplanmıştır. Anket iki dilde (İngilizce ve Türkçe) geliştirilmiştir. Anketler “Google formları” aracılığıyla çevrimiçi olarak dağıtılmıştır. Yaklaşık 557 öğrenciden oluşan bir örneklemden yanıtları toplamak için basit örnekleme tekniği kullanılmıştır. Bulgular, üniversite-sanayi işbirliğinin öğrenciler ve endüstri için değer ürettiğini göstermektedir. Özellikle öğrenciler için daha fazla değer yaratılmakta ve işletmeler bu artan değerden faydalanabilmektedir. Öğrenciler gerçek dünya bilgisinden ve proje tabanlı eğitimden faydalanır ve bu da daha zengin bir öğrenme deneyimiyle sonuçlanır. Ayrıca, endüstriyle temas öğrencilerin mezuniyet sonrası istihdam olanaklarını artırır. Öğrenciler kariyerlerini ilerletmek için üniversite-sanayi işbirliğini kullanabilirler. Ayrıca, öğrenciler yeni bir bakış açısı, iç gözlem, ilham, enerji ve tutku sağlarlar. Sanayi ve üniversite işbirliği sayesinde yeni bilgilere ve inovasyon araçlarına erişilebilir. Öğrencilerle işbirliği yapmak, işletmelerin gelecekteki çalışanları elde etmesine de yardımcı olabilir.

Anahtar Sözcükler: Karşılaştırmalı Çalışma, Ülkeler, Kariyer Gelişimi, Üniversite-Sanayi İşbirliği.

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ABBREVIATIONS

UIC	: University-Industry Collaboration
MTP	: Management Training Program
GOP	: Tokat Gaziosmanpaşa Üniversitesi
LSE	: Lahore School of Economics
KTU	: Kaunas University of Technology
UIP	: University-Industry Partnership
UIL	: University-Industry Linkages
GDP	: Gross Domestic Product
UIR	: University-Industry Relationship
MOU	: Memorandum Of Understanding
CPD	: Continuing Professional Development
WMG	: Warwick Manufacturing Group
R&D	: Research & Development
KIC	: Knowledge Integration Community
KE	: Knowledge Exchange
UKM	: University Kebangsaan Malaysia
SCCT	: Social Cognitive Career Theory
SLTCDM	: Social Learning Theory of Career Decision Making
LTCC	: Learning Theory of Career Counseling
LLL	: Lifelong learning
CE	: Continuing Education
CPI	: Consumer Price Index
HDI	: Human Development Index
OECD	: Organization for Economic Co-operation Development
HEC	: Higher Education Commission
USIMP	: Üniversite Sanayi İşbirliği Merkezleri Platformu
KARMER	: Kariyer Uygulama ve Araştırma Merkezi
WTO	: World Trade Organization
HEI's	: Higher Education Institutions

INTRODUCTION

The goals of universities have broadened in current years to comprehend what is commonly described as the "third mission" in academic literature. Secundo and his colleagues (2017) characterized this "third mission" as "the production, practice, concentration, and manipulation of information with peripheral shareholders and society worldwide". Universities are therefore progressively expecting to support in resolving socio-financial concerns. University-industry collaboration as a norm of attaining the third purpose is gaining popularity among those involved in the task of universities in the countrywide economy (Nsanzumuhire & Groot, 2020, p. 1). Also, universities efficacy is significant for industries as it promotes new university capabilities and effectiveness of higher education (Bektaş & Tayauova, 2014, p. 2270).

New ideas and technologies are always in high demand around the world. This is true across all industries. When universities and industries collaborate, it is feasible to foster creativity and address challenges through innovative solutions. Strong academic ties between universities and industries can boost local economies and train a better skilled workforce. Thus, university-industry collaboration has a great influence on a nation's wealth. These university-industry collaborations frequently result in an increased network of resources and contacts that can serve as the foundation for future collaboration opportunities. Collaborations between universities and industries benefit both parties by developing a qualified workforce and giving students the practical applications they require during their studies. These university-industry collaborations help employees by providing possibilities for professional development and career advancement. Industry advisors that sit on advisory boards at universities contribute to the development and improvement of curricula and educational initiatives that better equip students for fulfilling careers. Students can progress their careers and obtain individualized coaching from industry mentors, which is not probable in a classroom setting alone (CCAPS, 2024).

University–Industry Collaboration networks are progressively substantial to national economies (O'Dwyer, Filieri, & O'Malley, 2023, p. 900). The terms University-Industry Linkages (UIL), University-Industry Partnership (UIP), University-Industry

Alliance (UIA), and University-Industry Relationship (UIR) are some alternatives to the word "University-Industry Collaboration" (UIC) (Mgonja, 2017, p. 216). According to the previous studies, "University-industry collaboration is defined as the collaboration seeking to accelerate knowledge and technology transfer between education system and industry" (Chen, Chang, & Fang, 2019, p. 1). University-industry collaboration will help policymakers, educators, and industry leaders who are interested in promoting economic development and improving educational outcomes by strengthening partnerships between universities and industries. This study can provide recommendations in terms of student's career development that support UIC and maximize its benefits for students, organizations, industry partners, and society in developed and developing nations. Moreover, this context stresses the prominence of knowing the different educational systems that exist across different countries and regions, and how university-industry collaboration impacts student's career development. Fostering collaboration between university and industry, as well as establishing a national innovation framework, are crucial for economic success. Universities' basic research knowledge must be transmitted to industry to create new products and services. University requires collaboration with industry to drive innovation (Yalçıntaş, Kaya, & Kaya, 2015, p. 63).

In order to profit both associations and revelries through unambiguous ways inside a system, university-industry collaboration comprises of merging industry resources (experience, staff, and marketing strength) with university resources (knowledge, researchers, and laboratories). Successful university-industry collaboration depends on effective collaboration among all involved parties (state, university, and industry). University-produced information is not directly applicable to industry due to its formation. Similarly, few industrial organizations have the infrastructure to generate new products. To facilitate communication between two parties, appropriate interfaces are necessary (Yalçıntaş, Kaya, & Kaya, 2015, p. 63).

A career is defined as "an arrangement of professions establishing a career hierarchy up which progression is probable," sometimes but not always a "profession," and dazzling what some would call a middle-class prejudice, according to industrial sociologist and psychologist (Super D. E., 1976, p. 13). There are 5 career stages, which include growth, exploratory, establishment, maintenance, and decline. Every stage has its

own specific characteristics. And each stage occurs for different age groups. (Super D. E., 1976, p. 22). Moreover, there are numerous sorts of career strategies, such as becoming skillful in the position held, working longer hours, learning new skills and prospects at work, finding a mentor, establishing one's reputation and image, and getting involved in administrative politics.

Furthermore, the California Community Colleges research and planning team describes six element frameworks for student achievement. The six element frameworks are: directed, focused, nurtured, engaged, linked, and valued (The RP Group, 2024). There are several indicators of successful students' careers including academic performance, skills and expertise, internships and work experience, networking, continuing education and lifelong learning, management training programs (MTO). However, for student's career development and success universities play a crucial role in providing career counseling services to the students, facilitating internships and Co-op programs, connecting with alumni networks, providing mentoring facilities, establishing partnerships and involving in industry engagement and helps in finding employment opportunities.

In recent decades, career advising and counseling practice, as well as research conducted worldwide, have been inspired by five key theories of professional development. The following are the big five career theories: (a) Work-Adjustment Theory, (b) Theory of Vocational Personalities in Work Environment by Holland's, (c) Circumscription and Compromise Theory of Gottfredson's, (d) Theory of Social-Cognitive Career, and (e) Super and Savickas' Self-concept Theory of Career Development (Leung, 2008, p. 115).

Over the past century, in the West, especially in the United States, career counseling and guidance have developed a comprehensive set of concepts and interfering strategies. Frank Parson's trait-factor method from the early 1900s served as its foundation. In the twenty-first century, it has progressively developed into a very mature discipline with a ardent theoretical and practical base, and in the coming years, it may advance into a more "global" science. Professional and career-related barriers do, in fact, relate to people of all ethnicities and cultures (Leung, 2008, p. 115).

In the world economy of today, individuals face a variety of occupational challenges, some of which are specific to various cultures and others shared by many. Worldwide themes, such as finding life's persistence and meaning, defining oneself via work, and addressing employment and unemployment, affect individuals across cultures. Career development offers opportunities to share knowledge, problems, and challenges on a worldwide scale (Leung, 2008, p. 115).

Over the last three decades, developed countries have experimented with various approaches to utilize scientific research and technical progress to spur economic growth. One approach is to build a university-industry research collaboration. In the past few years, the number and diversity of connection mechanisms in industrialized countries has increased dramatically. Developing countries are also more involved in promoting collaborations. Currently, there is no agreement on which techniques are effective and in what conditions (Parker, 2010).

Although industries in rich nations seem to have benefited from university-industry collaborations, developing countries face a variety of challenges and obstacles that make it difficult to establish robust university-industry collaborations (Temel & Glassman, 2013, p. 81).

Chapter 1 is about “university-industry collaboration”. It further includes 8 sections. To begin with, Section 1 describes the historical background of university-industry collaboration, furthermore, section 2 defines the benefits of university-industry collaboration along with section 3 includes the definitions of university-industry collaboration from literature by different authors, furthermore, section 4 designates the diverse kinds of university-industry collaborations, leading to section 5 that elaborates various factors affecting university-industry collaboration, last but not the least is the section 6 covering some successful examples of university-industry collaboration of various industries and universities, and concluding with section 7 that outlines the aim of collaboration between university and industry and the last section of this chapter explains university-industry collaboration conceptual framework.

Chapter 2 is the “Students Career Development”, and it incorporates 4 sections. Section 1 discussed the definition of career and various types of career stages. In addition

to that it also incorporates the types of career strategies. Section 2 focuses on career development, which includes theoretical perspective and career development theories. However, section three of this chapter discusses various indicators of a successful student's career. Furthermore, the last section 4 focuses on university support for student's career development and success.

Chapter 3 elaborates “Comparative Study of Countries”, and it includes various sections such as first section incorporates evaluation of countries in terms of macroeconomic indicators, which includes various subsections explaining macro-economic indicators of each country in detail including Pakistan, Türkiye and Lithuania. Some of the main macro-economic indicators discussed in the subsections are inflation, population, unemployment, GDP and current account balance. The data about these indicators are taken from the world bank. In addition to that section 2 describes the general characteristics of developed and developing countries. Furthermore, section 3 particularizes country level development following section 4 explains about the comparison of Pakistan, Türkiye and Lithuania economy. The situation of university-industry collaboration in Pakistan, Türkiye, and Lithuania is covered in the latter portion of this chapter.

This research's Chapter 4 is the “Empirical Research on university-industry Collaboration”. It consists of scientific problems of the research, aim, scope and importance of the research. In addition to that it contains the two most crucial parts, which are Methodology and Findings & Results of the research. One of the most important sections of a dissertation in any research project is the methodology chapter. Section 4.6 delineates the research methodology. It helps readers understand how data is gathered and how it plans to analyze the data by giving a thorough explanation of the research methods employed. For the study to be replicated and its findings to be validated, this component is essential.

Moreover, Section 4.7 outlines the Findings and Results of the research. It explains in detail quantitative analysis by running various statistical techniques using SPSS software and qualitative analysis by analyzing content from various university websites, reports and articles. This section also incorporates demographic analysis of the respondents, who are engineering and bachelor's students from various universities of

Pakistan, Türkiye and Lithuania. The data used for quantitative analysis is gathered from a questionnaire.

In the last of thesis, we conclude the thesis under the conclusion chapter, which further includes limitations and future directions. This chapter summarizes all the main concepts discussed about university-industry collaborations in detail, in addition to student's career development with detailed description of various career development theories. Furthermore, discussing various characteristics of developing and developed countries and the role of university-industry collaboration in developed and developing nations, which specifically include Pakistan, Türkiye, and Lithuania. To summarize the results of the study from students' perspective.

CHAPTER 1: UNIVERSITY-INDUSTRY COLLABORATION

1.1. HISTORICAL BACKGROUND OF UNIVERSITY-INDUSTRY COLLABORATION

Historically, universities prioritized education and basic research, whereas industry prioritized practical applications. The realization that collaboration may benefit both sides led to increased participation over time. The mid-1900s saw a sudden rise in government funding for scientific research and development, especially in the aftermath of World War II. As a result, universities became key contributors to technological developments and innovation, resulting in stronger linkages between academics and industry.

“Universities-industry collaboration (UIC) implies to the collaboration between any divisions of the advanced educational system and industry seeking predominantly to persuade information and knowledge exchange” (Ankrah & AL-Tabbaa, 2015, p. 387). UIC has a long history as a method of increasing an organization's knowledge stock. These collaborations have substantially increased recently in several nations, including the US, Japan, and EU member states (Ankrah & AL-Tabbaa, 2015, p. 387). All organized efforts in the arena of scientific and technological development that syndicate resources like students, scientists, knowledge acquisition, and technical devices with business region production, the requirement of student apprenticeship, and the application of scientists' theoretical knowledge in practice are included in the concept of university-industry collaboration (Şendoğdu & Diken, 2013, p. 967). In industrialized countries, particularly in the United States, university-industry collaboration is so robust and internalized that industry pressures have become academic projects (Şendoğdu & Diken, 2013, p. 968).

In 1980, the Bayh-Dole Act, was enacted in the United States, is extremely significant due to its exceptional impact on university research. The law assured the likelihood and research institutions that are sponsored by the state budget in the United States of America the sharing of money from commercialized research and development activities outcomes and the interface that gives the university, scholar, and the process of technology transmission. A university's standard of 250 grants before 1980 generated

3278 US charters in 2005, bringing in \$1.46 billion USD (Şendoğdu & Diken, 2013, p. 969).

The relationship between industry and university has changed in recent decades, even though university-industry collaboration is not a new occurrence. University-industry collaboration in creative sectors has expanded dramatically with the expansion of the information economy, opening new prospects for universities and industries, lab researchers, corporate managers, and venture capitalists (Teller & Validova, 2015, p. 691). Collaborations between university and industry are influenced by several variables, such as a nation's historical context, social features, present economic situation, and specific state regulations. These factors differ from nation to nation, yet some unities could be investigated individually. For instance, the nations that made up the former Soviet bloc have similar educational systems, sociocultural traits, and political and ideological backgrounds. After the waves of systemic change in the late 1980s and early 1990s, which left their economic structures in post-industrial contexts, they also had to deal with equivalent obstacles. Over the past 25 years, these nations have joined the world market. Most of them have replaced their trade and economic policies and joined or started free trade contracts or customs unions (Teller & Validova, 2015, p. 692).

Carayannis and his colleagues argue that university-industry collaboration has evolved in research and development in industrialized countries, particularly since the 1970's. In the last 20 years, especially in the United States, there is a strengthening collaboration among university, industry, and government (Carayannis, Alexander, & Ioannidis, 2000, p. 482).

1.2. BENEFITS OF UNIVERSITY-INDUSTRY COLLABORATION

University and industry are building pillars of a country's knowledge base economy (Khan & Ahmad, 2018). There are numerous advantages of university-industry collaboration. The students get the practical real-world skills they developed in the several laboratories established by industries enhanced their employability (Goteng, Shohel, & Tariq, 2022, p. 16). The other benefits include that students can get internships easily in reputable companies. Other than that, they will also get employment which leads to their best career. Through high-quality learning practices, university-industry collaboration helps train students with 21st-century competences for the promptly

changing job market (Goteng, Shohel, & Tariq, 2022, p. 2). Collaboration involving universities and industries has a sustained history, and both sectors can profit greatly from joining together. Through these collaborations, universities can increase student employment opportunities, identify significant, interesting, and pertinent problems, and receive financial support for their missions in education, research, and service. They can also broaden the experience of their faculty and students (Prigge, 2005).

However, these benefits of university-industry collaboration vary from developing to developed countries. The students cannot get more benefits in developing countries such as Pakistan whereas there are more benefits for the students as well as for the industries personnel in developed countries. According to the literature, there are several reasons why global leaders value collaborating with industries (RELX, 2021, p. 3). These are as follows:

- Better potential for social influence
- Better apprentice prospects and results
- Amplified funding
- Potential for economic growth
- Exploit government initiatives to raise funds

1.3. DEFINITION OF UNIVERSITY-INDUSTRY COLLABORATION

According to the literature, “University-industry collaboration is defined as the collaboration seeking to accelerate knowledge and technology transfer between education system and industry” (Chen, Chang, & Fang, 2019, p. 1). Research indicates that firms engaging in collaborative efforts with universities generally exhibit greater production rates compared to industries lacking such collaboration (M.S.Salleha & Omara, 2013, p. 655). According to literature, various authors define university-industry collaboration in different words. According to Oliver and his colleagues, University–Industry innovation collaboration developments are grounded on connections amongst university and industry experts who are employed to interpret theoretical knowledge with viable potential concerning market tenders (O’Dwyer, Filieri, & O’Malley, 2023, p. 901).

University-industry Collaborations (UICs) have three significant characteristics that influence their nature and performance: first, they implicate individuals from diverse careers (academics and industry experts), second, the collaboration is amongst individuals rather than organizations, lastly, the collaborators belong to diverse organizations (O'Dwyer, Filieri, & O'Malley, 2023, p. 902).

From the 1980s to 2023, there have been more than 30 years of collected literature on the topic of university-industry collaboration. The researchers explore the types, motivations, influences, and outcomes of university-industry collaboration from different perspectives. Below is a discussion of some typical forms of university-industry collaborations:

1.4. DIFFERENT TYPES OF UNIVERSITY-INDUSTRY COLLABORATIONS

As stated by Omer and Salleh, Universities and industry typically collaborate through a variety of interaction models. Knowledge sharing, research and development (R&D), consulting, product marketing, and employee training are a few of them (M.S. Salleh & Omar, 2013, p. 658). According to literature, types of linkages between university and industry are grouped into eight major opportunities such as activities in the classroom and curriculum; On-site student-faculty initiatives; trade shows and neighborhood associations; Career and alumni relations prospects research on products and data; publications from corporations, textbooks, and journals; Liaison roles with funding, donations, and grants (Bosley, 2000, p. 616). According to the literature there are some other forms of university-industry collaborations which include training of graduates, traineeships/internships and continuing professional development (HMSO, 2003, p. 7). The type of university-industry collaboration that can impact student's career development are continuing professional development, traineeships/internships, and training of graduates, memorandum of understanding between university and industry (MOU) and collaborative training. The outcome of these collaborations from university side is that it helps students to get internships in their specific fields, they can get internships leading to jobs, to get employment directly in the company and beneficial for industries as their recruitment process become easy, get skilled personnel, also on the other side help students in consultation work to help them get admissions in reputable

universities. Employees in the sector can now access continuing professional development (CPD) at an increasing number of colleges. "Universities have access to the latest developments in professional practice, and industries can upgrade the expertise levels of their workforce and acquire state-of-the-art academic ideas" are two benefits of ongoing professional development. Universities may be able to make a significant amount of money from these courses (HMSO, 2003, p. 114). Industries can profit a great deal by hiring PhD students to work on R&D projects through mutual training. This is because hiring PhD students gives them retrieval to substantially competent workers as well as academic relationships and information. Privileged rewards and enhanced employability expertise gained from their work capability help the students (HMSO, 2003, p. 113).

Perkmann and Walsh (2007) state that while university-industry collaborations vary significantly in their collaborative relations, the following are the most common forms of collaborations defined in the previous studies: hiring graduates for industry positions; conferences or other events funded or prearranged by university and industry; joint publications; informal meetings, discussions, and communications; joint supervision of PhD and Master degrees; training industry members; driving researchers between universities and industries; sabbatical leave for university members to work in an industrial setting; lectures given at universities by industry members; agreement research and knowledge-related consulting; use of university amenities by industries; licensing of university copyrights by industries; and acquisition of prototypes developed at universities, support for undergraduate education, public scientific institutions' exploitation of intellectual property rights, and technology-driven companies founded by academics from these organizations (Perkmann & Walsh, 2007; Rossoni, Vasconcellos, & Rossoni, 2023, pp. 4,5).

Lind et al. (2013) recognized four categories for partner collaborate: (Lind, Styhre, & Aabo, 2013; Rossoni, Vasconcellos, & Rossoni, 2023, p. 5)

(i) **Distanced collaboration**

The distanced collaboration occurs when industry funds research in a certain field but is not involved in project decisions made by academic researchers.

(ii) **Translational collaboration**

This type of collaboration involves the industry's strong interest and support for the research agenda but does not directly participate in daily research activities. Projects are often designed for publication, with the university being the primary beneficiary of the research.

(iii) **Specified collaboration:**

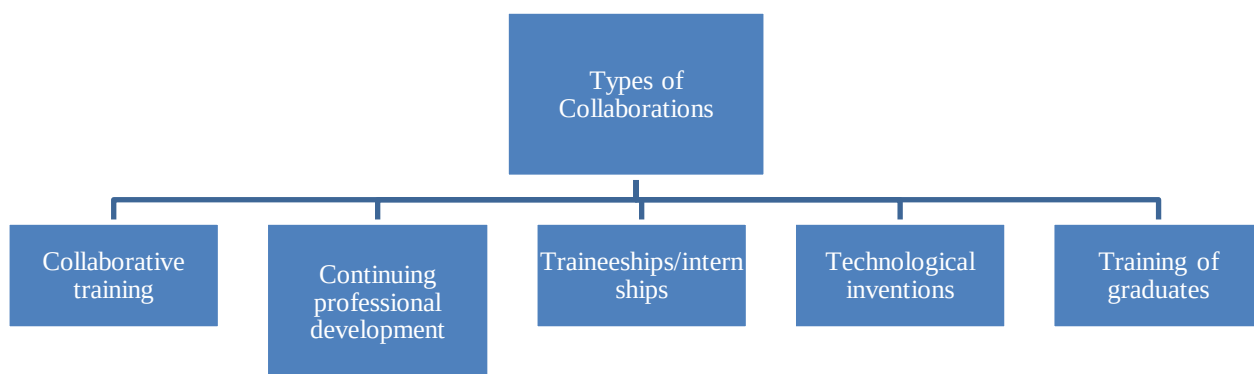
Academics' ability to combine the work with other research activities is limited in this category since the industry partner determines the task to be completed at the institution. This kind of collaboration is comparable to contract research or problem-solving.

(iv) **Developed collaboration**

Developed collaboration involves industrial and academic partners working together on research assignments that benefit both parties.

To conclude, the types of university-industry collaborations used for this research will be Traineeships/internships, Continuing professional development, Training of graduates, Collaborative training, and Technological inventions. These will be chosen as they will have an impact on a student's career also shown in Figure 1 below.

Figure 1: Types of University-industry Collaborations



Source: (Developed by Author, 2024)

1.4.1. Collaborative Training

Collaborative training is defined as a process through which staff members can impart their knowledge and experience while also teaching and learning from one another. Employee training is enhanced overall by this technique, which makes use of individual talents, knowledge, and ideas (Gupta, 2022). Private industries depend on

collaborations with universities for market competitiveness, whether through direct innovation or through human resource training (Rossoni, Vasconcellos, & Rossoni, 2023, p. 2). Collaboration between competent researchers, academics, and experts in privileged organizations can enhance regional markets by merging all prevailing practical expertise and competences (Rossoni, Vasconcellos, & Rossoni, 2023, p. 2).

1.4.2. Continuing Professional Development

Continuing professional development (CPD) is another type of university-industry collaboration that a developing number of universities offer to their industry workforce. "Universities have access to modern developments in skilled practice, and industries can upgrade the expertise levels of their employees and acquire modern academic ideas" are two benefits of ongoing professional development (HMSO, 2003, p. 122).

Employees are encouraged to pursue ongoing professional development through boot camps, degrees, and customized courses. This investment in staff advancement boost industry's accomplishment by keeping the workforce skilled and adaptable in a constantly shifting market environment. It also promotes team creativity and initiative (CCAPS, 2024).

1.4.3. Internships/ Traineeships

In this type of collaboration, the receiver (or "learner") and the knowledge contributor (or "teacher") work together to convey knowledge. Through the training process, the beginner can use the expertise that was imparted by the source in a specific scenario. The solution to a specific problem that the recipient needs to solve is known beforehand by the giver. Knowledge practice encompasses both industry-related internships for students and industry staff working in an academic lab to complete a specific project. It is the goal of a university-industry collaboration.

1.4.4. Technological Inventions

In this form of university-industry collaboration if the industries in developing countries made collaboration with foreign universities, they can make advancement in technological inventions. "The most applicable method to advancing university-industry

collaboration varies on the country's high-tech and institutional endowments" (Guimón, 2013, p. 9).

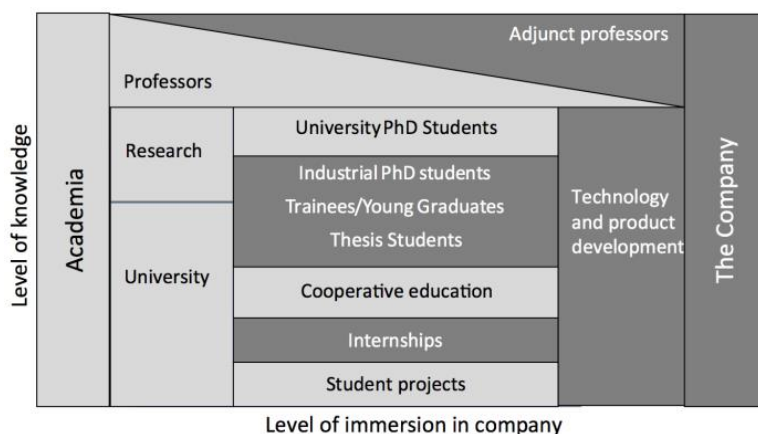
1.4.5. Training of Graduates

The employment of graduates (B.Sc., M.Sc., or Ph.D. Level) in the industry, the employment of academicians and staff from universities in the industry, trainees, dual appointments, and the temporary relocation of university members to the industry are all examples of this kind of collaboration (Mathieu, 2011, p. 6). This type of collaboration is beneficial for both universities and industries. This includes either training industry personnel by academics, situations in which the industry participants impact core prospectus of university curriculums or deliver lectures at universities.

1.5. TYPICAL UNIVERSITY-INDUSTRY RELATIONS

As previously said, colleges and industry can work in a variety of ways and for diverse goals. To acquire a better understanding of the context, we examine the results of Wallin and his colleagues (2014), who accomplished a similar investigation on the gap between university and industry. Their research involved an assessment of 20+ years of tight and sustained collaboration between a multinational firm and a university to identify the many types of collaboration that occurred during the partnership. The findings of Wallin et al (2014) are synthesized in a model as shown in Figure 2, that provides a useful overview of UIC, and despite being based on a single connection, the model is consistent with normal university-industry relationships (Perkmann & Walsh, 2007, p. 17).

Figure 2: Overview of University-industry Collaborations



Source: (Bridging the gap between University and Industry: The Mechanisms for Innovation Efficiency; Wallin, Isaksson, Larsson, & Elfstrom, 2014)

1.6. FACTORS AFFECTING UNIVERSITY-INDUSTRY COLLABORATION

According to past research, there are various variables that have an impact on university-industry collaboration. The variables include (Network Ties, Shared Objectives, Cultural Norms, Trust, Motivation, Commitment, Communication) (Thomas & Paul, 2019, p. 438). These variables affect university-industry collaboration. According to the previous studies, there are four variables that are considered for this research, as they have a significant impact on university-industry collaboration which include trust, effective communication, network ties and cultural norms.

1.6.1. Trust

Evidently, the foundation of every relationship, personal, social, professional, or commercial is the term “trust” (Rosado-Serrano, Paul, & Dikova, 2018). Trust is defined as lawful connection in which the owner of a right gives it to another person or individual who must keep and use it exclusively for another's benefit. Previous studies exhibit that trust is an essential resource that accelerates the collaboration among university and industry (Bstieler, Hemmert, & Barczak, 2015) (Rosado-Serrano, Paul, & Dikova, 2018). During university-industry collaboration, trust is a very sensitive matter, and both the parties should take care of all the information that they are sharing with each other during collaboration in order to make a successful collaboration. In other words, trust acts as a lubricant among university-industry collaboration. For example, "A few US universities, like Massachusetts Institute of Technology, have forged reliable connections with businesses to trade the technology they create in their labs" (Thomas & Paul, 2019, p. 443). If both parties develop trust between them, collaboration becomes easy. So, it is necessary that both universities and industries develop trust without violation.

1.6.2. Network Ties

The network provides a foundation by which companies can retrieve information, share assets, and trade proposals. Networking is very important in making any type of university-industry collaboration. Tsai and Ghoshal (1998) state that "network ties impact both anticipation of value through such exchange and access to parties for combining and exchanging knowledge" (Tsai & Ghoshal, 1998). Strong network ties always help in easy collaboration irrespective of weak network ties. As the study can be carried out between

developed and developing countries, this factor competes a substantial part in making successful university-industry collaboration among distinct countries. Additionally, a network fosters an environment that is promising for exchanging knowledge and growing information networks, which greatly cuts down on the time and effort needed to obtain the information through other channels (Tortoriello, Reagans, & McEvily, 2012). Strong connections always remain the same and cannot be changed and help in various ways and make the process even faster and beneficial to both the parties.

1.6.3. Cultural Norms

Cultural norms refer to the established standards and guidelines that dictate how people of a culture should behave in specific circumstances (Cliffs Notes, 2023). These standards include cooperation between businesses and an openness to learning (Edgar & Kharazmi, 2021, p. 7). Cultural factors can either push university researchers and private companies farther apart or closer together when it comes to partnership (Sjoo & Hellstrom, 2019, p. 278). Cultural norms can be in two perspectives, one is that every university and industry has a different organizational culture and on the other hand different countries have different cultural norms. So, in this study we are comparing both developed and developing countries, so we must take care of both the perspectives to make successful collaboration between universities and industries even if universities and industries collaborating among same countries or different countries.

1.6.4. Communication

The official and informal exchange of important and timely information between organizations is referred to as communication. Communication is defined as an individual's assessment of previous interactions with others who were reliable, consistent, and well-timed (Cheng, Yeh, & Tu, 2008). Good Communication is very crucial when making collaboration between university and industry. If communication is positive between all the stakeholders, it can motivate employees to promote their expertise that in turn leads to successful collaboration. Moreover, Communication lays the foundation for trust. It also helps to discover and merge common objectives, create powerful ties, and boost trust to a significant degree (Thomas & Paul, 2019). It is necessary that while

making a university-industry collaboration, communication should be smooth to carry out effective collaboration.

Moreover, this factor is very crucial and has a great effect on university-industry collaboration. Good communication is very necessary and plays a vital role in making university-industry collaborations. If communication is done in a good way and good communication tools and strategies are used, it has a great impact on university-industry collaboration.

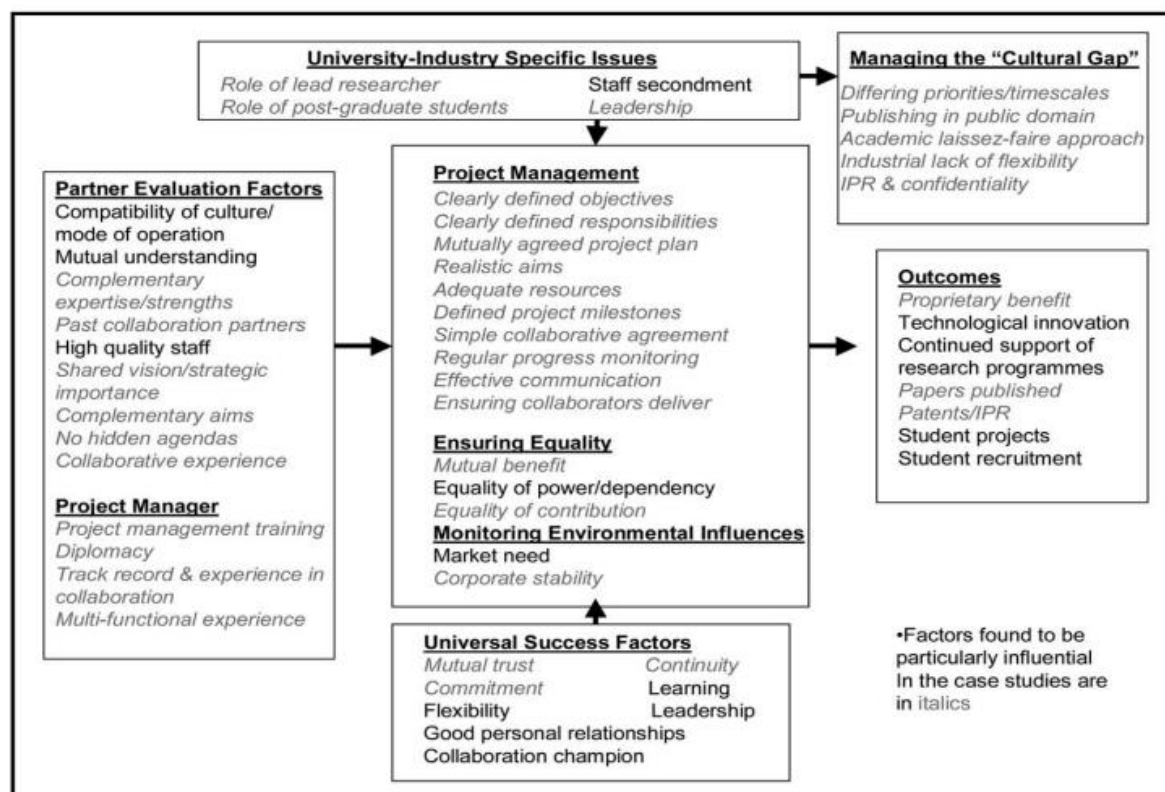
1.7. SUCCESSFUL EXAMPLES IN UNIVERSITY-INDUSTRY COLLABORATION

1.7.1. United Kingdom - Warwick University

The University of Warwick's Warwick Manufacturing Group (WMG) has been heavily involved in industry-sponsored research since its founding in 1980. Consequently, the Group offered a first-rate chance for management practice research in cooperative research initiatives between academia and industry. Barnes et al. (Barnes, Pashby, & Gibbons, 2002) aimed a competent practice model shown in Figure 3 below for administering collaborative R&D projects efficiently. The model is based on the results of six research projects using case studies, in which WMG and other industry partners took part. Every mechanism for collaboration was discovered in order to accomplish the desired results. The results are separated into six groups (M.S.Salleha & Omara, 2013):

- Factors for Partner Evaluation
- Project factors of high quality
- Universal success factors
- Managing the “Cultural Gap”
- Ensuring Equality
- Monitoring Environmental Influences

Figure 3: Good practice model for effective management of collaborative R&D projects



Source: (Effective University – Industry Interaction:: A Multi-case Evaluation of Collaborative R&D Projects; Barnes, Pashby, & Gibbons, 2002)

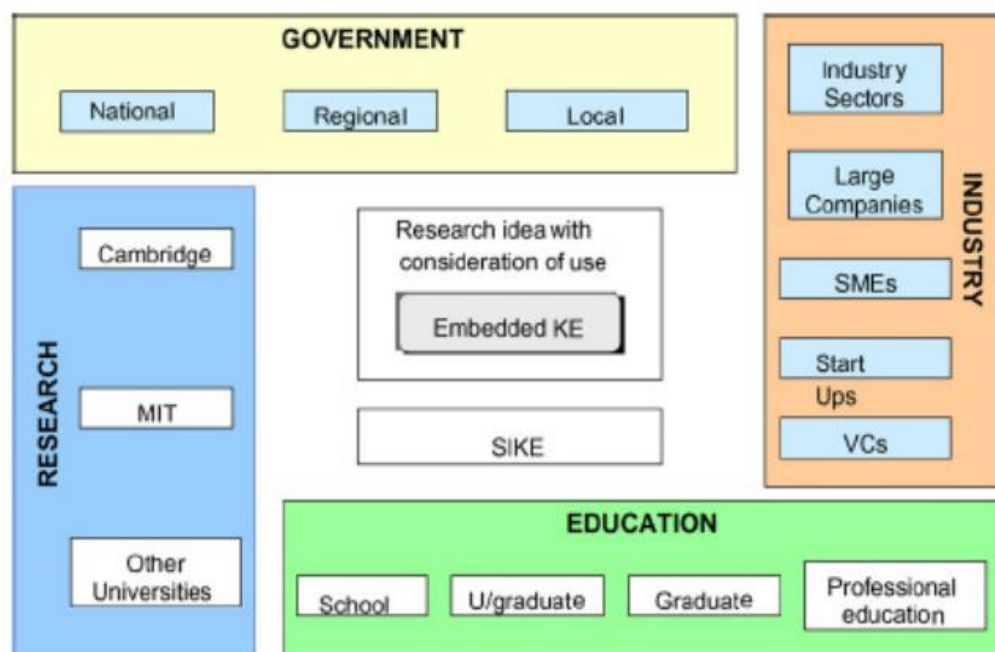
1.7.2. USA - Cambridge and MIT Institute

The Massachusetts Institute of Technology (MIT) has shown incomparable accomplishment in working with business to create a two-way data flow that supports and develops university-based research and makes it calmer for technology, both explicit and implicit to move from academia into the corporate world. In 2000, the British government established the Cambridge-MIT Institute (CMI) with the objective of executing the MIT strategy more effectively in the UK. The CMI serves as a platform for the establishment of the Knowledge Integration Community (KIC) model, which aims to enhance the productivity of university-industry networks (Acworth, 2008).

Knowledge exchange (KE) is special in this model. The four human components; industry, education, government, and research are linked by one overarching idea. KIC highlights that its information exchange operations are multidirectional, in contrast to the

conventional "knowledge transfer," which suggests a one-way flow. Information sharing is impacted by the KIC's integration of multiple specialized methods. The creation of fresh, creative concepts for promoting information exchange is greatly aided by the study of innovation in knowledge exchange, or SIKE. This model's greatest feature is that it enables learning in both prosperous and failing circumstances. The KIC model with six components is shown in Figure 4 below.

Figure 4: The six-component model of a Knowledge Integration Community



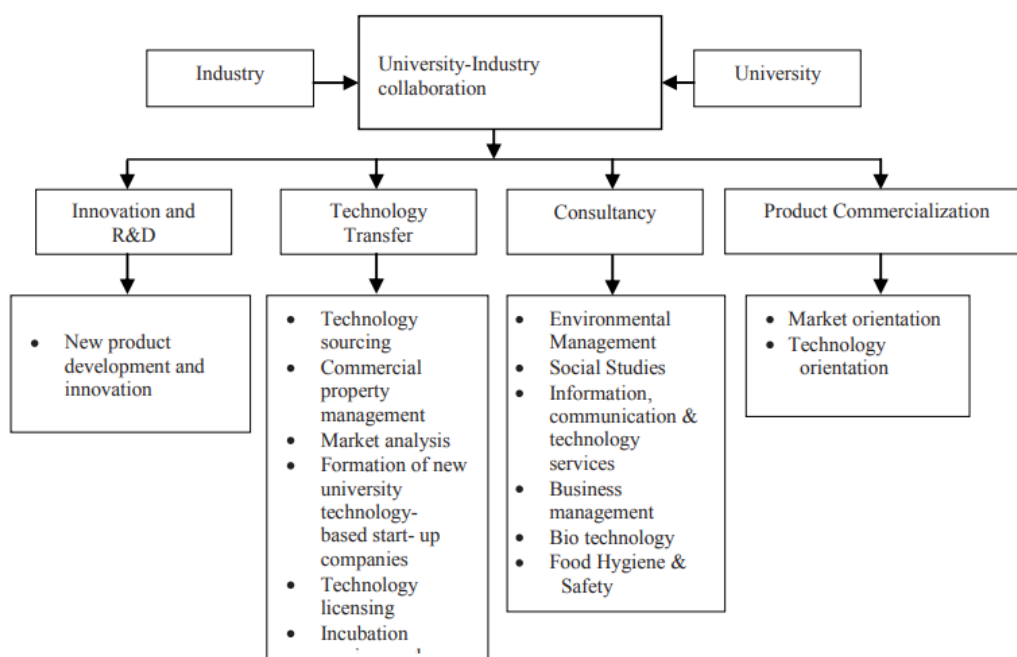
Source: (University–industry engagement: The formation of the Knowledge Integration Community (KIC) model at the Cambridge-MIT Institute; Acworth, 2008)

1.7.3. Malaysia - University Kebangsaan Malaysia (UKM)

Based on the work of various academics and their energetic participation in research and development, the Ministry of Education has named University Kebangsaan Malaysia (UKM) as one of Malaysia's five research universities. UKM has been strongly encouraged to forge connections with companies by the University's and grant sources' prominence on commercialization of research discoveries, particularly the Ministry of Science, Technology, and Innovation (MOSTI) and the Ministry of Higher Education (MOHE) (Martin, 2002). In April 2000, UKM founded UKM Holdings Sdn Bhd, a conglomerate comprising eight companies with a range of interests (UKM Holdings, 2023). UKM Holdings is an expert in healthcare management, consulting, and education. Enhancing ties between academia and business is one of the objectives of founding UKM

Holdings. UKM also offers basic infrastructure, like a building, to entice industry to do research at the university. For instance, UKM established the UKMMTDC Smart Technology Centre to foster industry-university collaboration on research projects with the aim of commercializing research outcomes. Collaboration between universities and industries typically takes various forms. In UKM, we classify four kinds of forms of engagement (innovation and R&D, technology transfer, consultancy, and product commercialization) below in Figure 5.

Figure 5: University-industry collaboration in UKM



Source: (University-industry Collaboration Models in Malaysia; M.S.Salleha & Omara, 2013, p. 660)

1.8. EXAMPLES OF UNIVERSITY-INDUSTRY COLLABORATION AROUND THE GLOBE

1.8.1. Dyson & University of Cambridge

The University of Cambridge's Director of Research, Dr. Luigi Occhipinti, states that in the engineering department, collaboration often starts out modestly before blossoming. He gives a very good example with Dyson. 2016 saw the opening of the Dyson Center for Engineering Design by Cambridge and Dyson (RELX, 2021, p. 2).

1.8.2. COVID-19 Vaccine & Symbiosis International University

Panel discussion: "Will universities reimagine collaboration with international companies after COVID-19?" at the 2020 Times Higher Education World Academic Summit. According to Dr. Vidya Yeravdekar, Pro-Chancellor of Symbiosis International University in India, the Serum Institute of India is working with Oxford University and AstraZeneca to develop a possible COVID-19 vaccine (RELX, 2021, p. 2). "Hopefully we will witness this very wonderful industry, academic collaboration occurring between an international university such as Oxford University and an Indian company," the speaker said.

1.9. REASON OF UNIVERSITY-INDUSTRY COLLABORATION

University and corporate collaboration make sense for many reasons. The following are Carayannis's justifications and benefits for academia and business: (Carayannis, Alexander, & Ioannidis, 2000, p. 483).

- Sharing the risk and expense of long-term study,
- Availability of complementing skills,
- Access to committed talent,
- Access to new markets and contractors,
- Access to state-of-the-art facilities.

Yücel says that universities can gain from corporate engagement in several ways. They are listed below (Yücel, 1997):

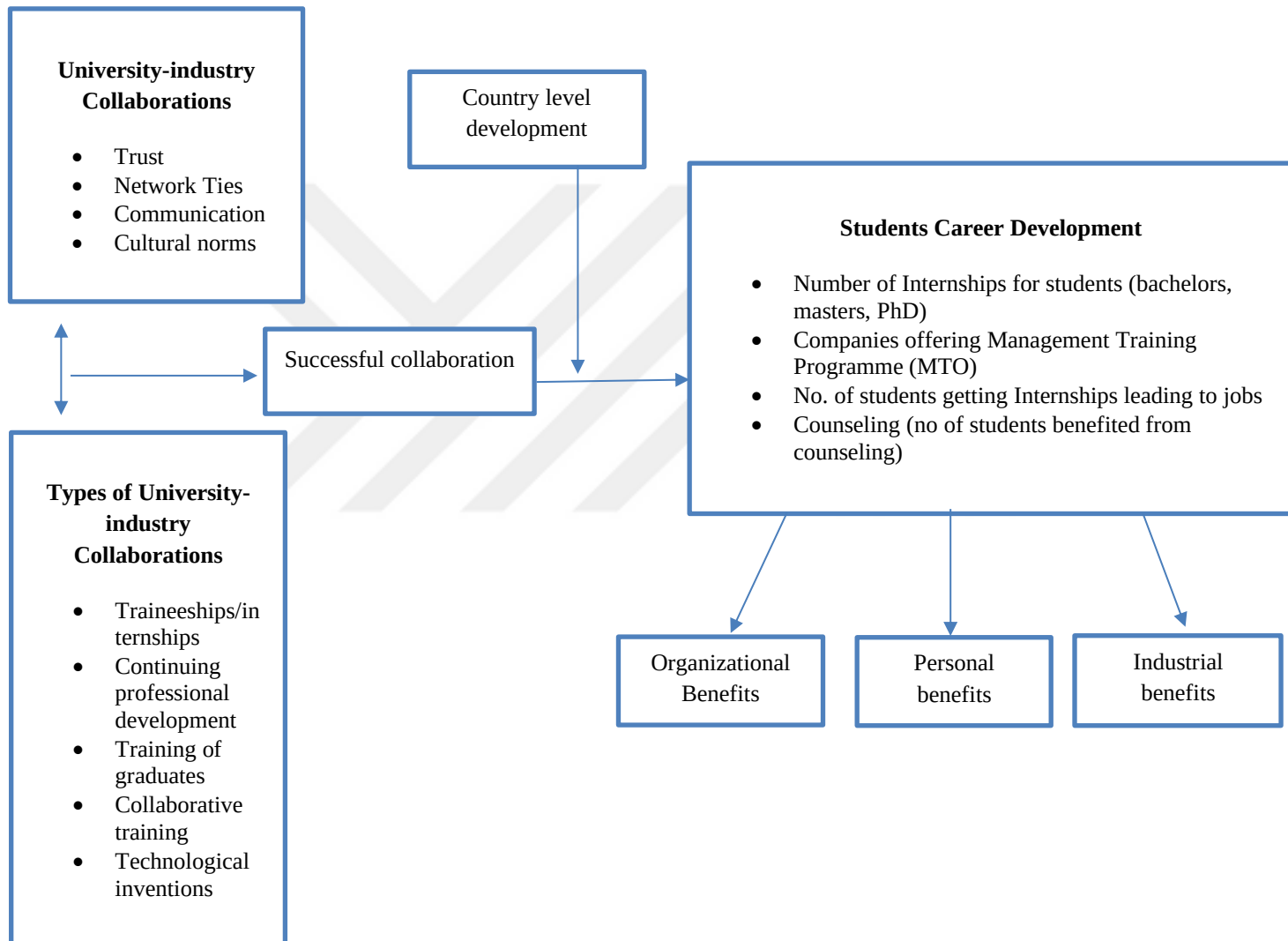
- Personal growth of researcher,
- Creating the studies on fundamental and everyday disciplines,
- To disseminate the results in order to advance disciplinary and scientific understanding.

Furthermore, on the other hand there are also several causes for industries in university-industry collaboration. There are as follows (Yücel, 1997):

- Acquiring new expertise for the market,

- Discovering production solutions,
- Developing the quality of manufactured goods,
- Gaining more market share.

1.10. CONCEPTUAL FRAMEWORK



1.11. INSTITUTIONS THAT SUPPORT UNIVERSITY-INDUSTRY COLLABORATION

The state, the university, and the industry that participate in this process must work together harmoniously and effectively for the university-industry collaboration to be beneficial. Therefore, a set of interfaces is required to establish a setting that facilitates communication between the two parties. Every country has their own specific institutions that help to make this collaboration smooth (Yalçıntaş, Kaya, & Kaya, 2015).

Below are the currently active interfaces in Türkiye.

- Use of University Revolving Capital
- Technoparks
- Technology Transfer Offices (TTO)
- Ministry of Science, Industry and Technology- Industry Theses Support Program (San-Tez) TUBITAK TEYDEB 1505 University Industry Cooperation Support Program.
- Development Agencies
- European Union Framework Programs
- National University-Industry Collaboration Centers Platform (ÜSiMP)

In an effort to promote industry-university collaboration and stimulate innovation and economic expansion, Lithuania has set up a number of institutes. Among these, important institutions are:

- Santaka Valley Centre of Research, Studies and Business
- Kaunas Science and Technology Park
- Vilnius University R&D Solutions for Business
- Tech-Park Kaunas
- ISM University of Management and Economics

In an effort to stimulate innovation and economic growth, Pakistan has set up a number of institutions to promote collaboration between universities and industries. Some notables are as follows:

- National Science & Technology Park (NSTP) – NUST (Islamabad)
- Lahore Knowledge Park (LKP)
- National Incubation Centers (NICs)
- PITB Plan9 & Arfa Software Technology Park (Lahore)
- UET Lahore Science and Technology Park
- COMSATS Technology Park (Islamabad)
- Sindh Science and Technology Park (Karachi)



CHAPTER 2: STUDENTS' CAREER DEVELOPMENT

2.1. CAREER STAGES AND TYPES OF CAREER STRATEGIES

This chapter incorporates 4 sections. Section 1 discussed the definition of career and various types of career stages. In addition to that it also incorporates the types of career strategies. Section 2 focuses on career development, which includes theoretical perspective and career development theories. However, section three of this chapter discusses various indicators of a successful student's career. Furthermore section 4 focuses on university support for students' career development and success.

2.1.1. Definition of Career

An individual labor economist defines a career as "a series of events in the world of labor, with aims and results and with or without sequence." A different labor economist provides a roughly similar definition of career, but with stronger drive. One industrial psychologist and one industrial sociologist define it as "a sequence of jobs constituting a career ladder up which advancement is possible," sometimes but not always a "profession," wondering what some would term a middle-class bias. While two counseling psychologists and one career educator use the similar but less psychological definition of "activities, occupational and others, founding a life pattern," one personality and social psychologist describes a career as "an orderly sequence of statuses and functions (occupational, familial, and leisure) ensuing from the pursuit of emergent values." Several psychologists who specialize in counseling and school counseling, personality and social psychology, and career education all see a "career" as an "occupation," following a tradition that ignores the precise meanings of the terms (Super D. E., 1976, p. 13).

According to the literature, a person's career is the series of significant tasks they have held during their pre, during, and post-work lives. These roles incorporate work-related ones like employee, student, and retiree, as well as supplementary civic, familial, and recreational activities. Professions are person-centered and only exist because people pursue them (Super D. E., 1976, p. 20).

2.1.2. Career Stages

The career stages theory explains how workers' behaviors evolve throughout their careers. According to organizational psychologists, the stage of a person's career can impact on their work experiences. This is because individuals' needs, attitudes, values, and concerns transform as they become old and gain experience in both their career and personal lives (Giovanna, Vilela, & Casado, 2021, p. 62). Career stages are essentially stages of development throughout life. The career stages are categorized as Growth, Exploratory, Establishment, Maintenance, and Decline Stages. Every stage is distinguished by the unique significance of specific collective expectancies. For instance, during the Exploratory Stage, young people are anticipated to choose careers, and adults are projected to put those decisions into practice and carve out spaces for themselves in the workplace, the home, and the community during the Establishment Stage. Moreover, Lee found that differences in career stages have a greater impact on certain aspects of work, both professionally and personally (Lee, 2020). Younger workers may prioritize immediate benefits like health plans and maternity/paternity leave, while older workers may prioritize retirement planning. Researchers have examined the significance of various work factors based on an individual's career stage (Giovanna, Vilela, & Casado, 2021, p. 63). When one work is successfully completed, handling the subsequent one is made easier (Super D. E., 1976, p. 22).

2.1.2.1. *Growth Stage*

This stage arises between the ages of 0 and 14. The cycle begins when the individual becomes aware of an upcoming career decision (Giovanna, Vilela, & Casado, 2021, p. 64). This stage involves the child interacting with their home, community, and school. It leads to the active development of some skills, pursuits, and values while neglecting and atrophying other possibilities that, had they had a particular glandular and neural makeup, possibly will have become significant (Super D. E., 1976, p. 22).

2.1.2.2. *Exploratory Stage*

This occurs between the ages of 15 and 25. The person investigates their focal expertise, abilities, and pursues them with greater passion. During this stage, workers

strive their tasks and seek approval from coworkers and the organization (Giovanna, Vilela, & Casado, 2021, p. 64). Although the process of exploration itself starts in infancy and continues throughout life as circumstances and individuals change, it starts in adolescence. Experimentation is putting various roles, activities, and circumstances to the test. It could be more focused to learn further about interest in or ability for a certain job, course of study, or career options, but it might not be planned or goal-directed (Super D. E., 1976, p. 23).

2.1.2.3.Establishment Stage

Although some people drift, flounder, or explore for up to ten years longer and some never achieve solid careers, it usually starts in the mid-1900s. Men in their late 20s tend to find appropriate paid employment or to compromise and settle for the best they can find because they have more maturity, responsibilities, and knowledge than women do. Women in this age group typically reserve themselves to raising their families full-time, though some choose to pursue double-track careers and many, often without planning, return to paid work after a few years away (Super, Kowalski, & Ootkin, 1967).

2.1.2.4.Maintenance Stage

It embarks on for most people at about age 45, Nevertheless, re-Exploration and an Establishment Stage occur in the thirties for many women. The person is worried about holding his own against younger people, staying up to date with new developments, pushing forward by breaking new ground in his current or in a related sector, or reestablishing himself in the labor force after settling into an occupation and frequently into a specific job (O'Toole, 1973).

2.1.2.5.Decline Stage

This pertains to the evolving and diminishing aspects of life in general and careers in particular. While some people continue to work in their regular roles at their normal pace and on their customary program until they pass away, most people go through a method of shifting their work types, pace, and hours or days of work (Steer, 1970).

2.1.3. Types of Career Strategies

Previous findings imply that there exists a minimum of seven broad categories of career strategies that can be devoted to augmenting an individual's likelihood of accomplishing their career objectives. Achieving competency in the existing position, working longer hours, learning new skills, seizing opportunities at work, finding a mentor, enhancing one's reputation and image, and getting involved in organizational politics are the seven strategies.

2.1.3.1. *Attaining Competence in the Current Job*

Considering that companies base their judgments about promotions, at least partially, on an employee's current performance, this is a fundamental career strategy. A person's chances of being employed in the future can be increased by concentrating on improving their skills in their current position.

2.1.3.2. *Putting in Extended Hours*

Working longer hours at the office or from home is a common career strategy, particularly in the beginning when an individual is supporting the company on their own. Working past regular business hours might improve performance in one's existing position and demonstrate to the company one's dedication to the work and capacity for handling heavy workloads. Yet, working more hours can also have unfavorable long-term effects because working more hours on the weekends and in the evenings may limit an individual's time for personal or family activities.

2.1.3.3. *Developing New Skills*

It's a professional approach that entails developing new skills that will either help one perform better in their current role or be necessary for a position down the road. This tactic has been referred to as "knowing how" by Robert DeFillippi, Priscilla Claman, and Michael Arthur.

2.1.3.4. Developing New Opportunities at Work

Creating new prospects at work involves several more focused techniques intended to broaden one's professional options. Arthur and his colleagues have named this career technique "knowing whom" in their typology. Networking is a pertinent career approach that falls under this category. It entails finding and connecting with a group of relevant friends and acquaintances who may offer guidance, patronage, and knowledge about job opportunities.

2.1.3.5. Attaining a Mentor

In recent years, getting a mentor has drawn a lot of attention as a professional strategy. Relationships that serve different developmental purposes between peers or between junior and senior coworkers are referred to as mentoring. It is possible for multiple people, not just one, to assume the role of mentor. The mentor might fulfill their desire to have a lasting impact on someone else's life in the process.

2.1.3.6. Building One's Image and Reputation

It's a career tactic where the person tries to project an air of suitability and success. Even though this kind of approach isn't necessary in all or most circumstances, prior studies have shown that a sizable portion of workers spend in image development due to the belief that it is highly valuable for professional advancement. Therefore, focusing on developing a solid professional reputation at work can increase someone's employability at any company.

2.1.3.7. Engaging in Organizational Politics

It covers a wide range of activities, including endorsing or agreeing with one's supervisor, supporting corporate policies, refraining from complaining about rules and regulations, and forming coalitions or alliances with other members of the organization. It is comparable to the "know why" strategy that Arthur and his colleagues have described. More severe and frequently personally inappropriate political actions can involve undermining someone else's work or fabricating false information about a coworker.

2.2. CAREER DEVELOPMENT

It's true that until the 1960s, neither the phrase "career" nor the term "development" were frequently employed. Until the late 1960s, career development was typically distinguished from vocational psychology when the two concepts were mixed (Herr, 2001, p. 196). Although the phrases vocational advice or counseling and career guidance or counseling are more frequently used in historical allusions to career development practice than career development practice itself, they all have similar origins (Herr, 2001). "Career development is a lifetime process of self-awareness and investigation, ongoing learning about the dynamic workplace, and making decisions" (Valparaiso University, 2022). Countries' economic success is determined by how well their career development programs are implemented and developed. One strategy for ensuring stable economic growth in a nation is to provide students with excellent preparation and encourage them to follow their passions for careers (Boat, Syvertsen, & Scales, 2021). At the end of the 20th century, the phrase "career development," as it appears in the name of the National Career Development Association, began to be used more and more to refer to the entire constellation of psychological, sociological, educational, physical, economic, and random factors that come together to shape a person's career behaviour over the course of their lifetime (Sears, 1982) and the methods or interventions employed "to improve an individual's professional development or to empower them to make more informed career decisions" (Spokane, 1991, p. 22). As a result, the phrase "career development" currently refers to two sets of hypotheses, or conceptual categories: one explains how career behavior develops over the course of a person's life, while the other explains how specific interventions alter career behaviour (Herr, 2001, p. 196).

Employers, career counselors, academic institutions, and society at large offer programs and practices known as career development initiatives with the goal of assisting students and employees in making wise career decisions and advancing their careers. Academic advising, career centres, computer-based career support systems, mentoring, 360-degree evaluation, and wellness and fitness programs are among the entries that best exemplify this subject.

2.2.1. Theoretical Perspective

A range of important ideas and conceptual frameworks pertinent to career development are represented under the theoretical perspectives on careers subject. Entries that address this issue include Career Construction Theory, Metaphors for Careers, Social Cognitive Career Theory, Holland's Theory of Vocational Choice, and Sper's Career Development Theory. These theories offer a strong basis for comprehending career development.

2.2.1.1. *Career Construction Theory*

The theory of career construction offers a framework for considering how people select and utilize their jobs. In addition to providing a framework for understanding vocational behavior across the life cycle, the theory offers career counselors tools and resources to assist their clients in making professional decisions and leading fulfilling lives at work. One of the many career theories that examine many facets of vocational behavior and attempt to explain occupational choice and work adjustment is career construction theory (Savickas, 2005).

2.2.1.2. *Holland's Theory of Vocational Choice*

The notion that personality influences employment choice is the foundation of John L. Holland's theory. According to him, a person's level of job satisfaction is correlated with how similar their personality and work environment are. According to this notion, people choose careers where they can work alongside other people who are like them. According to the Holland Theory of Vocational Types, personality types play a major role in the selection and advancement of careers. Six personality types sometimes referred to as the Holland Codes or Holland Occupational Themes are part of Holland's philosophy. They are listed below (Birt, 2023):

1. Realistic (R): Also called “Doers,” This kind of person acts on their difficulties rather than talking about them.
2. Investigative (I): Also called “Thinkers,” This type of person enjoys working with data.

3. Artistic (A): Also called “Creators,” Compared to other Holland Types, those who belong to this type are usually more imaginative, creative, and emotionally attuned.
4. Social (S): Also called “Helpers,” people of this type enjoy educating or assisting others.
5. Enterprising (E): Also called “Persuaders,” This kind of person enjoys interacting with people and data.
6. Conventional (C): Also called “Organizers,” people in this type enjoy regulations and guidelines.

2.2.1.3. Metaphors for Careers

Metaphors are common in conversations, or even in thought processes, involving careers. Metaphors are commonly used by people in their career discussions. Numerous terms are alterations of the journey metaphor: professional route, career trajectory, career ladder, career plateau, fast track, rat race, reaching the summit, zigzag career, roller coaster ride, etc. All of these qualities are "journey-like," meaning they involve movement and career direction. Some of these qualities also serve as indicators of the kind of career that someone should pursue (e.g., moving quickly, upward, competing with others, etc.) (IResearchNet, 2023).

The career that is boundless and the career that is erratic are two significant metaphors created by thinkers. The term "protean career" refers to a career that is self-directed by the individual based on a strong sense of self and the flexibility to make wise career decisions in a rapidly changing environment. Proteus is a Greek mythological character who had the ability to change shape at will. A boundaryless career allows an individual to maintain a degree of autonomy over their career, even in the face of external control, by bridging gaps and obstacles such as those between industries, companies, and jobs. A "boundaryless attitude" on the part of the individual is also essential to a boundaryless career (IResearchNet, 2023).

2.2.1.4. *Social Cognitive Career Theory (SCCT)*

Albert Bandura's general social cognitive theory, a seminal theory of cognitive and motivational processes that has been applied to the study of many aspects of psychosocial functioning, including academic performance, health behavior, and organizational development, was the foundation for the 1994 theory developed by Robert W. Lent, Steven D. Brown, and Gail Hackett.

The goal of the relatively new Social Cognitive Career Theory (SCCT) is to explain three interconnected aspects of career development: (1) how fundamental academic and job interests emerge; (2) how decisions about education and careers are formed; and (3) how success in both academics and careers is attained. Many ideas (such as interests, abilities, values, and environmental circumstances) that have been discovered to influence job development and that have been included in previous career theories are now included in the theory. The fundamental components of SCCT are three closely related variables: goals, outcome expectancies, and self-efficacy beliefs (IResearchNet, 2023).

Social Cognitive Theory aids in the explanation of how an individual might construct a successful professional development plan. A person's chances of reaching their job goals are increased when they have a positive self-perception and surround themselves with supportive mentors (Birt, 2023).

2.2.1.5. *Super's Career Development Self-Concept Theory*

Throughout his career, Donald Super has been creating career theories; he started doing so in the 1950s (Vilamis, 2021). The most popular life-span perspective on job development is probably Donald E. Super's theory of career development. Developmental theories emphasize a life-span approach to profession choice and adaptation, acknowledging the changes individuals go through as they develop. These theories often divide the working life into phases and attempt to identify the typical behaviours associated with each period (IResearchNet, 2023).

until support his claims, Super even carried out a study that tracked participants for a considerable amount of time, from the ninth grade until their 30s. He discovered that

people typically modify their goals and their self-concept as they become older and more experienced. For instance, people frequently concentrate on their relationships with others while they are young adults. Many people begin focusing on their professional and skill development by middle adulthood (Vilamis, 2021).

2.2.2. Career Development Theories

The development of theoretical settings with global cogency and demands, as well as culturally specific models able to explain challenges and phenomena related to career development locally, are imperative given the progress of career counseling and its globalization. This section focuses on the theories of career development that have shaped profession advice and advising training and study in the United States and around the world over the last several decades. The five career development theories are: (a) Work-Adjustment Theory, (b) Vocational Personalities in the Work Environment Theory of Holland, (c) Super's and Savickas' Self-concept Career Development Theory, (d) Gottfredson's Theory of Circumscription and Compromise, and (e) Theory of Social Cognitive Career (Leung, 2008, p. 115).

Career development theories provide a direction for career counseling by connecting concepts about these concerns with research on career decisions and modifications (Ireh, 2000). In addition to the above-mentioned theories. There are some other career development theories, and the expert paths individuals can progress in their chosen career pathway. These theories include Frank Parsons trait and factor theory, Krumboltz social learning theory, Anne Roe's Personality theory, Linda Gottfredson circumscription and compromise theory and Tiedeman and Miller Decision-Making Model. The career development theories are explained as follows (Vilamis, 2021):

2.2.2.1. *Frank Parsons - Trait and Factor Theory*

Frank Parsons developed this hypothesis in the early 1900s. Traits and factors are the two fundamental components of his hypothesis. "Trait" refers to an individual's quality that can be assessed by testing, but "Factor" refers to a quality necessary for effective work performance. As a result, the phrases "trait" and "factor" relate to the evaluation of an individual's and an organization's qualities (Ireh, 2000, p. 30). This theory had a significant impact on the analysis of job criteria and descriptions in order to

forecast future job success using measurements of characteristics relevant to the job (Ireh, 2000, p. 30).

Frank Parsons' trait and factor theory is constructed on a limited point (Alberta Alis, 2024):

- i. At some possessions, individuals are logically better than others.
- ii. Individuals like undertaking things that they are good at more than things that are a struggle.
- iii. When we appreciate doing something, the period we spend doing it will be more fruitful.

2.2.2.2. *Krumboltz Social Learning Theory*

In 1975, the theory was proposed by Krumboltz, Mitchell, and Gelatt. John Krumboltz used Bandura's theories as the foundation for his primary notions and then built upon them to create his theory that includes career counseling (Vilamis, 2021). "This approach highlights the significance of cognition—knowing or thinking—and behavior—action” in determining a career (Sharf, 1997, p. 324). The focus of their social learning theory is on educating people career decision-making strategies and assisting them in effectively using such approaches when choosing career options, which sets it apart from other theories of career development (Ireh, 2000, p. 36).

Furthermore, Inheritable character traits, living circumstances, learning from consequences, and abilities acquired via work experiences were all highlighted in Krumboltz's hypothesis. His hypothesis states that these elements and experiences establish the ideal fit between a person's personality and their vocation (Vilamis, 2021). Krumboltz social learning theory comprises of two components:

1. The Social Learning Theory of Career Decision Making (SLTCDM)

This theory describes the roots of career choice. Four important consequences on our employment decisions are identified by SLTCDM. These comprise the following: task approach skills, environmental conditions and events, genetic endowment and particular abilities, and instrumental and associate learning experiences. These four

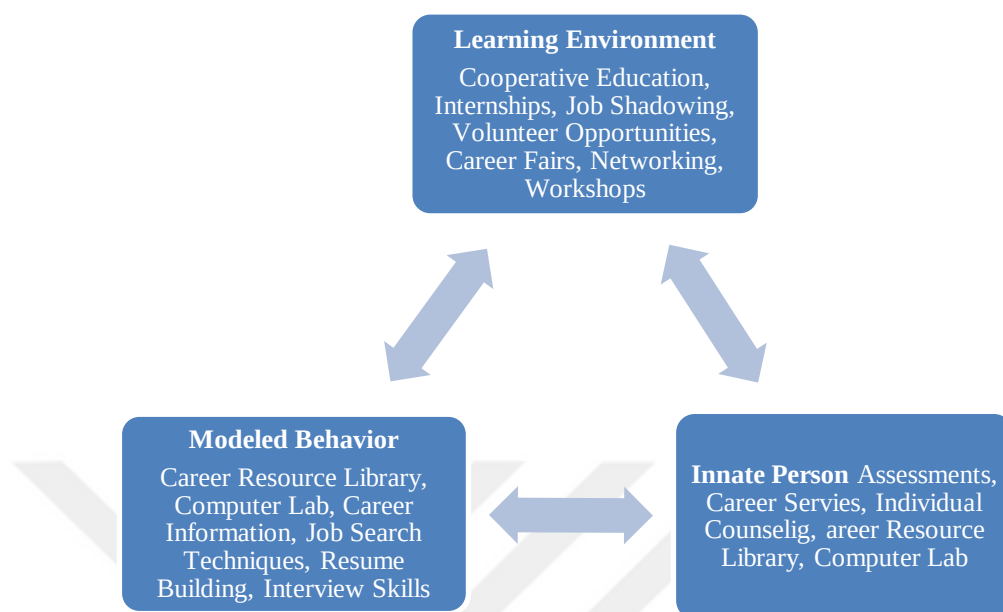
elements interact in complicated and surprising ways in everyone, influencing our views about ourselves and the world. Krumboltz identified four elements that influence perceptions, preconceptions, and generalizations about oneself, careers, the workplace, and society (MARCR, 2019).

2. The Learning Theory of Career Counseling (LTCC)

In 1975, the Learning Theory of career counseling is proposed by Krumboltz, Mitchell, and Gelatt. This theory describes how career counselors should assist clients in resolving career or job-related issues (Elizabeth, 2017, p. 3). This theory was created to provide ‘direction to practicing career guidance counselors who wish to experience what they can do promptly to facilitate people afflicted with a diversity of job-related difficulties’. He identifies four essential themes with which individuals must deal with making professional selections in existing society, and with which career experts must assist (Warwick, 2013). The themes are as follows:

- i. Individual entail to develop their skills and interests
- ii. Individual need to prepare for changing labor responsibilities
- iii. Individual need to be authorized to take action
- iv. Career experts need to play a protracted function.

The graphical illustration of this theory is explained in Figure 6 below, to deeply understand the methodology.

Figure 6: Krumboltz Social Learning Theory

Source: (Career center @ Students with disabilities services; Career Center, 2024)

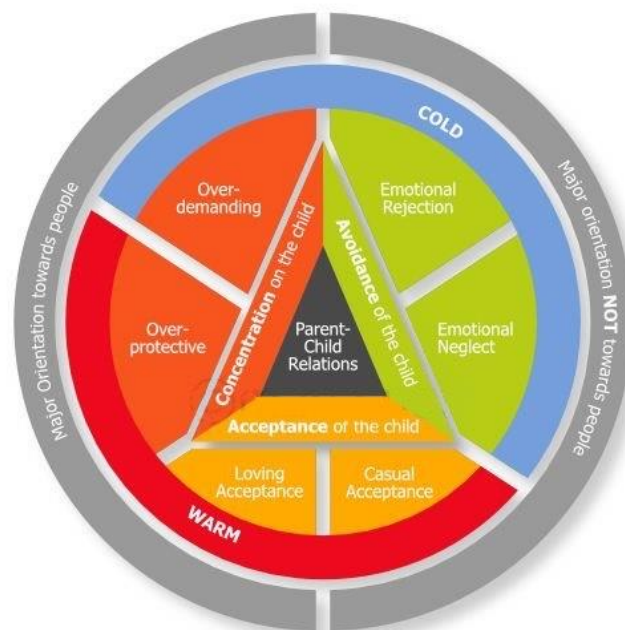
2.2.2.3. Roe's Personality Theory

The personality characteristic hypothesis was created by clinical psychologist Anne Roe (1951,1957), who used several investigations on social scientists and physical biologists. Her theory explains that individuals decide careers based on their interactions with their parents. She described that based upon their interactions with their parents, children develop their orientation towards people or not towards people. Her theory is divided into two main aspects which include:

1. Theoretical aspects of personality
2. The classification of occupations

She divided the parent-children's relationship into three categories: emotional concentration on the child, avoidance of the child and acceptance of the child. Each of these categories can be either because of the following reasons such as emotional concentration on the child will be wither because of overprotection or overdemanding, similarly emotional rejection or neglecton will be the cause of avoidance of the child and lastly acceptance of the child can be unintentional acceptance or affectionate acceptance (Career March, 2019). This classification of child parent relationship can also be shown in Figure 7 below:

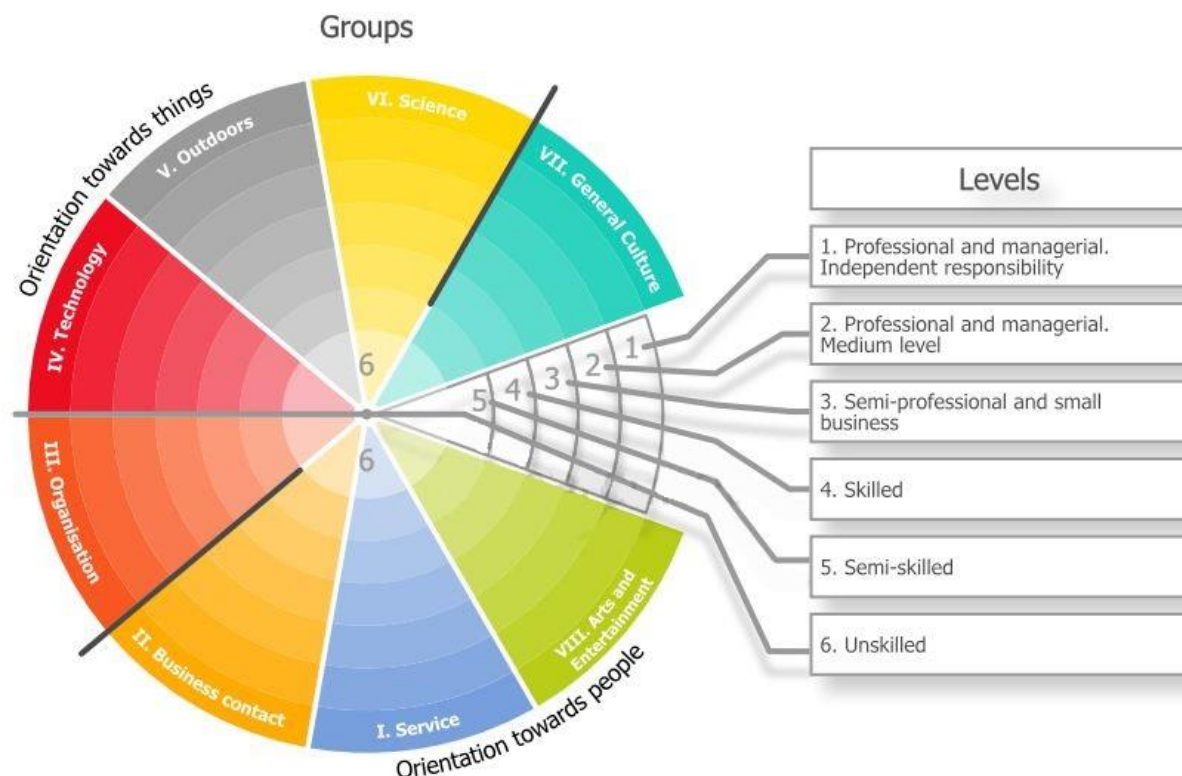
Figure 7: Theoretical aspects of personality



Source: (Theory of Career Choice and Development; Career March, 2019)

Moreover, Roe also had issues with the way that occupations were classified. In an attempt to test and include her theoretical extension of the child-parent relationship, she designed an entirely new system of occupational classification. Roe created a classification system that included eight groupings or categories and six levels that are shown below in the classification of occupations Figure 8:

Figure 8: The Classification of Occupations



Source: (Theory of Career Choice and Development; Career March, 2019)

At the end of the study, Roe came to the conclusion that the two groups of scientists' core personality traits were mostly caused by their interactions with people, most of which were a result of early parent-child relationships (Ireh, 2000, p. 34). Based on the degree of competence required for the position, Roe established a number of occupational categories that might be classified as person- or non-person-oriented. Service, business interaction, organization, technology, outdoor, science, general culture, and arts & entertainment are the eight categories that Roe divided jobs into. According to Roe, there are six levels in each of these categories according to the level of ability needed for the position, including independent responsibility, reduced independence, moderate responsibility, training necessary, specific training, and following basic instructions (Birt, 2023).

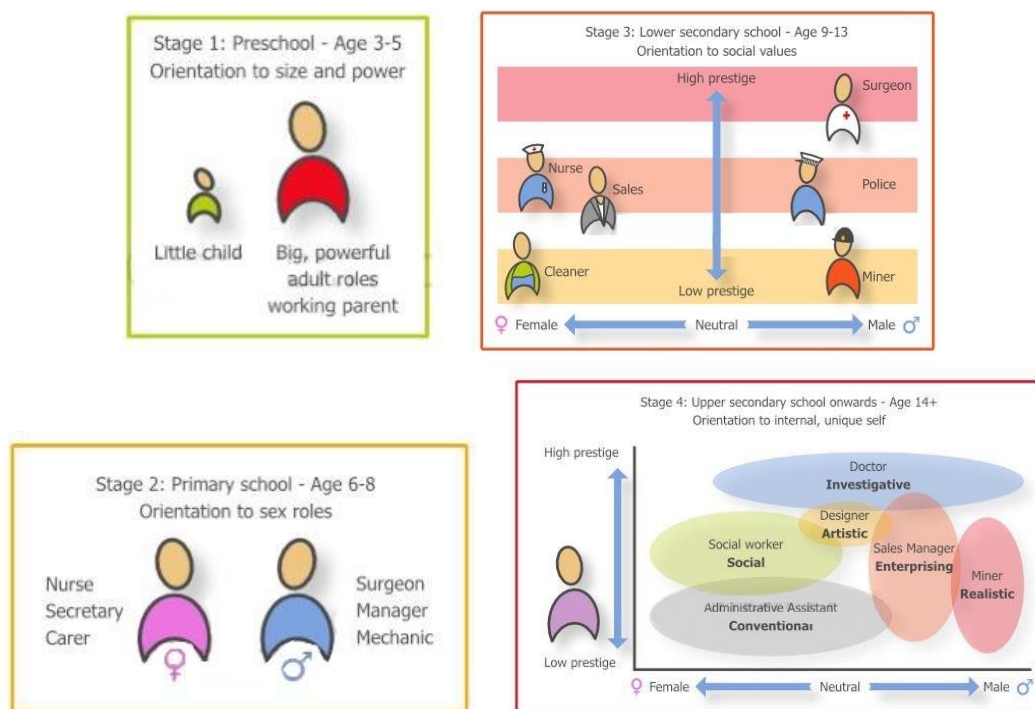
2.2.2.4. Linda Gottfredson – circumscription and compromise

This theory was developed by an American psychologist in 1981 by Linda Susanne Gottfredson. She was not only a psychologist but was also a writer. Her theory

is built on how individuals see themselves in the perspective of their culture, as well as their identifiable character. In other words, Gottfredson's theory endeavors to sketch a child's intellectual and logical development in association to their job choices (Gottfredson, 2005, p. 71). Circumscription and Compromise also focus on shaping an individual's perception of the occupational options available.

It is mostly concerned with children and the four developmental phases that they go through. Certain phases are separated according to the developmental orientations that occur at certain ages as well as age ranges. This notion aids in our understanding of the motivations behind children's job choices. Included are the following age ranges: 3-5, 6-8, 9-13, and 14 and above (Vilamis, 2021). As the circumscription happens in 4 stages, according to Gottfredson as mentioned above. The graphical representation of the four stages is described below in Figure 9 to get a clear picture.

Figure 9: Four Stages of Circumscription



Source: (Applying Gottfredson's Theory of Circumscription and Compromise in Career Guidance and Counseling; Gottfredson, 2005, pp. 77 – 82)

In essence, children's jobs that they identify with also reflect the social concepts that they were exposed to at the time. While older children typically choose occupations that are more connected to their own identity and communal values, younger children frequently choose careers that are gender-oriented (Vilamis, 2021). The graphical representation of what circumscription and compromise look like within Gottfredson's model is shown below in Figure 10:

Figure 10: Circumscription and Compromise model of Gottfredson

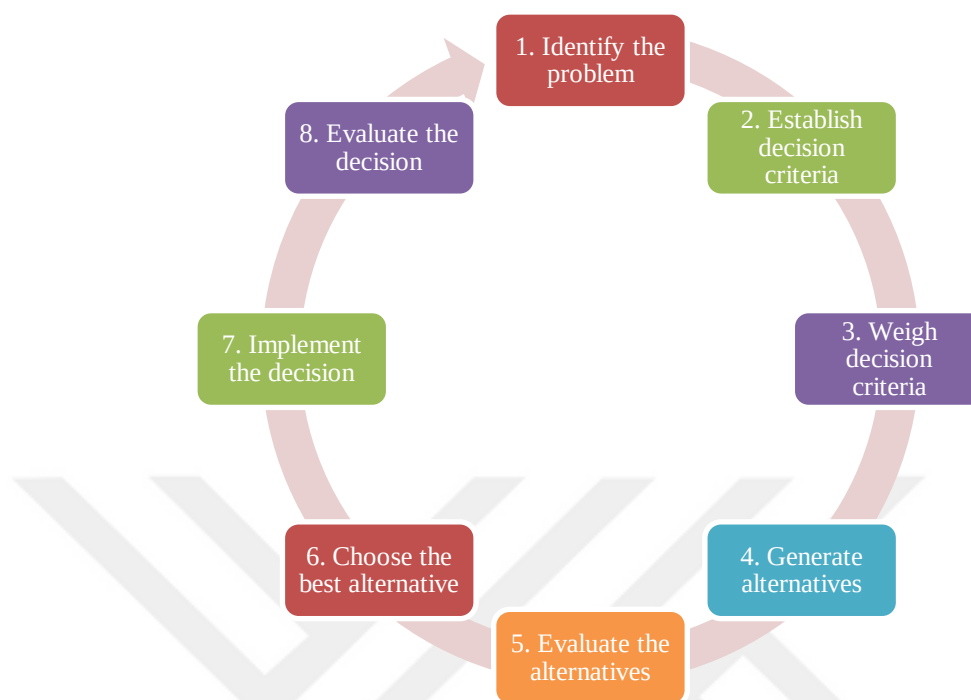


Source: (Applying Gottfredson's Theory of Circumscription and Compromise in Career Guidance and Counseling; Gottfredson, 2005, pp. 77 – 82)

2.2.2.5. Tiedeman and Miller – Tiedeman's Decision-Making Model

The decision-making career development theory of Tiedeman and Miller largely draws from Erikson's eight psychological stages as shown below in Figure 11. According to this hypothesis, a person's life experiences have a significant impact on their professional development in addition to their choice of occupation. In order to reach their ultimate career goal, those looking for a career route might use the decision-making model to assist them balance numerous important criteria (Vilamis, 2021).

Figure 11: Steps in the Rational Decision-Making Model



Source: (Making Decisions, Schmitz, 2012)

Tiedeman and Miller's theory consists of two primary stages comprising many components. Anticipation or preoccupation is the name of the initial preparatory phase. People go through four primary stages in this stage: choosing, clarification, crystallization, and exploration. The subsequent phases comprise the second phase, which is referred to as Implementation or Adjustment: reformation, integration, and induction (Vilamis, 2021).

2.3. INDICATORS OF SUCCESSFUL STUDENT'S CAREER

There are several indicators that can suggest a student has a successful career ahead. While success can be subjective and varies across different fields and individuals.

2.3.1. Academic Performance

Academic performance is also referred to as academic achievement. It is defined as a student's accomplishment and victory in their scholastic endeavors. Moreover, academic performance is the standard against which student, school, curriculum, and instructor competency are judged, and practically each school-age child is subjected to

some form of official academic assessment in addition to consistent class quizzes, tests, and examinations (Reed, 2009, p. 82).

Consistently achieving high grades and performing well in academic pursuits indicates a robust establishment of expertise and competence. It demonstrates the ability to grasp and apply concepts effectively. Academic performance of the students throughout their degree program also helps them to achieve a better position in a well-known company. Even some companies can allow students to apply for a specific position when they have certain scores, so in those cases academic performance helps a lot in shaping student's career.

2.3.2. Skills and Expertise

Expertise can refer to expertise, skills or talents, in tasks, actions, jobs, games, and sports. It may relate to a method, such as decision making (Farrington-Darby & Wilson, 2006, p. 18). Modern society relies heavily upon the development of skills and expertise and only functions effectively because individuals with professional acquaintances and skills can apply these rapidly and readily (Cornford, 2008, p. 261).

Developing specific skills and expertise relevant to their chosen field or industry is a crucial indicator of future success. This can involve technical expertise, problem-solving abilities, analytical thinking, management qualities, effective communication, and adaptability. Skills and expertise can be achieved by practicing in their specific field. Most of the skills can be learned through traineeship or internship periods. The skills and expertise play an essential role in a student's career.

Students can enhance their skills and expertise during their internship period. They get hands-on experience, which can be beneficial for their future and boost their skills. The skills learnt on the site were always beneficial for the students to apply for their job when they start their career after completing studies. Students can learn a lot of skills during their internships or traineeships period, in their home country or abroad.

2.3.3. Internships and Work Experience

Obtaining real knowledge through internships, part-time jobs, or relevant work experience imparts significant perceptions into the real-world application of information and skills. It demonstrates initiative, adaptability, and the ability to work in professional environments. Moreover, gaining practical experience through industry-related projects is a strong indicator of future success. Practical experience provides students with valuable insights into their field, allows them to apply classroom knowledge in real-world situations, and builds a professional network. Employers often prioritize candidates with relevant work experience, as it demonstrates a proactive approach and the ability to navigate professional environments.

Internships are one of several high-impact educational best practices, according to the American Association of Colleges and Universities, that help students pursuing degrees in both professional and liberal arts fields perform better. Research has demonstrated that internships are advantageous for enhancing professional development and promoting persistence in the engineering field (Eggleston & J.Rabb, 2020, p. 55). Moreover, internships provide students with practical chances for both professional and personal development through mentor shadowing, meeting and briefing participation, and job performance (Eggleston & J.Rabb, 2020, p. 56).

2.3.4. Networking

The process of establishing, preserving, and making use of long-term relationships is referred to as "networking," which is derived from the English word "network." A network consists of crossing horizontal and vertical lines. It can be viewed as a sophisticated network of transportation routes (Öhner, 2017, p. 36). A strong network is built on three key elements: trust, appreciation, and sympathy. Sympathy is based on honesty and openness (Öhner, 2017, p. 43).

Building a strong professional network within their field can be a significant advantage for students. Engaging with professors, industry professionals, alumni, and peers can provide opportunities for mentorship, internships, job referrals, and career guidance.

2.3.5. Continuing Education and Lifelong Learning

Prior to 1980, learning was not considered a lifetime activity. Lifelong learning (LLL) will become the cornerstone of all education, according to adult learning pioneer Malcolm Shepherd Knowles at the time. This statement is now frequently used in educational discourse (Laal, Laal, & Aliramaei, 2014, p. 4052).

The most crucial instrument for an organization's success is an educational or training process, which is referred to by the terms professional development, LLL, and continuing education (CE). The twentieth century saw developments in adult education and CE. The demand for CE and the necessary skills has grown as nations become more industrialized, stimulating previous educational settings and generating chances for the development of both professional and personal competence. The need for LLL in the twenty-first century is influenced by a number of factors, such as improved global interactions, faster technical improvements, increased information availability, industrial transformations, and skill requirements (Laal, Laal, & Aliramaei, 2014, p. 4052).

A commitment to continuous learning beyond formal education is a positive indicator. Seeking out opportunities for professional development, attending conferences or workshops, and staying updated with industry trends demonstrate a growth mindset and the willingness to adapt to evolving circumstances.

2.3.6. Management Training Programs (MTO)

Enhancing working professionals' management and leadership skills is the aim of management training programs. Candidates want to improve their abilities so they can work more effectively with their colleagues. A person must take their career objectives into account when selecting the best managerial training program (Sharma, 2022). There are various benefits of management training programs such as enhanced decision-making capacity and leadership skills, improving communication with team and helps students understand their roles and duties better to enhance their career in the future (Sharma, 2022). Moreover, most of the MTO's are leading to jobs.

Programs for management training are made to be both organization- and industry-specific and customized to meet the particular requirements of the company

(Lau, 2022). Individuals develop their current management abilities while acquiring new ones in management training programs. People frequently take part in these programs to make the move into executive roles, giving them the opportunity to get ready for the new duties. Additionally, established managers at any level can benefit from management training programs to further their career development. These programs can be developed internally or contracted out to a third-party vendor and available in various kinds of formats, such as online or in-person (Indeed Editorial Team, 2023).

2.3.7. Career Counseling

Finding jobs for clients is one of the goals of career counseling. People who are looking for help obtaining a job can include those who are looking to shift jobs, have lost their jobs, and are new or returning to the workforce. A plethora of data regarding aspects associated with successful job search can be utilized to focus counseling efforts (Greenhaus & Callanan, 2006, p. 90). According to the research, the best approaches to support individuals who are having difficulty finding employment would be to promote, assist, and reinforce increased effort in the process as well as a more thorough use of resources for job seekers, such as expanding their use of social networks to locate leads. According to the results of the study on the variables influencing the intensity and effort of a job search, effective counseling interventions should boost individuals' self-assurance in their abilities to find jobs, offer encouragement to keep going, and help them improve the way they use their social networks to find leads for jobs and conduct interviews. Counseling often entails assisting clients in finding employment and joining groups that align with their values and professional objectives.

In addition, a lot of adults who are employed often seek out career counseling because they are not happy in their current jobs or are not doing their jobs well enough. While some are looking to change careers, others are looking for methods to feel more fulfilled in their current jobs (Greenhaus & Callanan, 2006, p. 91). While career counselors or job searchers seem to aid the former (career or job changers), the latter require assistance that is especially focused on enhancing their performance or work happiness. Additionally, the information, abilities, and character traits that career counselors require in order to provide their clients with high-quality services are included in the competences of career counseling. Large segments of the populace are underserved

by current methods of providing career development services, even in so-called developed nations (Greenhaus & Callanan, 2006, p. 92).

2.4. UNIVERSITY SUPPORT FOR STUDENT'S CAREER DEVELOPMENT AND SUCCESS

Universities are essential to helping students succeed in their careers. Universities have various avenues in which they can help:

Career Counseling Services: To assist students in exploring career alternatives, determining their talents and interests, and creating successful career plans, universities frequently provide career counseling services. Career counselors offer advice on networking, job search tactics, interview techniques, and resume writing.

Internship & Co-op Programs: Many universities facilitate internships and co-op programs, partnering with organizations to support students with practical work experience related to their field of study. These programs help students apply classroom knowledge, develop practical skills, and build professional networks.

Alumni Networks and Mentoring: Universities can connect current students with successful graduates working in a variety of industries by utilizing their alumni networks. Alumni mentors can offer insightful counsel, direction, and career advice based on their personal experiences.

Workshops and Skill Development Programs: Universities often organize workshops, seminars, and training sessions to develop students' professional skills. These can cover topics such as communication skills, leadership, teamwork, problem-solving, and project management, which are vital for career success.

Industry Engagement and Partnerships: Universities can establish partnerships and collaborations with industries and employers to close the gap that exists between the workplace and academia. Guest lectures, industry panels, and networking events allow students to interact with professionals and gain industry-specific knowledge.

Job Placement Services: Universities may have dedicated job placement offices that assist students in finding employment opportunities. These offices may provide job

listings, career fairs, on-campus recruiting, and assistance in connecting students with potential employers.

Entrepreneurship and Innovation Support: Many universities encourage entrepreneurial pursuits and innovation by offering incubator programs, entrepreneurship courses, and funding opportunities for student startups. These initiatives support students in developing their entrepreneurial skills and launching their own ventures.

Research and Academic Opportunities: Universities provide chances for research that allow students to work on innovative research projects and contribute to their field. These experiences can enhance students' resumes, provide valuable skills, and open doors to further academic or industry opportunities.

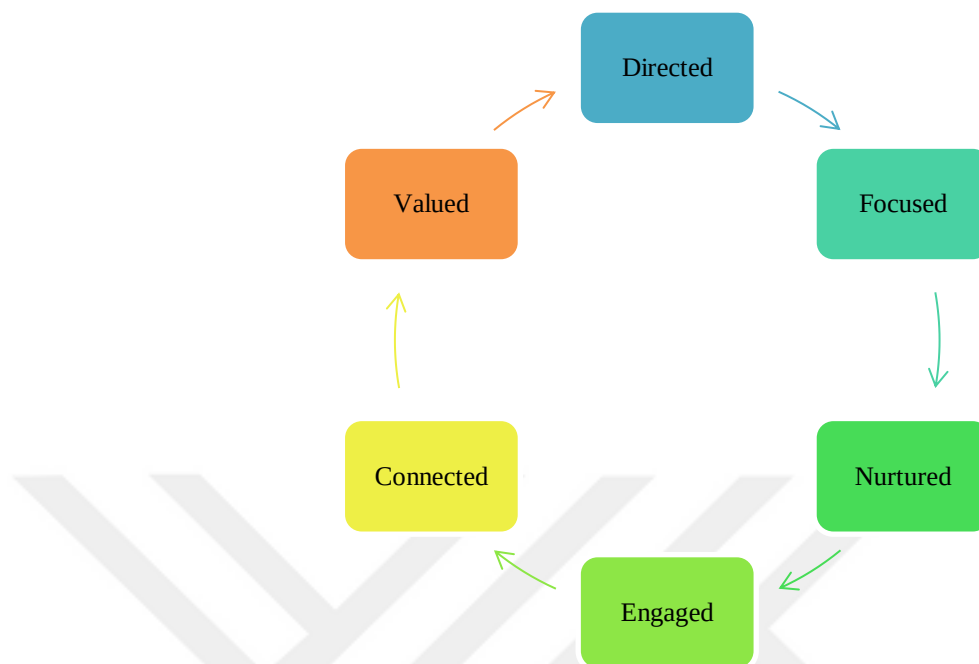
Alumni Career Services: Universities often offer ongoing career support to alumni, providing access to tools for professional development, networking opportunities, and job listings. This support helps graduates navigate career transitions and stay connected to the university community.

Continuous Learning and Professional Development: Universities can offer resources for students to engage in lifelong learning and professional development. This can include access to online courses, workshops, and certifications to help students stay updated with industry trends and acquire new skills throughout their careers.

2.5. SIX FACTOR FRAMEWORK FOR STUDENT'S SUCCESS

Six component frameworks for students' success are described by the California Community Colleges research and planning committee. As seen in Figure 12 below, the six factors are directed, focused, nourished, engaged, linked, and valued:

Figure 12: Six Factor Framework for Student's Success



Source: (Success Factors Framework; The RP Group, 2024)

The factors shown in Figure 12 above are explained in detail as follows (Booth, et al., 2013):

1. Directed

Every student has a specific goal in their life, and they always know various ways of achieving it.

2. Focused:

Students always maintain focus on the goal, which helps them stay on course.

3. Nurtured

Students believe that somebody aims and assists them achieve.

4. Engaged

Students engage in extracurricular and classroom activities with vigor.

5. Connected

Students experience a sense of belonging within the campus community.

6. Valued

Students feel appreciated and have opportunities to contribute on campus because their skills, talents, abilities, and experiences are acknowledged.

2.6. POTENTIAL BENEFITS

University-industry collaboration has various potential benefits, which include organizational benefits, personal benefits, and industrial benefits. Organizational benefits are for universities, personal benefits are for students and industrial benefits are for industries. A student's career development helps to achieve these potential benefits in terms of university-industry collaboration.

2.6.1. Organizational Benefits

There are several organizational benefits for universities. There are several advantages for members in effective university-industry research collaborations. The likelihood to face challenging research problems with realistic applications, endorse the tangible influences of their work, and have access to additional information, assets, or tools are just a few advantages for academics. By developing new techniques or technologies, lowering the risk of research investments, and enhancing their domain knowledge and capabilities, industries can improve the performance of their businesses (OGL, 2015). Through educational collaborations, students may close the knowledge separation between what they learn in the classroom and how they would use it in their daily lives. Students who interact with real-world situations and industrial problems get substantial rewards. Industries that work with universities may offer real-world experiences that improve learning and produce better results. Furthermore, students frequently have access to fascinating internship and co-op possibilities because of these educational relationships. By assisting in the integration of theory and practice, this practical method increases the relevance and effect of learning. Students are therefore better equipped for their future employment. These collaborations benefit both parties, bringing new talent to industries and enhancing the educational process. Students enrolled in programs with academic relationships between universities and industry might benefit from increased access to business knowledge. This includes adjunct professors, industry guest speakers, mentors, and advisory board members' program development inputs.

Students may benefit from the abundance of information and experience that well-known individuals and leaders in their relevant sectors have to offer by working together. Because of this, students will have a competitive advantage when they begin working in the industry as they will have a deeper understanding of its subtleties even before they complete their education (CCAPS, 2024).

2.6.2. Personal Benefits

University-industry collaborations provide students with prospects for project learning while also engaging them in a challenging situation in which they can advance skills and knowledge that are hard to attain through traditional learning activities. Project-based learning is a discipline that has been dynamically inspected for creating learning environments for students. Proponents of project-based learning claim that it helps pupils understand essential concepts and principles. The addition of real-world experience significantly improves student learning. Participating in practical initiatives, such as a consultancy approach, leads to innate learning and better prepares students for professional employment opportunities. This, in turn, alleviates one of the industry's key issues, which was previously discussed: finding graduates with soft skills, giving students a competitive advantage over their peers during recruitment processes (Rehnberg & Lavin, 2017, p. 16).

Exposure to industrial difficulties and real-world applications can greatly benefit students. When businesses and academic institutions collaborate to provide greater real-world experience, learning is enhanced, and better results are produced. Additionally, many educational relationships lead to excellent internship and co-op possibilities for students (CCAPS, 2024).

2.6.3. Industrial Benefits

From the industrial point of view, employers can use educational collaborations with educational institutions as a deliberate tool to support employee skill development and growth in the workforce. Industries may guarantee their workforce is up to speed on industry innovations and increase overall productivity and competitiveness by collaborating with universities. Customized training programs, certifications, and boot

camps are available to staff members, promoting a culture of lifelong learning and career advancement. Investing in employee development keeps the workforce competent and flexible in a market that is changing quickly, which encourages creativity and initiative within the team and greatly increases the firm's success. Current studies, such as one by McKinsey & Company Organization, show that around 87% of CEOs either predict or are already facing skill shortages in their staff (McKinsey & Company, 2021). Another report by Deloitte demonstrates how important it is to have opportunities for ongoing learning at work to stay up with the quickly advancing technologies. These results highlight how crucial it is for industries and universities to collaborate to provide relevant training programs (O'Leary, Overley, & Datar, 2023).

According to global researchers, the collaboration results in a mutual benefit at both ends resulting in better potential for societal impact, greater financial support, the possibility for economic growth, the use of government funding programs, and improved chances for students to achieve results.

CHAPTER 3: COMPARATIVE STUDY OF COUNTRIES

3.1. EVALUATION OF COUNTRIES IN TERMS OF MACROECONOMIC INDICATORS

Some of the major macroeconomic indicators that are typically used to evaluate the monetary condition of countries are discussed in detail below for each country which include Pakistan, Türkiye and Lithuania. The macro-economic indicators used to evaluate the countries are inflation, GDP, population, current account balance and unemployment.

3.1.1. Macro-Economic Indicators of Pakistan

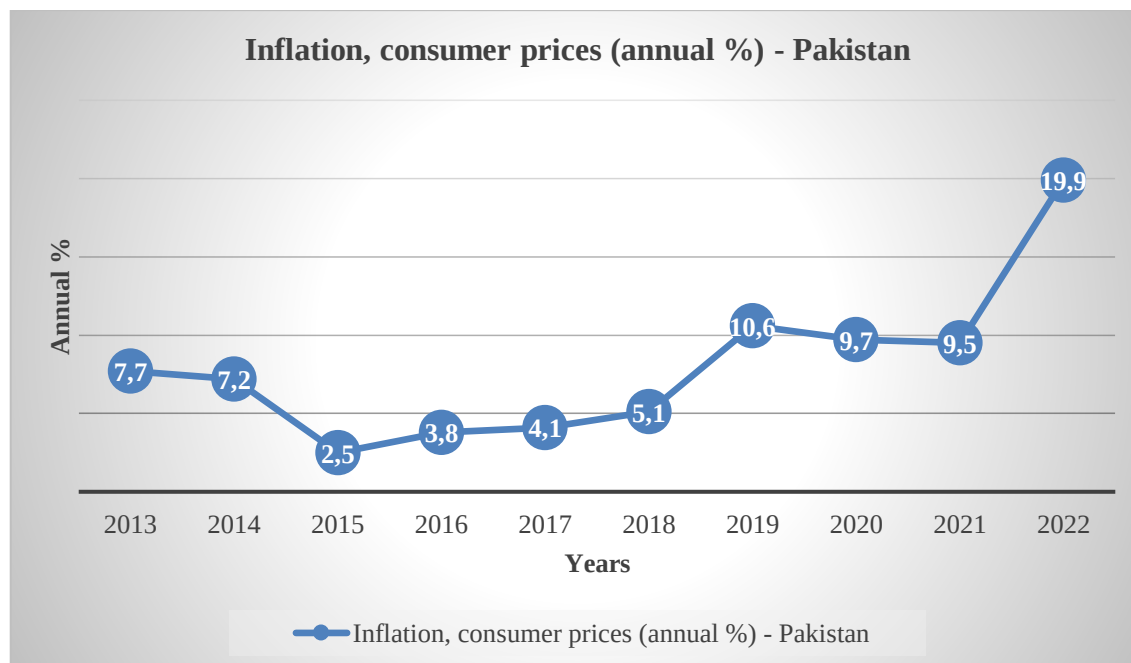
Some major macroeconomic indicators that are typically used to evaluate the economic health of a nation are discussed below. The data is interpreted from the World Bank to analyze the indicators.

3.1.1.1. *Inflation*

An increase in the Consumer Price Index (CPI), a weighted average of the prices of various items, is referred to as inflation. Which products are deemed typical of a common consumption basket determines the set of commodities included in the index. Because of this, the index will contain a variety of commodities based on the nation and most of the population's consumption patterns. The weight of each commodity in respect to the full basket will influence the overall value of the CPI because certain goods may see price declines while others may see price increases. The percentage change in the CPI from the same month the previous year is known as annual inflation (Focus Economics, 2023).

In Pakistan, consumer price inflation averaged 8.0% between 2008 and 2022, exceeding the Asia-Pacific regional average of 2.1%. The average figure in 2022 was 19.9% (The World Bank, 2024). The Figure 13 below shows the Inflation Rate for Pakistan from 2013 to 2022 (The World Bank, 2024).

Figure 13: Inflation, consumer prices (annual %) for Pakistan from 2013 to 2022



Source: (Inflation, consumer prices (annual %) – Pakistan; The World Bank, 2024)

3.1.1.2. Unemployment

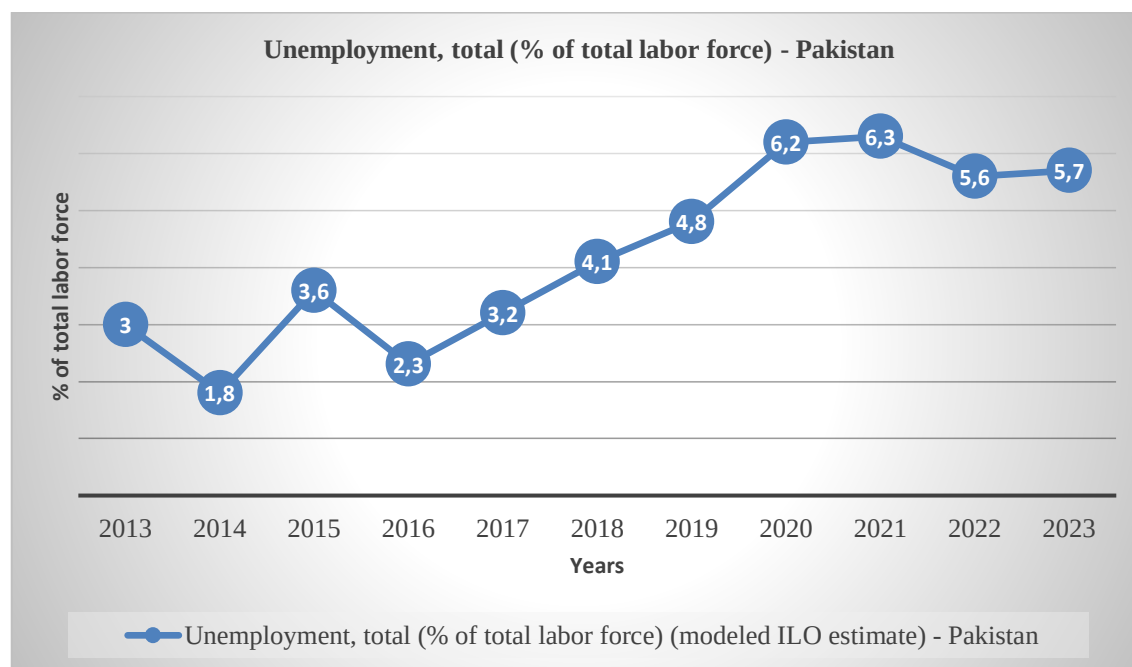
The percentage of jobless workers in the labor force is used to determine the unemployment rate. If a worker is able and eager to work but is not currently doing so, they are classified as unemployed. Every person who is employed or jobless in an economy makes up the entire labor force (Focus Economics, 2023).

The economy's excess capacity and underutilized resources are revealed by the unemployment rate. Generally speaking, unemployment tends to be cyclical, declining as the economy grows and companies hire more people to fulfill the increasing demand. When the economy slows down, unemployment typically increases (Focus Economics, 2023).

Different forms of unemployment exist, including unemployment that arises during job search, which is known as frictional unemployment. When an employee's location or skill set does not fit the criteria of a job, structural unemployment results. Seasonal unemployment is a result of seasonal trends in economic activity, such as harvesting or tourism (Focus Economics, 2023).

In Pakistan, the unemployment rate averaged 4.2% from 2013 to 2023. In 2023, the unemployment rate was 5.7%. The Figure 14 below shows the total Unemployment, (% of total labor force) for Pakistan from 2013 to 2023 (The World Bank, 2024).

Figure 14: Unemployment, total (% of total labor force) for Pakistan from 2013 to 2023

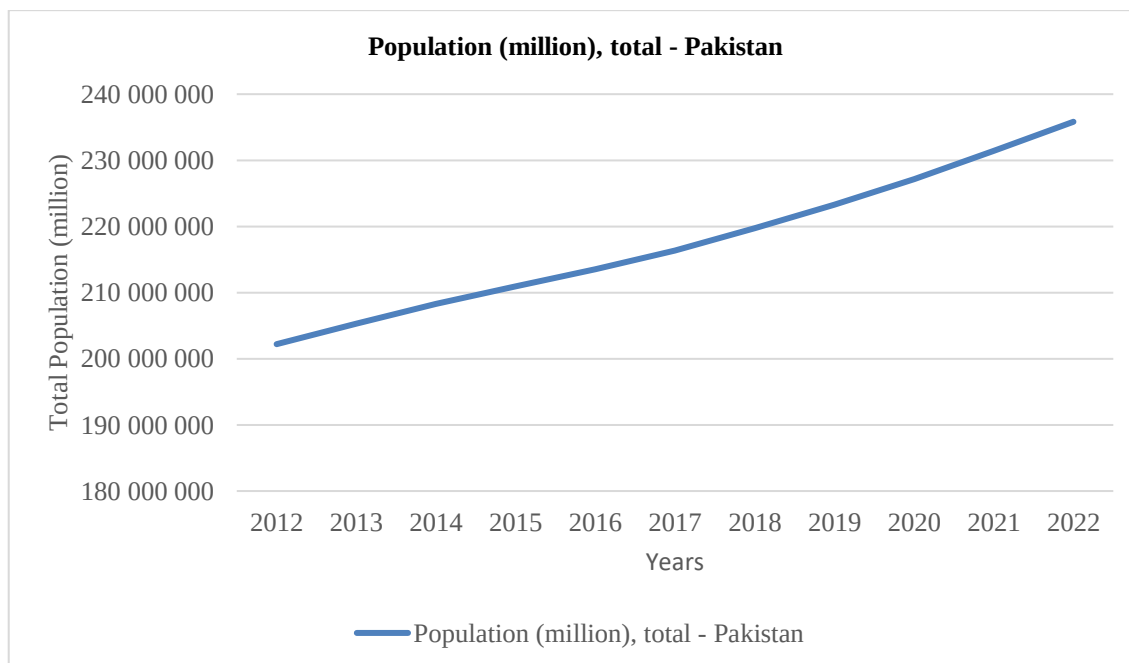


Source: (Unemployment, total (% of total labor force) (modeled ILO estimate) – Pakistan; The World Bank, 2024).

3.1.1.3. Population

Pakistan's population was 236 million in 2022 (The World Bank, 2024), up from 198 million a decade earlier. The Figure 15 below displays Population (million), total for Pakistan from 2012 to 2022. The trend has been increasing over the years.

Figure 15: Population (million), total - Pakistan from 2012 to 2022



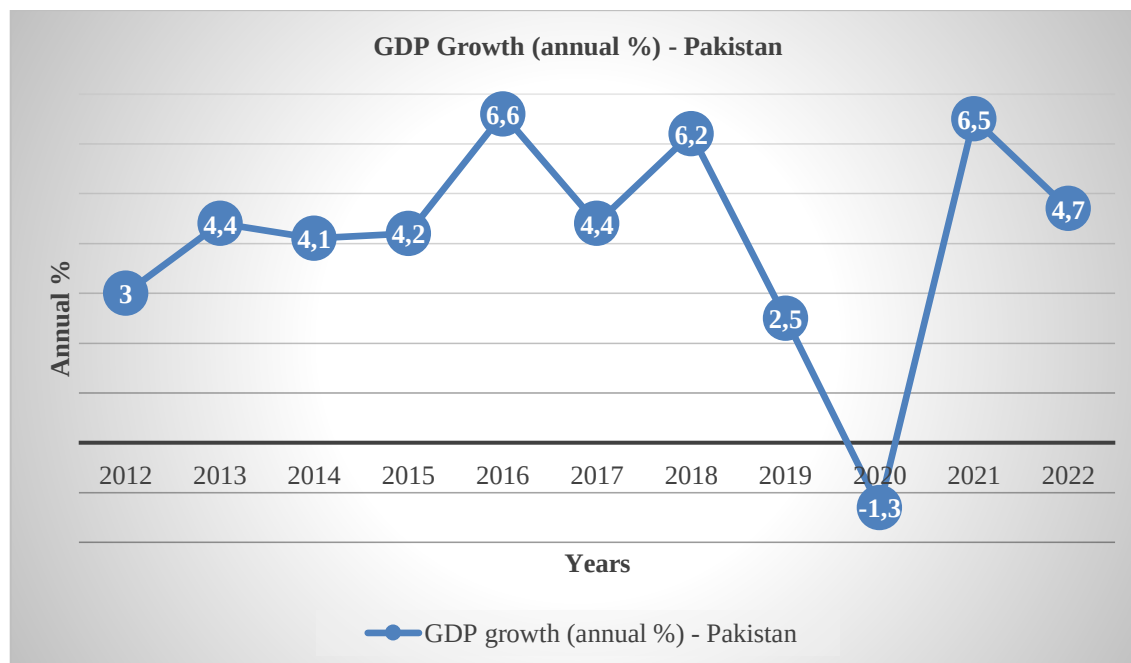
Source: (Population (million), total – Pakistan; The World Bank, 2024)

3.1.1.4. GDP

The entire market value of all finished products and services produced in a nation over a specific period is known as the GDP, or gross domestic product. It encompasses investment from both governmental and private sources, as well as more exports than imports (Focus Economics, 2023).

The most often used indication of economic activity and the state of a nation's economy is its GDP. GDP growth, or economic growth, is the percentage change in real GDP after nominal GDP is adjusted for inflation. Because of this, real GDP is sometimes referred to as GDP in constant prices or GDP adjusted for inflation (Focus Economics, 2023).

In the decade to 2022, the Pakistani economy grew at a 4.0% annual rate, which was lower than the Asia-Pacific region's 4.3% average. Real GDP growth in 2022 was 4.7% (The World Bank, 2024). The Figure 16 below displays GDP growth (annual %) for Pakistan from 2012 to 2022 (The World Bank, 2024).

Figure 16: GDP Growth (annual %) for Pakistan from 2012 to 2022

Source: (GDP Growth (annual %) – Pakistan; The World Bank, 2024).

3.1.1.5. Current Account Balance

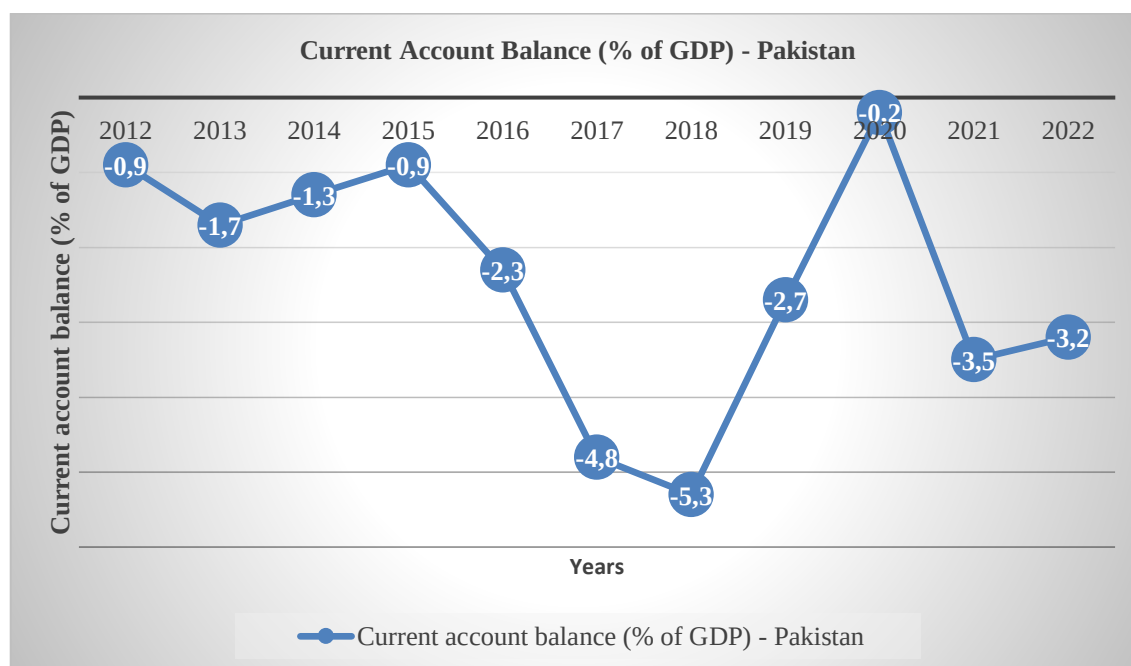
A nation's balance of payments consists of two parts: the capital account and the current account. It consists of net factor income (the difference between payments made to foreign investors domestically and the return on investments made by citizens abroad), net trade balance (the difference between the total value of goods and services imported and exported), and net cash transfers, all of which are expressed in terms of the home currency (Focus Economics, 2023).

When a nation's current account balance is positive, it is considered a net lender to the rest of the world (also known as incurring a surplus). When a nation's current account balance is negative, it is considered a net borrower from the rest of the world (also known as running a deficit). The ratio of a nation's current account balance to its gross domestic product (or GDP percentage) reveals how competitive it is internationally (Focus Economics, 2023).

In the decade up to 2022, Pakistan's current account balance averaged -2.4% of GDP, which was minimal than the Asia-Pacific regional average of 2.0% of GDP. The interpretation for 2022 was -3.2% of GDP (The World Bank, 2024). The Figure 17 below

shows Current account balance (% of GDP) for Pakistan from 2012 to 2022 (The World Bank, 2024).

Figure 17: Current Account Balance (% of GDP) for Pakistan from 2012 to 2022



Source: (Current Account Balance (% of GDP) - Pakistan; The World Bank, 2024).

3.1.2. Macro-Economic Indicators of Türkiye

Some major macroeconomic indicators that are typically applied to evaluate the economic health of a nation are discussed below. The data is taken from Turkish Statistical Institute, World Bank, Central Bank of the Republic of Türkiye and trading economics website for the economic analysis.

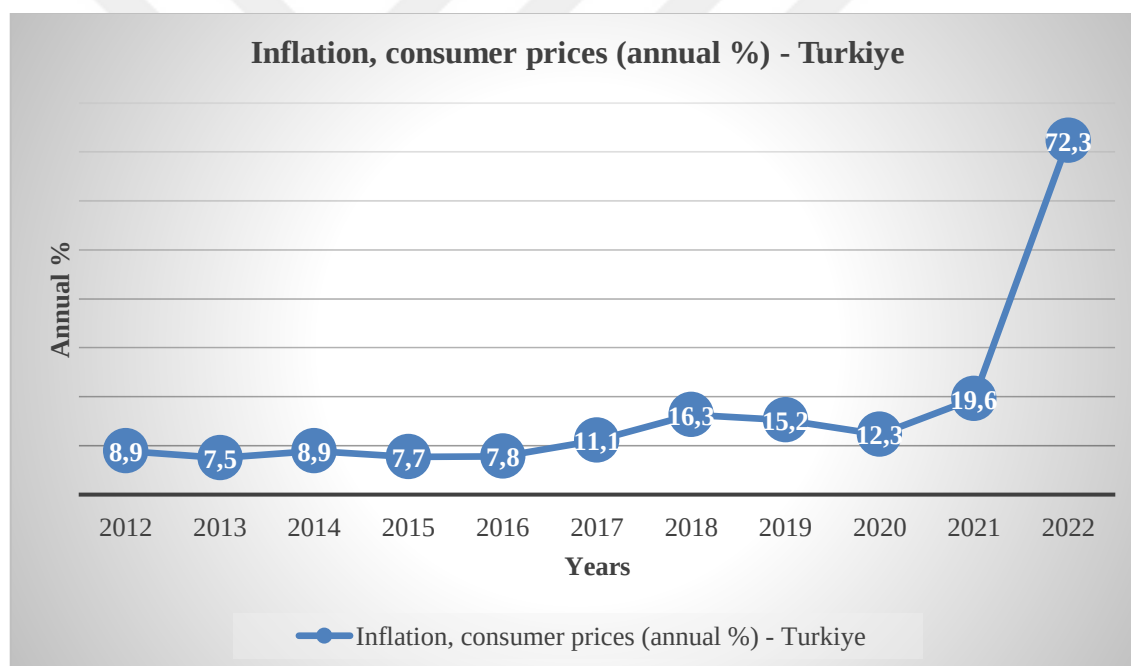
3.1.2.1. Inflation

November 2023 saw an acceleration of Türkiye's annual inflation rate to 62%, above October's 61.4% but below market estimates of 63%. This was the highest amount since December of the previous year, mostly because housing and energy prices have increased significantly (from 26% in October to 37.5% in November). The consumption of cigarettes and alcoholic beverages rose (71.4% vs. 62%), as did the use of clothes and footwear (40.7% vs. 39.2%) and communication (48.2% vs. 46.7%). The rate of price increases was slower for hotels, cafes, and restaurants (92.9 vs 94.1%) and transportation (70% vs 72%). In addition, food inflation dropped from 72% to 67.2%, a four-month low.

Monthly increases in consumer prices were 3.3%, which was marginally less than the 3.4% increase in prices seen the month before. In the meantime, the core rate increased slightly from 69.8% reading from the previous month to a nearly one-year high of 69.9% in November (Trading Economics, 2023).

From 2012 to 2022, Türkiye's inflation rate averaged 17.05 percent, with a high of 72.3 % in 2022 and a low of 7.5 % in 2013 (The World Bank, 2024). The Figure 18 below displays the inflation, consumer prices (annual %) of Türkiye from 2012 to 2022 according to the data from world bank.

Figure 18: Inflation, consumer prices (annual %) for Türkiye from 2012 to 2022



Source: (Inflation, consumer prices (annual %) – Türkiye; The World Bank, 2024).

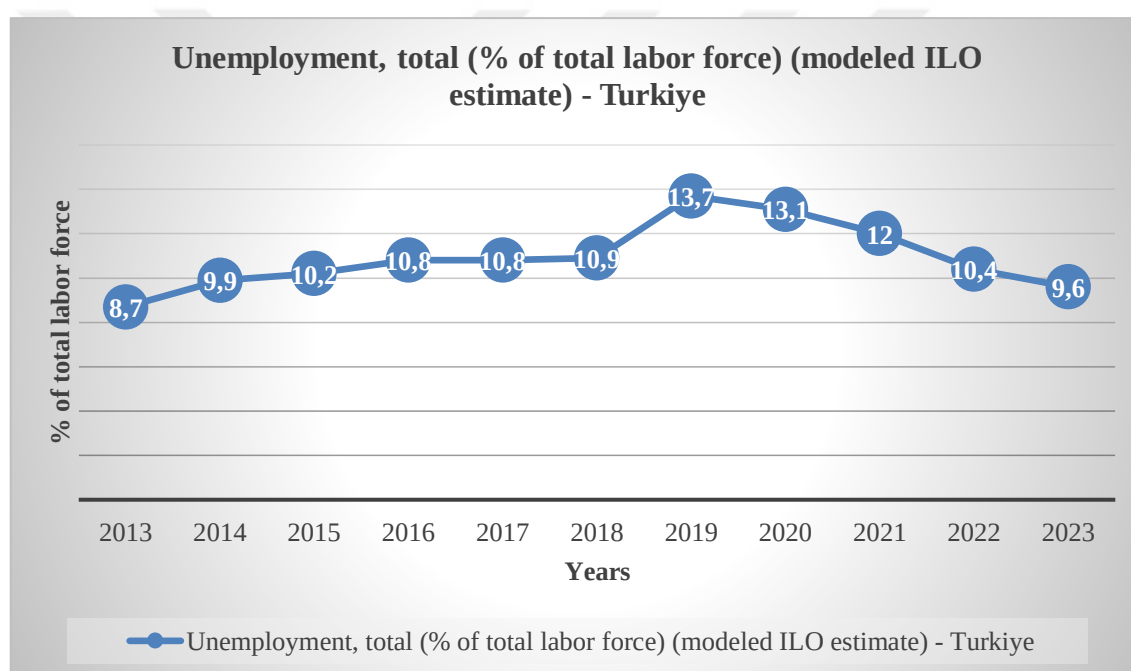
3.1.2.2. Unemployment

October 2023 saw a decrease in Türkiye's unemployment rate to 8.5 percent from a corrected 9 percent the previous month—the lowest level since October 2012. In a single month, the number of jobless individuals decreased by 163,000 to 2.961 million, while the number of employed individuals rose by 246 thousand to 31.835 million. The unemployment rate for men was 7.0 percent, however the figure for women was higher at 11.3 percent. While the employment rate rose to 48.5 percent from 48.2 percent earlier,

the labor force participation rate increased to 53.1 percent from a downwardly revised 53.0 percent in September. Concurrently, the youth unemployment rate decreased by 0.4 percentage points to 16.3 percent for individuals between the ages of 15 and 24 (Trading Economics, 2023).

Türkiye's unemployment rate averaged 10.92 percent from 2013 to 2023, with a high of 13.7 % in 2019 and a low of 8.7 % in 2013 (The World Bank, 2024). The Figure 19 below displays the unemployment, total (% of total labor force) of Türkiye from 2013 to 2023.

Figure 19: Unemployment, total (% of total labor force) for Türkiye from 2013 to 2023



Source: (Unemployment, total (% of total labor force) (modeled ILO estimate) – Türkiye; The World Bank, 2024).

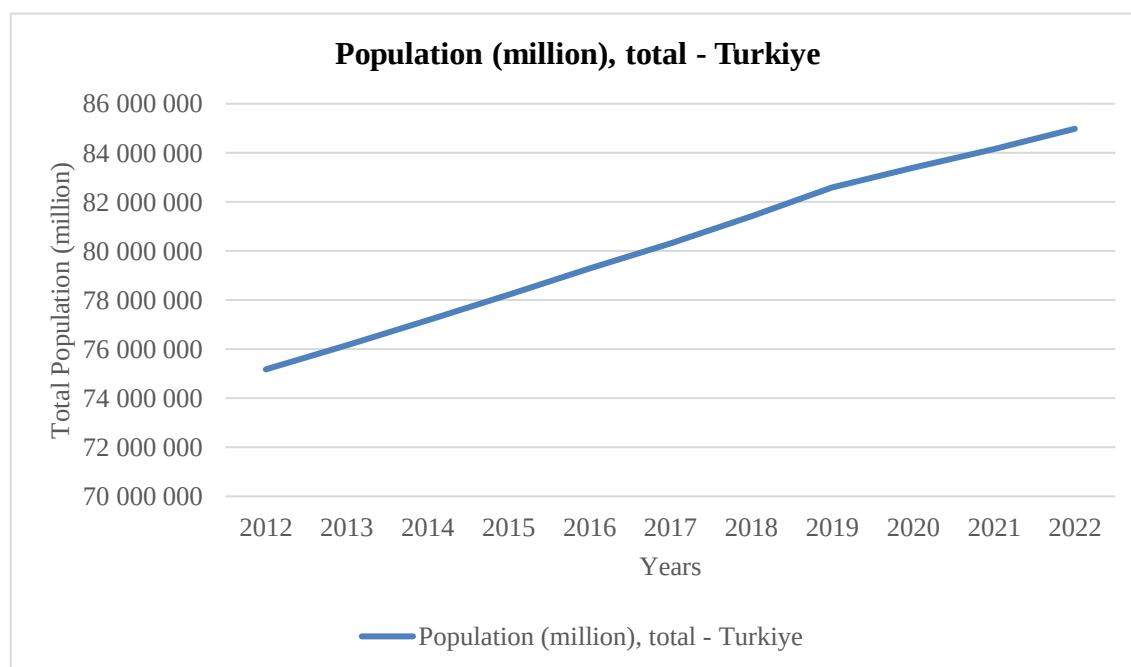
3.1.2.3. Population

According to the most recent census figures and World Bank data, total population of Türkiye in 2022 was approximately 85 million people (The World Bank, 2024). Looking back, Türkiye had a population of 28.2 million people in 1960 (Trading Economics, 2023).

Analyst estimates and Trading Economics global macro models predict that by the end of 2023, Türkiye's population will have grown to 86.50 million. Our econometric

models predict that the population of Türkiye will hover between 87.11 and 87.95 million in 2024 and 2025, respectively (Trading Economics, 2023). The Figure 20 below shows the total Population of Türkiye in million from 2012 to 2022.

Figure 20: Population (million), total for Türkiye from 2012 to 2022



Source: (Population (million), total – Türkiye; The World Bank, 2024).

3.1.2.4. GDP

Türkiye's GDP will be worth 905.99 billion US dollars in 2022, according to figures from the World Bank. The GDP of Türkiye makes up 0.39 percent of the world economy. Türkiye's GDP averaged 297.17 USD billion between 1960 and 2022, peaking at 957.80 USD billion in 2013 and falling to 7.55 USD billion in 1960 (The World Bank, 2024).

Türkiye's GDP growth rate for the entire year decreased to 5.5 percent in 2022 from 11.40 percent in 2021. Türkiye's GDP grew by 5.24 percent on average between 2005 and 2022; it reached a high of 11.40 percent in 2021 and a low of -4.80 percent in 2009 (The World Bank, 2024)

Furthermore, the Turkish economy expanded 5.9% year over year in the third quarter of 2023, missing market expectations of 5.6% and coming off an upwardly revised 3.9% rise in the second quarter. The gross fixed capital creation increased by 14.7%,

which was the main driver of the growth. Government spending climbed by 5.3% while household spending increased by 11.2%. The industries with the biggest improvements were construction (8.1%), industrial (5.7%), banking and insurance (5.1%), and services (4.3%). Furthermore, a 1.1% gain in exports was caused by a decline in European demand for Turkish exports, which contributed significantly to the third quarter's overall economic slowdown. In Q3, imports rose by 14.5%. In order to combat excessive inflation, the central bank tightened monetary policy after the May elections, and as a result, the GDP shrank by 0.3% from the previous quarter to 3.3% over the previous three months (The World Bank, 2024). Between 1999 and 2023, Türkiye's GDP Annual Growth Rate averaged 4.81 percent; it peaked in the second quarter of 2021 at 22.30 percent and fell to -14.50 percent in the same period the previous year (Trading Economics, 2023). The Figure 21 below shows the Türkiye GDP Annual Growth rate from 2012 to 2022.

Figure 21: GDP Growth (annual %) for Türkiye from 2012 to 2022



Source: (GDP Growth (annual %) -Türkiye; The World Bank, 2024).

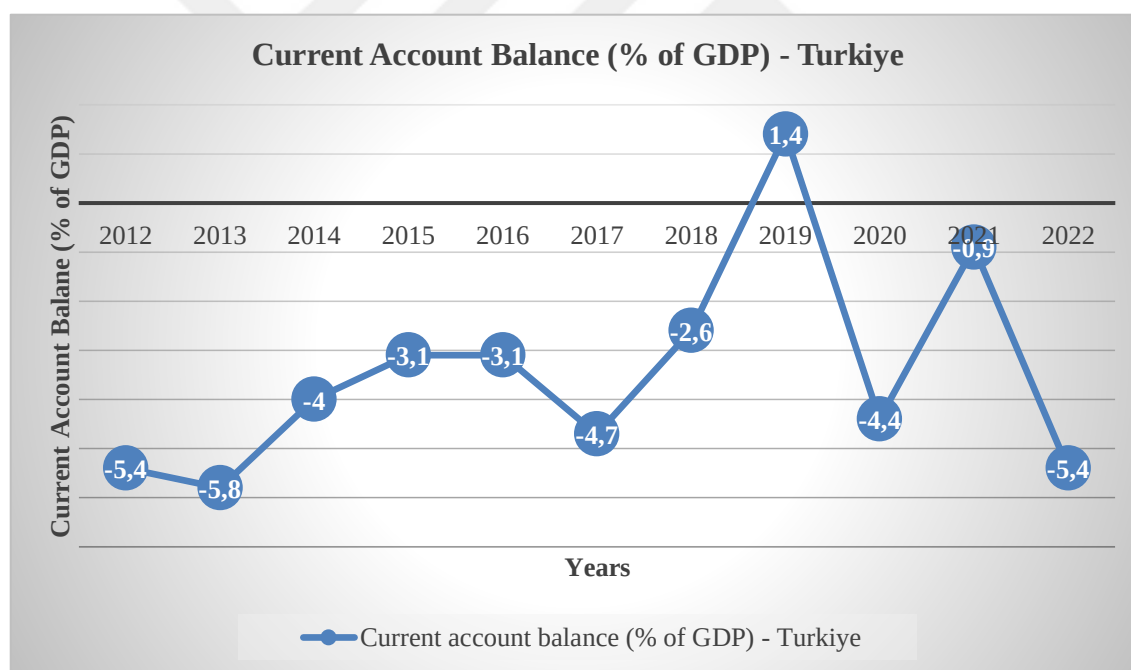
3.1.2.5. Current Account Balance

Türkiye's current account deficit in 2022 amounted to 5.4% of GDP. Türkiye's current account to GDP ratio averaged -2.45 percent of GDP between 1980 and 2022,

peaking at 1.90 percent in 2001 and falling to -8.9 percent in 2011 (The World Bank, 2024).

In October 2023, Türkiye reported a \$0.2 billion current account surplus, up from a \$0.8 billion deficit the year before, owing primarily to tourism revenues, but it fell short of market expectations of a \$0.75 billion surplus. The goods deficit fell from \$6.45 billion to \$4.87 billion, while the primary income gap increased to \$1 billion from \$0.69 billion. Meanwhile, the services surplus decreased from \$6.29 billion to \$6.04 billion, and the secondary income surplus decreased from \$0.03 billion to \$0.02 billion. Excluding gold and energy, the current account surplus fell to \$5.07 billion from \$8.17 billion in the previous year's corresponding period (Trading Economics, 2023). The Figure 22 below shows the Türkiye Current Account balance (% of GDP) from 2012 to 2022.

Figure 22: Current Account Balance (% of GDP) for Türkiye from 2012 to 2022



Source: (Current Account Balance (% of GDP) -Türkiye; The World Bank, 2024).

3.1.3. Macro-Economic Indicators of Lithuania

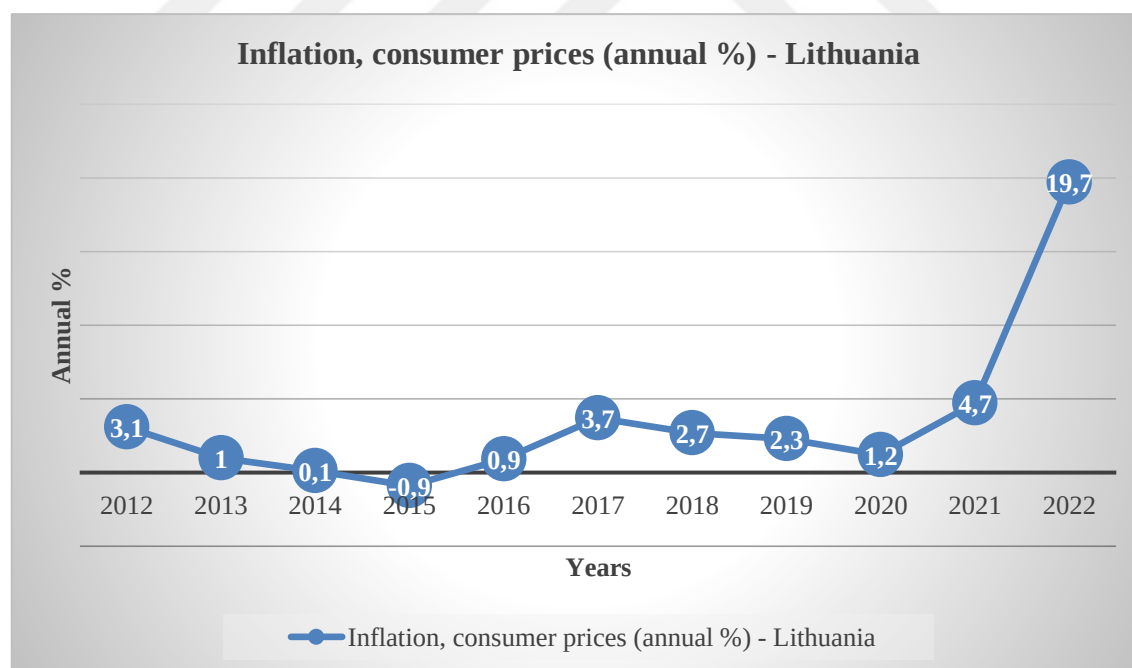
Some major macroeconomic indicators that are typically applied to review the monetary health of a country are discussed below. The data is taken from Statistics Lithuania, Lithuanian Labor Exchange, EUROSTAT, World Bank, Bank of Lithuania and trading Economics Website.

3.1.3.1. Inflation

The yearly inflation rate in November 2023 fell to 2% in Lithuania, down from 2.8% the prior month. It was the bottommost inflation rate since March 2021, with prices falling in most sub-indices, including food and non-alcoholic beverages (2.6% vs 5.6% in October), alcoholic beverages and tobacco (7.5% vs 8%), clothing & footwear (1.3% vs 2%), furnishings, appliances, and regular upkeep of the home (5.2% vs 7.6%), communication (2.9% vs 3.9%), recreation & culture (2.4% vs 4.1%), education (5.5% v In addition, housing and utility prices fell at a slower rate (-9.8% vs -12.2%). Meanwhile, deflation in transport continued (-1.8% vs -0.3%). Customer rates dropped 0.4% in November, following a 0.3% surge the previous month (Trading Economics, 2023).

From 1993 to 2023, Lithuania's inflation rate averaged 15.89 percent, with a high of 410.5 % in 1993 and a low of -1.1 % in 2003 (The World Bank, 2024). The Figure 23 below shows the Lithuanian Inflation, consumer prices (annual %) from 2012 to 2022.

Figure 23: Inflation, consumer prices (annual %) for Lithuania from 2012 to 2022



Source: (Inflation, consumer prices (annual %) – Lithuania; The World Bank, 2024).

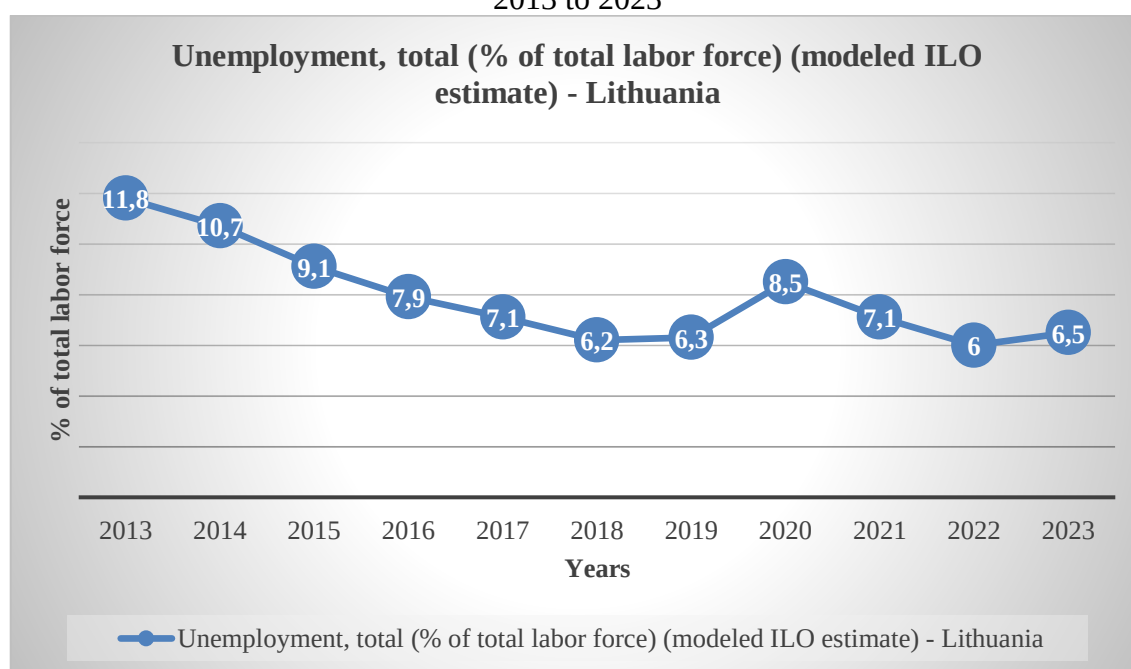
3.1.3.2. Unemployment

Unemployment rate in Lithuania fell to 8.20 % in October from 8.30 percent in September 2023. From 1995 to 2023, the unemployment rate in Lithuania averaged 8.78

percent, with an increase of 16.40 % in January 2021 and a low of 2.70 % in June 2007 (Trading Economics, 2023).

Moreover, By the end of 2023, the global bank reported that Lithuania's unemployment rate was 6.5% (The World Bank, 2024). According to our econometric models, the Lithuania unemployment rate will inclined in 2024 around 8.20 % and in 2025 8.00 % (Trading Economics, 2023). The figure 24 below shows the Lithuanian Unemployment, total (% of total labor force) from 2013 to 2023.

Figure 24: Unemployment, total (% of total labor force) for Lithuania from 2013 to 2023



Source: (Unemployment, total (% of total labor force) (modeled ILO estimate) – Lithuania; The World Bank, 2024).

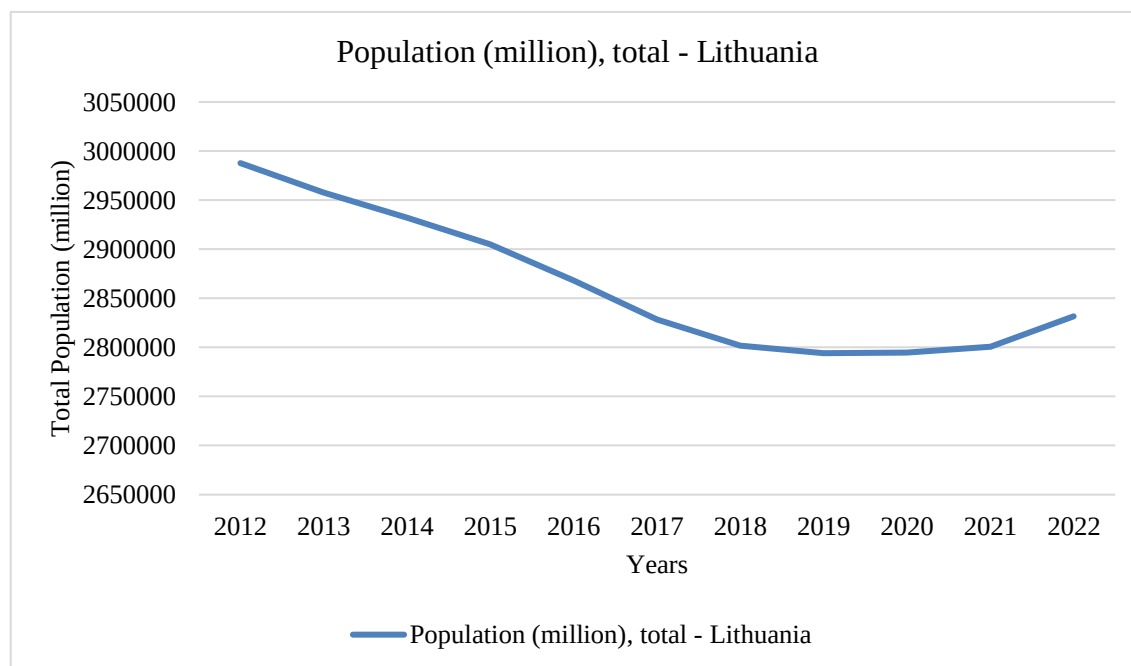
3.1.3.3. Population

According to the most recent census data and world bank data, Lithuania's total population in 2022 was 2.8 million people. Looking back, Lithuania had a population of around 2.8 million people in 1960 (The World Bank, 2024).

Moreover, By the end of 2023, the population of Lithuania is predicted by trade economics worldwide macro models and expert forecasts to reach 2.80 million. Our econometric models predict that the population of Lithuania will be between 2.80 and 2.90 million in 2024 and 2025, respectively (Trading Economics, 2023). The Figure 25

below shows the Lithuanian Population in million from 2012 to 2022 (The World Bank, 2024).

Figure 25: Population (million), total - Lithuania from 2012 to 2022



Source: Population (million), total – Lithuania; The World Bank, 2024).

3.1.3.4. GDP

According to World Bank data, in 2022, Lithuania's GDP (gross domestic product) will be worth 70.97 billion US dollars. Lithuania's GDP value represents 0.03 % of the global economy. From 1990 to 2022, GDP in Lithuania averaged 30.49 USD Billion, with a high of 70.97 billion USD in 2022 and a low of 7.87 billion USD in 1995 (The World Bank, 2024).

Moreover, Lithuania's full-year GDP growth rate fell from 6.3% in 2021 to 2.4% in 2022. Lithuania's GDP growth for the entire year averaged 4.26 percent between 1996 and 2022, with a peak of 11.1 percent in 2007 and a low of -14.8 percent in 2009 (The World Bank, 2024). Global macro models and analyst expectations at Trading Economics, Lithuania's full-year GDP growth will be -0.60 percent by the end of 2023. According to our econometric models, Lithuania's GDP growth for the entire year is expected to be roughly 1.50 percent in 2024 and 2.50 percent in 2025 (Trading Economics, 2023).

In the third quarter of 2023, Lithuania's GDP increased by 0.20 % compared to the same quarter the previous year. From 1996 to 2023, Lithuania's GDP Annual Growth Rate averaged 4.04 %, with a sharp of 12.30 % in the third quarter of 2007 and a low of -15.70 % in the second quarter of 2009 (Trading Economics, 2023). The Figure 26 below shows the Lithuania Annual percentage of GDP Growth Rate from 2012 to 2022.

Figure 26: GDP Growth (annual %) for Lithuania from 2012 to 2022



Source: (GDP Growth (annual %) – Lithuania; The World Bank, 2024).

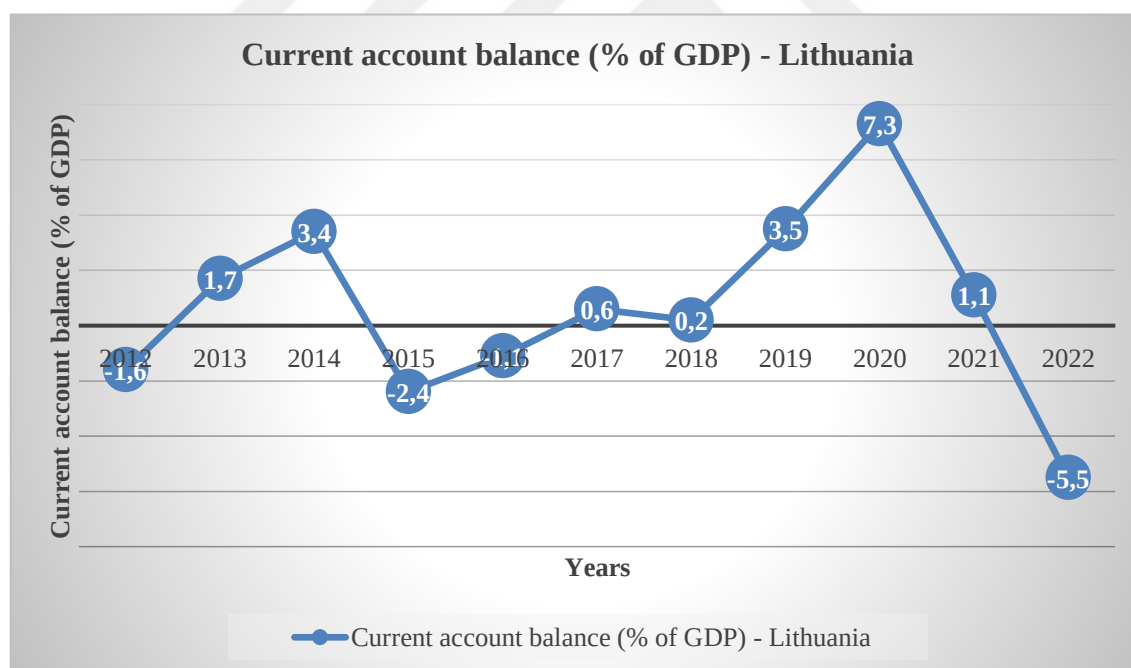
3.1.3.5. Current Account Balance

Lithuania reported a current account surplus of EUR 602.6 million in September 2023, up from a deficit of EUR 267.7 million the previous year. This was the largest trade surplus since the series began in 2004, with the goods account deficit falling to EUR 273.1 million from EUR 770.03 million the previous year, and the services account surplus rising to EUR 757.6 million from EUR 684.84 million. Furthermore, the primary income surplus increased to EUR 84.67 million from a deficit of EUR 187.12 million in September 2022, while the secondary income surplus increased to EUR 33.45 million from EUR 4.63 million. The country noted a trade excess of EUR 1,279.85 million in the first nine months of 2023 (Trading Economics, 2023). From 2004 to 2023, Lithuania's current account averaged -45.90 EUR Million, with a high of 602.60 million EUR in

September 2023 and a low of -744.30 million EUR in June 2022 (Trading Economics, 2023).

Furthermore, Lithuania's current account deficit in 2022 was equivalent to 5.5% of its GDP. Lithuania's current account to GDP ratio averaged -4.30 percent of GDP between 1995 and 2022, peaking at 7.3 percent in 2020 and falling to -15.4 percent in 2007 (The World Bank, 2024). By the end of 2023, analysts' projections and Trading Economics' global macro models predict that Lithuania's current account share of GDP will be 0.40 percent of GDP. Our econometric models predict that in 2024, Lithuania's current account to GDP will trend at about 0.10 percent of GDP (Trading Economics, 2023). The Figure 27 below shows the Lithuania Current Account balance to GDP from 2012 to 2022 (The World Bank, 2024).

Figure 27: Current Account Balance (% of GDP) for Lithuania from 2012 to 2022



Source: (Current Account Balance (% of GDP) -Türkiye; The World Bank, 2024).

3.2. DEVELOPED AND DEVELOPING COUNTRIES

The United Nations divides all countries into two groups: developed and developing. Based on factors like GDP, GNP, per capita income, industrialization, and level of living, countries are categorized (Surbhi, 2020). Moreover, there are numerous

other factors that categorize them into developed and developing countries. These are as follows: economy, living conditions, human development index, industrialization etc.

An economy and industrialization level of development characterize a developed nation. Because they are self-sufficient, developed nations are frequently referred to as first world nations or developed countries (Surbhi, 2020).

Based on their level of development, nations are ranked using the Human Development Index (HDI) statistics. The nation boasts a high GDP, high child welfare, good health care, transportation, communications, educational resources, improved housing and living circumstances, industry, infrastructure, advancements in technology, and an increase in life expectancy per capita. wealthy nations are referred to as developed nations. These nations' post-industrial economies mean that the industrial sector accounts for a larger portion of their total revenue than the service sector (Surbhi, 2020).

The following are the names of a few developed nations: USA, Lithuania, Norway, Sweden, Switzerland, Canada, Australia, France, Germany, Italy, Japan and Türkiye (Surbhi, 2020).

Developing countries are those that have a low per capita income and are still in the early phases of industrial growth. These nations are categorized as Third World nations. Alternatively referred to as developing nations (Surbhi, 2020).

Developing nations depend on established nations to establish industries within their borders. The Human Development Index (HDI) for the nation is low. GDP are low, analphabetism is high, education, transport, communication and health facilities are poor, national debt is unsustainable, income distribution is unequal, mortality is high, and fertility is high. and both are malnourished. Mother-child relationships lead to elevated newborn death, high unemployment and deprivation (Surbhi, 2020).

The following are some of the developing nations' names: Colombia, Thailand, Sri Lanka, India, Kenya, Pakistan, and Türkiye (Surbhi, 2020).

A developed nation with comparatively high rates of economic growth and security is said to have a developed economy. The standard of life, the degree of

industrialization, the amount of technological infrastructure, and the per capita income or gross domestic product are the usual metrics used to assess a nation's level of development (Majaski, 2022).

An economy or the degree of development can also be assessed using noneconomic characteristics, such as the human development index (HDI), which combines data on health, education, and literacy into a single number (Majaski, 2022).

A given country may be seen as developed in one meaning by one institution but not in another sense by another due to the phrase "developed country" being used to denote countries with developed economies or developed markets (World Population Review, 2023). On the other hand, a developing country is typically thought of as one who's industrial and/or economic development is still in its early stages of maturity. This deficiency causes social, political, economic, and environmental problems that severely lower that nation's standard of living, either directly or indirectly (World Population Review, 2023).

Three countries selected for this research i.e., Pakistan, Türkiye, and Lithuania. Lithuania is a developed country; Pakistan is a developing country, and Türkiye is a blend of developing and developed country according to the economic stats. Then in this section the comparison of three different countries' economies is discussed.

The economy of Pakistan is classified as an emerging economy. The total population of Pakistan is 225.2 million. The unemployment rate is 4.8% and the GDP (PPP) is \$1.3 trillion. 8.9% is the rate of inflation. Pakistan's economy is ranked 152nd in the 2023 Freest Economy Index with an economic freedom score of 49.4. When compared to the prior year, it rose by 0.6 points. In the Asia-Pacific area, Pakistan is ranked 33rd out of 39 countries, scoring lower overall than both the world and regional averages (The Heritage Foundation, 2023). Improvements to the overall business climate and the private sector's dynamism have not made much progress. The work market is still not improving. In the informal sector, a large portion of the labor force is underemployed. High inflation threatened the stability of the currency (The Heritage Foundation, 2023). Pakistan's economy is presently experiencing significant strain due to low foreign exchange reserves, a weakening currency, and elevated inflation (The World Bank, 2023). In the

medium run, economic growth is anticipated to decelerate and stay below potential. Economic activity is also being slowed by tightening policies, the effects of floods, import restrictions, rising loan and gasoline prices, a decline in confidence, and ongoing political unpredictability. Devastating floods and challenges in procuring high-quality fertilizers and fodder are lowering agricultural output and providing low-income individuals with fewer job alternatives. Similarly, the industrial and services sectors are experiencing a slowdown in demand both domestically and internationally, as well as dwindling foreign exchange reserves, import prohibitions, floods, high gasoline prices, and political unpredictability. In addition to impeding long-term human capital accumulation, floods may have had a negative impact on health and education, particularly in rural regions, by destroying infrastructure and obstructing access to schools, health facilities, and sanitation systems (The World Bank, 2023).

Currently, Türkiye is one of the world's staunchest growing emerging economies with expected growth rates of 9.2% in 2010, 8.5% in 2011 and 4% in 2012 and the government and corporate entities have placed a focus on shifting transitioning from a purely production-based economy to one that combines innovation and production to produce goods and services that are sold globally (Temel & Glassman, 2013, p. 81). As an expanding economy, Türkiye tries to boost the value added to its goods and services. The Turkish economy should prioritize knowledge and information, as it drives productivity and economic progress (Yalçıntaş, Kaya, & Kaya, 2015, p. 63). Among the markets in the region with the fastest rate of development is the Turkish economy. The private sector is expanding quickly despite the nation's high level of economic involvement. Institutional deficiencies have impeded the progress towards increased economic freedom. Although property rights are safeguarded, corruption cannot be stopped by the somewhat poor legal system (The Heritage Foundation, 2023). The total population of Türkiye is 85.0 million. The unemployment rate is 13.1% and the GDP (PPP) is \$2.9 trillion. The inflation rate is 19.6% (The Heritage Foundation, 2023). Moreover, Weak exports are expected to slow economic growth to 3.6% in 2023, But the primary engine of growth will continue to be domestic demand. Southern Türkiye was devastated earlier this year by a severe earthquake. But a rebound after recovery is anticipated to be more than make up for the detrimental effects of the pause in economic activity. Around 10% of the workforce is anticipated to be unemployed (OECD,

2023). Türkiye's GDP is expected to expand by 5.6% in 2022, up from 11.4% in the same time last year due to a slowdown in manufacturing, exports, and investment. Private consumption, which is expected to expand by 19.6% in 2022, is still robust. Industry (+3.3%) and the services sector (+9.7%) led value added growth. Due to robust economic growth, the labor market has fully recovered from the epidemic. Despite an estimated \$108 billion being invested in central banks' indirect foreign currency intervention (CBRT), the value of the Turkish Lira (TRY) has decreased by 30% in 2022 (The World Bank, 2023). on addition, Türkiye maintains its ranking of 104th on the 2023 Index for economic freedom with a score of 56.9. Türkiye has a lower overall score than the world average, placing it 41st out of 44 countries in the European region (The Heritage Foundation, 2023).

Lithuania's economy is the largest among the Baltics. Lithuania is a adherent of the European Union, belongs to the alliance of countries with very high mortal progress, and is a member of the OECD and WTO. The Lithuanian economy successfully weathered the COVID-19 crisis and grew rapidly until early 2022, supported by increased exports and rapid integration into global value chains. Structural unemployment and skills mismatch remain high, while poverty is declining only slowly. Further reforms could help maintain economic resilience and manage heightened uncertainty. Reducing the size of state-owned enterprises and improving their governance would lead to higher productivity. Linking education more closely to labor market needs will help boost employment and skills. Increased use of digital technologies by businesses, a modernized public sector and strong skills will also help drive the trend's growth. Achieving the environment change target of net zero secretions by 2050 will involve bold policy actions, both in terms of taxes and spending (OECD, 2023). The crisis has revealed high levels of poverty and the relatively weak labor market integration of low-skilled workers, and to more effectively protect vulnerable groups, this long-standing reinforces the need to address the issue (OECD, 2021). Moreover, the beginning of the year saw the first signs of a slowdown in the labor market, with fewer job openings and a slightly higher unemployment rate. A slowdown in GDP growth will likely have a negative impact on employment growth, leading to higher unemployment. This is expected to reduce overall employment by 0.6% and the unemployment rate to 6.6% in 2023. However, as GDP growth accelerates in 2024, the labor market is expected to tighten, partly due to

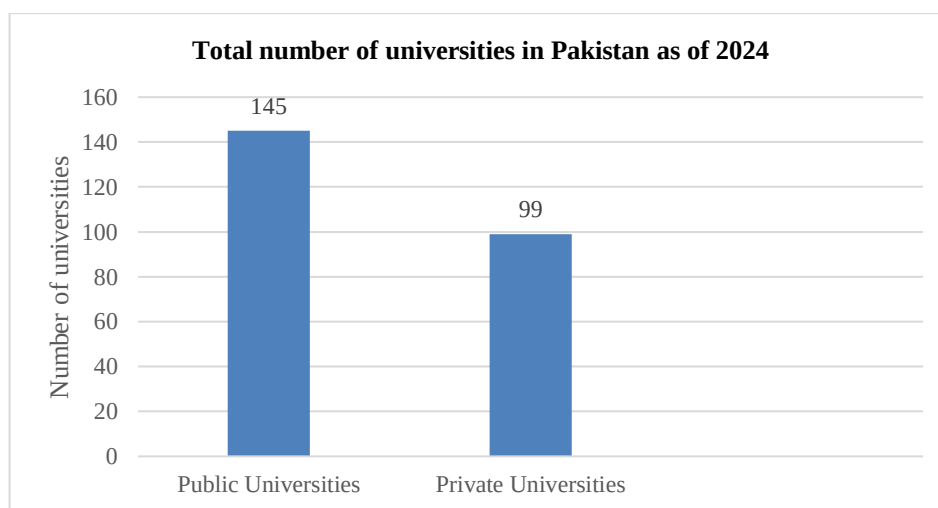
demographic disadvantages, and the unemployment rate is expected to fall slightly to 6.5% (European Commission, 2023). The total population of Lithuania is 2.8 million. The unemployment rate is 8.5% and the GDP (PPP) is \$119.8 billion. The inflation rate is 4.6% (The Heritage Foundation, 2023). With an economic freedom score of 72.2, Lithuania ranks 20th in the 2023 ranking of free economies. It dropped from the prior year by 3.6 points. Lithuania is ranked 14th in the European region out of 44 countries, scoring significantly higher overall than both the regional and worldwide norms (The Heritage Foundation, 2023).

3.3. GENERAL INFORMATION ABOUT UNIVERSITIES

3.3.1. Pakistan

In 2024, the Higher Education Commission of Pakistan has approved approximately 244 universities, comprising 99 private and 145 public universities in Pakistan. Karachi has the greatest number of universities in Pakistan, followed by Lahore and Islamabad. HEC has approved 123 campuses, encompassing 84 public and 39 private sectors (Jaamiah, 2025). The graphical representation is shown below in Figure 28.

Figure 28: Total Number of Universities in Pakistan



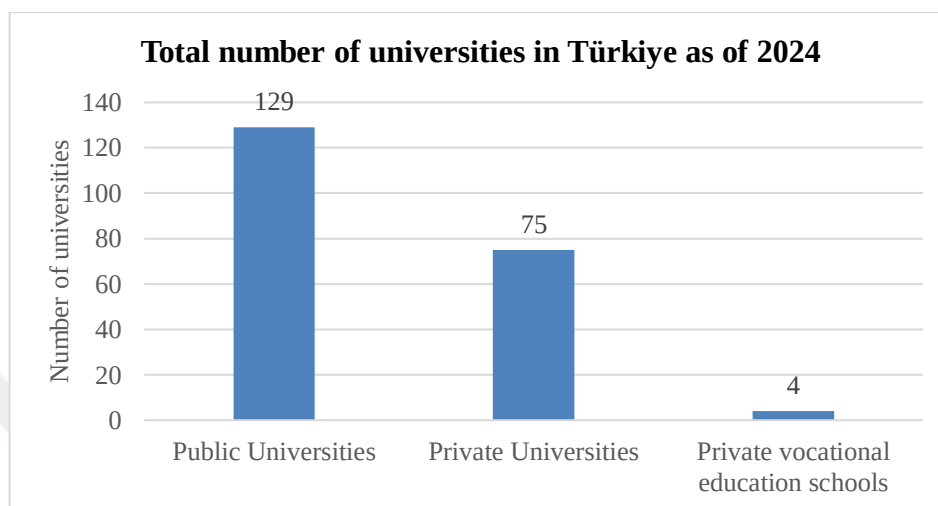
Source: (Total number of universities in Pakistan; Jaamiah,2025).

3.3.2. Türkiye

In 2024, Türkiye's higher education system consisted of public and private universities as well as a small number of private vocational colleges, which are two-year non-academic training institutes tailored to jobs. With 129 universities, public universities account for

the majority of other institutions. The number of private universities rose to 75 in the interim (Dierks, 2024). The graphical representation is shown below in Figure 29.

Figure 29: Total Number of Universities in Türkiye

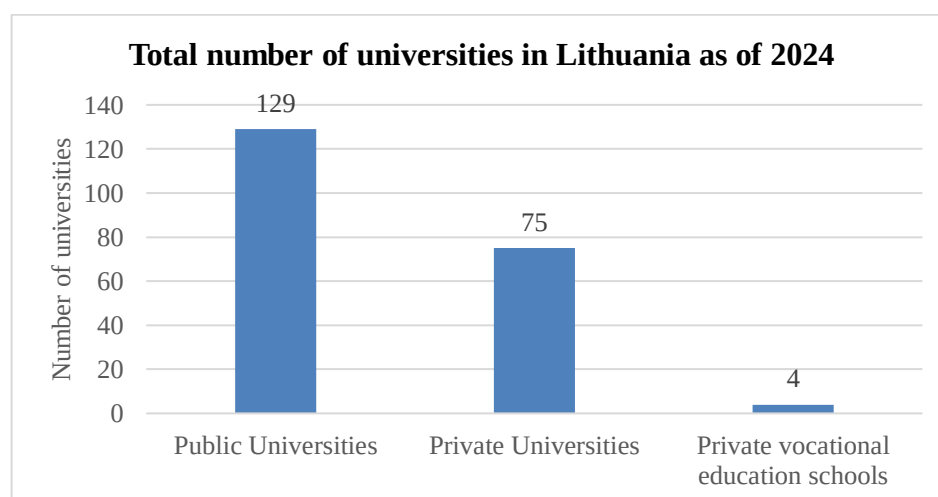


Source: (Total number of universities in Türkiye; Dierks, 2024).

3.3.3. Lithuania

There are two types of higher education institutions in Lithuania: colleges (kolegija) and universities. Colleges focus on practical instruction for certain professions. There are 14 state universities, eight private ones, and one branch campus of a Polish institution. Lithuanian colleges employ a 10-point grading system, with 10 being the best possible mark and 5 being the lowest required to pass (QS, 2025). The graphical representation is shown below in Figure 30.

Figure 30: Total Number of Universities in Lithuania



Source: (Total number of universities in Lithuania; QS, 2024).

3.4. THE SITUATION OF THE INDUSTRIAL SECTOR IN THE RELEVANT COUNTRIES

Academic institutions' collaboration with the corporate sector is crucial for a country's financial development. However, less developed countries may face numerous impediments to this form of collaboration (Rossoni, Vasconcellos, & Rossoni, 2023, p. 2).

3.4.1. The Situation of the Industrial Sector in Pakistan

Pakistan has poor collaboration between university and industry, both at the university and industrial levels. In Pakistan, there is a lack of strategic government policies that promote competent linkages between universities and industries. The importance of university-industry collaboration is identified by both businessmen and academicians. Political factors are a major concern (Gul & Ahmad, 2012, p. 180). University-industry collaboration strengthens both universities and industries. To begin with, a MoU (signed agreement) is one of the most important agreements that can benefit universities, which can also impact the student's career in a great way. A MoU is a formal agreement signed between two parties. There are multiple ways in which universities can be empowered, there are as follows (Gul & Ahmad, 2012, p. 181):

- Sharing knowledge and receiving financial support from industry can improve a university's research capability and lessen reliance on government funding.
- Universities motivate graduate and postgraduate students to gain practical experience through internships with industry partners as part of their studies. Graduate courses should contain industrial-related subjects like entrepreneurship, business and marketing, and special science disciplines.
- Sponsored industrial collaboration is a powerful approach to strengthen universities. This allows institutions to allocate more funds into research and development programmes. Establishing liaison offices at universities helps connect university and industry, promoting collaboration. This liaison centre facilitates the commercialization and marketing of university-made items.

Strengthening the industry is a further directive for the policy on university-industry engagement. Pakistan's industries face numerous challenges that affect both the pricing of their products and their ability to be sold internationally.

- Encourage industries to build knowledge-based products and innovate through scientific research. Share industry challenges with academics to identify acceptable solutions.
- Academics and scientists might be employed as consultants to teach specific individuals for industry R&D centres. Pakistan's industrial industry suffers from a lack of interest in research and development. Industrialists often avoid maintaining these centres, resulting in worse product quality and missed opportunities for progress. To promote R&D, businessmen should be made aware of its importance and offered academic services.
- Candidates for employment should be youthful, driven, and competent graduates. sector can interview and hire young graduates to work on initiatives that assist the sector, while also paying for their higher education. After completing their degree, students will work in industries that have funded their study.

3.4.2. The Situation of the Industrial Sector in Türkiye

In Türkiye, the level of university-industry collaboration for technology and innovation activities was low (6%) among established firms (Temel & Glassman, 2013, p. 82). Turkish industries are often hesitant to collaborate with foreign entities. Turkish industries rarely interact with local competitors, while in developed countries, competitors routinely work together to develop new products or services, sharing intellectual property rights and income (Temel & Glassman, 2013, p. 83). Many Turkish industries lack the experience of collaborating with universities, unlike industries in developed nations that have established trust over years. Adapting the configuration of university-industry collaborations is vital to develop confidence, given their discontent with the university's slow pace, bureaucracy, and high costs (Temel & Glassman, 2013, p. 83). Despite poor trust and collaboration on grants and formal research, Turkish industries utilize university technical infrastructure, including equipment and laboratory facilities (Temel & Glassman, 2013, p. 83).

The following are the currently operational interfaces in Türkiye: (Yalçıntaş, Kaya, & Kaya, 2015, p. 63)

- Technoparks
- TUBITAK
- Development Agencies
- Technology Transfer Offices
- European Union Framework Programs

The Scientific and Technical Research Council of Türkiye, or TUBITAK, was founded in 1963 with the goals of arranging, directing, and advancing fundamental and applied research (Baysal, 2007, p. 13). TUBITAK initially sponsored universities for essential research interests, as stated in its foundational aims. As Türkiye's economy improved, TÜBİTAK expanded its remit to cover industrial technological activities and contract research (Baysal, 2007, p. 13).

The first partnership was between Istanbul Technical University (ITU) and surrounding small and medium-sized enterprises. The information on Istanbul Technical University's website and Satır and Erkan's presentation "Design for SMEs in industrial design education in Istanbul Technical University (ITU)" at the Sixth International Conference EAD in Germany in 2005 are both analyzed by the author (Baysal, 2007, p. 21).

3.4.3. The Situation of the Industrial Sector in Lithuania

European countries have prioritized university-industry collaboration as part of their strengths to become the world's most viable economy (Lace & Rumbinaite, 2016, p. 19). The following issues with the current innovation systems in Lithuania have been noted (Lace & Rumbinaite, 2016, p. 20).

- Current company models lack a strong focus on innovation.
- Inadequate collaboration between universities and industries, as well as insufficient utilisation of creative and intellectual capital to drive innovation.
- The current education system fails to align labour demand and supply.
- Insufficient research and development staff, as well as inadequate workforce renewal.

- Uneven regional development can negatively impact the business environment and waste resources.



CHAPTER 4: EMPIRICAL RESEARCH ON UNIVERSITY-INDUSTRY COLLABORATION

4.1. SCIENTIFIC PROBLEM OF THE RESEARCH

The scientific problem solved in the doctoral dissertation is formulated as the following questions: how do different forms of university-industry collaborations affect students' career development depending on the country's level development in industrialized and emerging countries?

The above problem also includes various factors affecting university-industry collaboration. Moreover, that what are the potential benefits for organizations, students and industries across Pakistan, Türkiye and Lithuania. This can be analyzed if the collaboration is successful or not.

4.2. AIM OF THE RESEARCH

The aim of the research is to reveal the impact of university-industry collaboration on students' career development in developing and developed countries.

To fulfill the research's stated aim, the ensuing objectives have been established:

1. To identify the various types of university-industry collaboration that can lead to success of student's career.
2. To identify and assess the key benefits of university-industry collaboration for students in regards of career development.
3. To identify the country level development.
4. To empirically explore the impact of university-industry collaboration on student's career development in developed and developing countries.
5. To develop a theoretical model of the impact of university-industry collaboration on student's career development in developed and developing countries.

4.3. IMPORTANCE OF THE RESEARCH

The object of the research is "the impact of university-industry collaboration on student's career development in developed and developing countries.

4.4. SCOPE OF THE RESEARCH

This research observed the effect of university-industry collaborations on the student's career development in Pakistan, Türkiye and Lithuania. The scope of this research includes several dimensions. To begin with, these countries were selected to make a comparison of developed and developing countries. The statistics were collected at a single point in time using cross-sectional study over the period of two years. Quantitative and qualitative data were gathered for the analysis. University websites and other secondary resources were used to gather qualitative data whereas, primary data were gathered using English & Turkish questionnaire. The firsthand data was accumulated from business and engineering students across various universities of Pakistan, Türkiye and Lithuania. They were undergraduate, graduate, post graduate and alumni students. The theoretical framework was established to study the impact of diverse types of university-industry collaborations and factors affecting university-industry collaborations on student's career development taking into consideration the country level development. Lastly there were certain limitations, because of the lack of time and resources the data was not collected from academic staff and industry personnel. Moreover, the study was cross-sectional study, so conducted at a single point in time and not a longitudinal study. Due to the geographical boundaries, the qualitative data was not gathered through surveys or focus groups etc.

4.5. RESEARCH QUESTIONS

1. How does the impact of university-industry collaboration on students' career development vary across different fields and industries in developed and developing countries?
2. What are the key benefits of university-industry collaboration for students in terms of career development in developed and developing countries?

4.6. METHODOLOGY OF THE RESEARCH

The processes and strategies used to appropriately convey the study findings are referred to as research methodology. It is concerned with a study's systematic design to make sure the results satisfy the goals and objectives of the research. It is mostly the researcher's responsibility to introduce the subject and outline the different research

approaches. There are many kinds of research methodologies, including surveys, case studies, exploratory research, quantitative research, analytical research, applied research, qualitative research, and fundamental research. A variety of categories are used to classify research methods. These comprise a broad category, the study's nature, goal, design, data type, and sample strategies, among other things (Peamkar, 2023). The details of the categories are shown in Figure 31 below:

Figure 31: Research Methodology Types

General Category	Research Design	Nature of the Study	Data Type	Purpose of the Study
• Quantitative Research • Qualitative Research	• Exploratory Research • Conclusive Research	• Descriptive Research • Analytical Research	• Primary Research • Secondary Research	• Applied Research • Fundamental Research

Source: (Types of Research Methodology; Peamkar, 2023)

4.6.1. General Category

Both qualitative and quantitative research fall under the general category. The general category used for this research includes a combination of both quantitative and qualitative research. This is called mixed method. The gathering and examination of numerical data using a variety of statistical programs, including SPSS, is known as quantitative research. This type of research includes tables, graphs and numbers. On the other hand, data that isn't numerical can be collected and analyzed for qualitative research. This type of research includes words, images and observations (Hassan, 2024). The reason to use mixed method for this study is to explore complex phenomena and to understand the topic more comprehensively.

4.6.2. Nature of the study

This category includes descriptive and analytical research. The nature of this study includes analytical research. It is defined as the process to analyze and interpret data to understand relationships. It also helps to determine the casual connection between two or more variables. Furthermore, it also aids in the development of original concepts related to the study topic. Therefore, analytical research aggregates small details to generate

larger logical conjectures. Thus, the analytical investigation clarifies the validity of a claim.

4.6.3. Purpose of the study

The purpose of the research category includes applied research and fundamental research. The purpose of the study for this research falls under the category of applied research. Applied research is action research that focuses on a single topic and typically simplifies the findings (Pedamkar, 2023). The main reason why this research falls under this specific category is basically the research findings help to improve university-industry collaboration and enhance the benefits for the students. The other reason is to understand how this collaboration practically impacts the student's career. This research has a practical approach and has practical application. The scope of research for this category is limited instead of universal.

4.6.4. Research Design

Both exploratory and conclusive research fall under the heading of research designs. Conclusive research was the research design employed in this study. It is defined as a research design used to attain information that can be used to reach conclusions or make verdicts. It attempts to respond to the research topic and has a lively technique. A carefully considered framework aids in formulating and solving the hypotheses as well as providing the results. Here, the outcomes are generic. (Pedamkar, 2023). This research design usually incorporates quantitative methods of data collection and analysis.

4.6.5. Data Type

Primary and secondary data are the two categories of data. Primary data are those that the researcher collects initially, as opposed to pre-existing data. Primary data collection is expensive and takes a long time. This data can be collected by using various tools such as surveys, interviews, observations, questionnaires etc. whereas secondary data is the type of data gathered through primary research, books, journals, articles, magazines etc. It is the type of data that is collected by someone else but not by the researcher for the initial period. Secondary data is easy to collect and it's inexpensive to collect secondary data.

The type of data used for this research includes both primary data as well as secondary data. As the data is gathered through a questionnaire for the first time for this research, that is why it is considered as primary data. On the other hand, various sources are used to develop the questionnaire for this research, so secondary data is also used to carry out this research. Remember that primary research also incorporates secondary research because all primary studies require gathering and evaluating secondary data at the literature review stage (Pedamkar, 2023).

Table 1 below summarizes the categories of types of research methodology used for this research.

Table 1: Categories of Research Methodology

Research Design	
Research Approach (General category)	Mixed Method (Quantitative and qualitative)
Research Methodology	Deductive approach (hypotheses testing)
Nature of study	Analytical research
Purpose of study	Applied research
Data type	Primary and secondary data
Research design	Conclusive research
Type of study	Cross-sectional study
Statistical method for data analysis	IBM SPSS

Source: (Developed by Author, 2024)

4.6.6. Sampling Method

It is carried out by a certain group of individuals. It is challenging to get information from each member of a certain group. Because of this, samples are always chosen for each study project in order to conduct the studies. A particular set of people who will take part in research is called a sample.

A careful sample that is representative of the group as a whole must be chosen in order to derive meaningful conclusions from study findings. We refer to this as a sampling method. Two main categories of sampling techniques exist. two types of sampling: non-probability and probability. The sampling technique known as probability sampling is one that uses random selection to allow you to make reliable statistical inferences about the entire group. In contrast, the non-probability sampling method makes data collecting

simple by utilizing a non-random selection process based on accessibility or other factors (McCombes, 2023). Given that the data were gathered at random, the probability sampling method was employed for this study. Another name for it is the random sampling method. The target population has an equal chance of being chosen using this strategy.

Still, there are a number of classifications for both probability and non-probability sampling techniques. There are four popular types of probability sampling techniques that are employed in research. Simple random sampling, stratified sampling, cluster sampling, and systematic sampling are all included (Nikolopoulou, 2023). Non-probability sampling comes in five popular varieties. These consist of self-selection (volunteer) sampling, quota sampling, snowball sampling, convenience sampling, and purposive (judgmental) sampling (Nikolopoulou, 2023). For this study, simple random sampling is the kind of probability sampling technique that was employed. This method was chosen because the sample is drawn at random by the entire population. Each person's chances of being chosen are equal.

Moreover, for every research it is necessary to select the population before selecting the sample. The population is described as the total group of people from which conclusions are drawn. It can be defined in relationships of various characteristics such as geographical location, age, income, country etc. A population for this research was all university students (undergraduate, graduate, PhD and Alumni) in Pakistan, Türkiye and Lithuania.

But a sample is a predetermined group of individuals from which data will be gathered. But otherwise, a sample is a portion of the population. A sample for this study was students from various universities of Pakistan, Türkiye and Lithuania but specifically students with business and engineering backgrounds. The total sample size for this research was 557 students.

4.6.7. Data Collection Method

The two primary categories for gathering data are primary and secondary data collection methods. Both primary and secondary data collection techniques were used.

There are various techniques to gather primary data as well as secondary data. Some of the data collection methods that are used popularly for collecting primary data are questionnaires, surveys, observation, interviews, focus groups etc. On the other hand, there are also some popular data collection methods for gathering secondary data. They include books, journals, published printed sources, general websites, documents from websites etc. (Taherdoost, 2021, p. 13).

The data collection method used for this research includes both primary as well as secondary methods. Questionnaires were used to collect the primary data, whereas journals, documents from websites, general websites published printed sources etc. were used to collect the secondary data.

A questionnaire was originally developed in English based on previous relevant studies and scored on a five-point Likert scale (ranging from 1 — strongly disagree to 5 — strongly agree) and multiple choice questions (Ishengoma & Vaaland, 2016, pp. 42-44; Lubbe, Ali, & Ritalahti, 2021, pp. 10-14). Subsequently, the questionnaire was translated into Turkish using a back-translation process with the support of university lecturers and supervisor to assure the content validity of the measurement scales. The data was gathered from Pakistan, Türkiye and Lithuania. The official survey was administered via the platform Google Docs and distributed online to all target participants. Target participants were university students (Bachelors, master's & PhD) studying in the field of business administration and engineering across Pakistan, Türkiye and Lithuania. The questionnaire consists of five parts. The first part is the demographic section and contains 8 questions related to various demographic variables such as age, gender, country, programme, status of the respondent, university name, department, company name. The other parts contain questions related to variables. There are a total of 45 questions. The questions are a mixture of multiple choice and Likert scale questions. Likert scale questions include options from 1 to 5. 5= strongly Agree; 4= agree; 3= neutral; 2= disagree; 1= strongly disagree. Part II contains 12 questions related to university-industry collaboration in which questions from 9 -12 were multiple choice questions whereas the remaining were likert scale questions, part III is about education and training, and it contains 8 questions, part IV contains 5 questions related to services and consulting and questions in both part III and IV were measured by likert scale and last part V contains

12 questions related to career preparation, in which questions from 34-37 were measured by Likert scale whereas the remaining were multiple choice and binary questions. Both versions of the questionnaires were shown in the appendix.

Table 2 shown below was used to summarize the methodology part.

Table 2: Summary of Methodology

Sampling Method	Probability Sampling
Sampling technique	Simple random Sampling
Population	University students
Sample	Business and engineering students from various universities of Pakistan, Türkiye and Lithuania.
Sample Size	557 respondents
Primary Data Collection Method	Questionnaires (English & Turkish Version)
Secondary Data Collection Method	Journal articles, documents from websites, general websites etc.
Unit of Analysis	Students, universities

Source: (Developed by Author, 2024)

4.6.8. Coding Method

The data of the questionnaire was coded to run the analysis in SPSS. The data was coded in a way that the questions with multiple choices such as the status of the respondent include four options (bachelor student, Master student, PhD student, Alumni and other), so the questions with such kind of options were coded from 1 till 5 as shown below in the coding sheet. In addition to that the questions with Likert scale were already coded in the questionnaire indicating 5= strongly agree, 4 = agree, 3 = Neutral, 2= disagree and 1 = strongly disagree. Moreover, the gender question was coded as Male is given code 1, whereas female was assigned code 2. Furthermore, the questions with options Yes and No were binary coded indication 0 for No and 1 for Yes. All the questions along with their options and coding are described in detail below in Table 3:

Table 3: Coding Sheet (Questionnaire)

Question	Options	Coding
Gender	Male	1
	Female	2
Status of the Respondent	Bachelor Student	1
	Master Student	2
	PhD Student	3
	Alumni	4
	Other	5
Question 9	Poor	1
	Fair	2
	Good	3
	Excellent	4
Question 10	Offering internships and traineeships	1
	Develop joint training programs	2
	Providing mentoring and career guidance	3
	Other	4
Questions 11,12, 41,42,44	Yes	1
	No	0
Question 38	High Income	1
	Job Satisfaction	2
	Career Growth & advancement opportunities	3
	Making a positive impact on society	4
	Other	5
Question 39	Very Beneficial	1
	Somewhat beneficial	2
	Not beneficial	3
Question 40	More opportunities in developed countries	1
	More opportunities in developing countries	2
	No difference	3
Questions 13-37	Strongly Agree	5
	Agree	4
	Neutral	3
	Disagree	2
	Strongly Disagree	1
Country	Pakistan	1
	Türkiye	2
	Lithuania	3

Source: (Developed by Author, 2024)

4.6.9. Hypotheses

The research hypotheses have been presented based on the comprehensive conceptual model of the dissertation and the rational assumptions given in the theoretical section.

H1: There is a relationship between types of university-industry collaborations and student's career development.

H2: There is a relationship between factors affecting university-industry collaborations and student's career development.

H3: The relationship between university-industry collaborations and students' career development depends on the level of country development.

4.7. FINDINGS AND RESULTS OF THE RESEARCH

The findings of this research were gathered using a mixed method approach. The mixed method approach includes qualitative and quantitative analysis. University websites, reports and literature were used to investigate the qualitative content analysis, whereas questionnaire was used to study the quantitative analysis. SPSS used to run the statistical analysis for this research.

4.7.1. Qualitative Analysis

The qualitative analysis was done using various tools such as qualitative content analysis and 3 university websites data was used to analyze the results for this research. One university website from each country was used for qualitative analysis. From Pakistan Lahore School of Economics, from Türkiye Tokat Gaziosmanpasa University and from Lithuania Kaunas University of Technology were included for qualitative analysis.

4.7.1.1. Content Analysis

The study's conclusions indicate that industry-university cooperation is gaining traction. This is demonstrated by a notable rise in research that observes in the subject matter from numerous directions. The perspectives on this subject differ between developing and industrialized nations. Previous experience was shown to be one of the best indicators of university-industry collaboration, according to the literature study. Boundary-spanning probably establishes the foundation for developing this kind of cooperative experience. The transmission of research results to a corporation, the employment of a researcher on a temporary basis by a company, or an industry-funded PhD student might all provide the critical learning method that literature supports.

Personal connections across the divide between academia and business foster connection and trust, establish a common past, and make it easier for all parties to comprehend each other's customs and aspirations, whose fulfillment is all linked to the establishment of cooperation (Sjoo & Hellstrom, 2019, p. 281).

Location and policy environments can have an impact on partnership (Sjoo & Hellstrom, 2019, p. 280). Furthermore, a different study found that geographic distance increased the value of the patent of invention that resulted from university- industry collaboration. According to the author, this may be rationalized by the fact that when actors are not in an identical geographic environment, there is more room for unique inventions. It is noteworthy to see that businesses outside of the university are beyond prospective than businesses close to establishing open, joint ties, frequently with the assistance of money from the European Union (Sjoo & Hellstrom, 2019, p. 281).

Research has also shown that faculty members at universities in certain developing nations choose to get into personal agreements with businesses to provide some advisory services to businesses to supplement their meager university salary. On the other hand, this can lessen the advantages to the institution and lead to disagreements in the faculty members' time allotment (Wickramasinghe & Malik, 2018). While this may be viewed as an ad hoc, informal aspect of U-I conversations, a comprehensive examination of research on university-industry collaboration by Mascarenhas et al. (2018) confirms a larger gap in the knowledge about U-I cooperation among universities and the business community of developing parts of the world. According to this review, it is uncertain what kinds of cooperation structures might be most effective in developing nations (Bashir, 2021, p. 6).

The significance of industry-university connections has not been entirely acknowledged in Pakistan, particularly by the business sector. Consequently, there is very little usage of the U-I cooperation paradigm in Pakistan. Pakistani businesses often produce very few new goods, and many institutions lack a research-oriented atmosphere is another factor contributing to this lack of cooperation (Bashir, 2021, p. 8). The formulation of U-I partnership strategies that would affect long-term job development in more knowledge-based regions and capability developing (e.g., skills upgrading) of the

regional employees was highly desired, as it was perceived to have a clear route towards social advantages for the country (Bashir, 2021, p. 16).

Furthermore, it was noted that creating trust is an important issue in university-industry collaboration. This is because trust is regarded as crucial to fostering faith in the partnering partners' capacity to fulfill their commitments as part of a collaborative initiative. Establishing connections based on trust may also help to resolve the problem that certain educational institutions see as the industry's exclusive focus is on financial issues, primarily those about quick profits, and that industry has slight or no stake in cooperating with university research that is seen as future and has not yet produced results for increasing company profitability and competitiveness.

Yet, communication links are also weak due to a lack of interest, which might further impede cooperation between Pakistani colleges and businesses. Universities need to be well-connected to the business community to work together more efficiently and provide more advantages to students.

Additionally, it was observed that many institutions lack the funding necessary to fully take advantage of various types of industry partnerships, and most Pakistani industrial businesses are unwilling or unable to make appropriate expenditures for research and development. A significant obstacle to university-industry collaboration in poor nations, as demonstrated by research conducted by the U-I partnership in Sri Lanka (Wickramasinghe & Malik, 2018), is the challenge of "related understanding" amongst individuals from various organizations. Research findings also revealed that industry-student work placements and industry input into university teaching course material were identified as prospective avenues for improving U-I partnerships in Pakistan in the future. Nonetheless, university students have a substantial role to play in facilitating both the forward and backward flow of information from institutions to businesses.

According to different research, the university-industry partnership is a source of knowledge progress, however, in Pakistan, it is waning. Collaboration between academia and industry offered graduates self-assurance and excellence, enabling them to thrive in the international marketplace. One barrier to research in Pakistan is the dearth of industrial employment possibilities. Collaboration between academia and industry

offered graduates self-assurance and excellence, enabling them to thrive in the global marketplace. One barrier to conducting studies in Pakistan is the dearth of industrial employment possibilities (Khan & Anwar, 2013, p. 273).

However, it is still up for debate, Türkiye is regarded as an advanced country by certain sources, however this is still up for debate. Türkiye is one of the developing nations that has been attempting to build an alliance among academia and business to boost the international competitiveness of SMEs, according to previous research. (Temel et al., 2013, p. 104). University-industry cooperation has proven beneficial for industries in industrialized nations; nevertheless, developing countries have distinct obstacles and problems when it comes to forging robust university-industry partnerships (Temel & Glassman, 2013, p. 81).

Following a qualitative content study, it was found that 20 BICs have been formed at various Pakistani institutions as of 2017. Business Incubation Centers are referred to as BICs. The HEC encourages the establishment of commercial Incubation Centers (BIC) in Pakistan's Higher Education Institutions (HEIs) to support researchers and young entrepreneurs interested in developing early-stage commercial initiatives with basic infrastructure and related amenities. The business incubator creates or arranges these services, and it may provide them directly or through its network of connections. Alumni of the business incubator program generate employment, rejuvenate communities, market innovative technology, and boost local and national economies. Rather than generating job seekers, we are transforming fresh graduates into employment suppliers (HEC, 2024).

After reviewing secondary sources, we discovered a platform called the University-industry Cooperation Platform of Türkiye (USIMP). The University-industry Collaboration Centers Platform of Türkiye (USIMP) is a "civil initiative" inspired by social obligation that seeks to raise consciousness about university-industry collaboration and technology transfer among all stakeholders while adding to related activities at various levels. USIMP was founded in June 2007 by six pioneering participants from the country who were supported by TUBITAK's University-industry Joint Research Centers Program (USAM). With its ATTP affiliation, USIMP has grown into a globally recognized national umbrella organization for Knowledge and Technology Exchange. The primary goals of this association are to foster and promote university-industry

collaboration initiatives across academia and industry and enhance consciousness among all parties involved, a more rapid and concentrated information transfer amongst individuals at nationwide and worldwide levels, to facilitate the propagation of expertise and experiences, and to assist and direct "University-industry Interface Offices" at Turkish universities utilizing their creation (USIMP, 2020).

In addition, Lithuania is a small country in Central and Eastern Europe that is one of the three Baltic States, along with Latvia and Estonia. It joined the European Monetary Area (€) in 2015 after becoming a member of the EU in 2004. With a population of just 2.8 million and a small domestic market, Lithuania still benefits from membership in the European Single Market and is closely linked to the global economy. Due to declining birth rates and emigration, especially among young Lithuanians, the country's population is gradually declining, causing a major brain drain. The percentage of tertiary graduates in the nation is quite high; among 30- to 34-year-olds, tertiary education attainment is much higher than the EU average (58 vs 39.9%) (Leišytė et al., 2021, p. 206).

Moreover, the content analysis was done for three universities one from each country. The Reason for taking only one university from each country is that, it is hard to take sensitive information from more universities, because they don't provide sensitive information without approval. It takes a lot of documentation. There were no more resources to analyze in detail other universities data. That is the main reason of choosing one university from each country. The universities that I choose, one is Lahore School of Economics (Pakistan) as I was studying and working there for almost 15 years, second university was Tokat Gaziosmanpasa University (Türkiye) as I was doing my PhD in that university and last was the Kaunas University of Technology, as I was for one year in that University as an Erasmus Student. However, the result of content analysis was ungeneralizable.

4.7.1.2. Universities Website Analysis

Lahore School of Economics - Pakistan

After researching the educational institution websites of numerous institutions in Pakistan, Türkiye, and Lithuania, it was determined that the "Lahore School of Economics" in Pakistan has a placement office. The mission of the Lahore School of

Economics Placement Office is to help students and graduates become valuable resources for both local and global enterprises by providing ongoing training and development opportunities. Understanding the market's ever-changing demands and guiding students accordingly so that they can pursue satisfying jobs. We meet the requirements of pupils by getting to know the applicant and their professional goals. The placements team works to establish a strong link between students, alumni, and the labor market. Thus, to raise the relevance of professional training with academics, through part-time employment and internships, leading to greater employability for our students (Lahore School of Economics, 2017).

Furthermore, the Lahore School Placements Office held real-time corporate meetings to explore prospects in precise firms and to learn about their recruiting procedure. These sessions were also scheduled to solicit feedback from existing graduates employed at these firms. Levis, DHA Lahore office, Cure MD, VoVo Nor Disk, and other foreign and national firms were represented during the corporate meeting with the Lahore School of Economics Placement office (Lahore School of Economics, 2020).

Furthermore, On November 27, 2020, the Lahore School Placements Office oversaw a mentoring program. The Placement Office launched the project for the 2021 bachelor's and MBA graduates. Students and mentors had one-on-one conversations during the session. Its aim was to provide current students with guidance by bringing in alumni in senior positions from various companies. About 100 students had the opportunity to meet prominent businesses at the virtual mentorship event on Zoom. They also learned about the companies, hiring and recruitment prospects, career advancements, market dynamics, workplace skills, and current possibilities. The alumni gave the students advice on how to strengthen their areas of weakness and showcase their strengths. Among the businesses represented at the mentoring session were Nestle, Food Panda, PepsiCo, Total Parco, Fatima Group, and Coca-Cola (Lahore School of Economics, 2020).

However, in collaboration with other groups, like the Fatima Group, which visited the Lahore School of Economics to conduct the recruitment drive, the school conducted a number of recruitment drives. MBA students attended an informational session at the beginning of the trip to learn more about the firm and its hiring standards. An online test

was part of the drive's second half. Next day, they went back to interview the students who made the short list. Secondly, Icek Coca-Cola Pakistan paid a visit to the Lahore School of Economics to conduct a workshop on management training program (MTO) and an MBA student gaming challenge. The workshop's main objectives were to provide students with information about their MTO Program and to run a gaming challenge. The gaming challenge winning team will be able to skip the exam and interview and head straight to their assessment centers. The benefit of this curriculum is that students can gain work in the organization more quickly since they were trained throughout the MTO program. Companies always prefer to hire applicants who are already familiar with the firm. Partnerships have a significant influence on students' careers. And it helps to improve their abilities and expertise. Throughout these programs, students gain practical expertise and the chance to apply academic knowledge to real situations (Lahore School of Economics, 2020).

Kaunas University of Technology - Lithuania

The Kaunas University of Technology (KTU) website was examined, and the results indicate that KTU offers a specialized education program that includes INVESTed, GUIDed, and so on. The investment program combines studies, science, and business. KTU works effectively with Lithuanian and foreign corporations, public agencies, and other groups. KTU Invested is a program that encourages collaboration between education, science, industry, and the public sector. They welcome all enterprises and organizations to join this program by investing in the most brilliant students, a contemporary learning environment, your reputation as a business, and the most sophisticated scientific research (Kaunas University of Technology, 2024).

Furthermore, motivated and knowledgeable staff are significant to the accomplishment of the firm. The University urges companies to look for new hires among KTU students and alumni. KTU welcomes companies to announce employment or internship opportunities for KTU students, asks students to visit organizations, and industry representatives to visit the University (Kaunas University of Technology, 2024).

Additionally, GUIDed is a mentorship program. The GUIDed mentorship program is an educational partnership between a mentor, who has more expertise and

skills and can motivate, foster, and offer any required support to an inspired individual, and a student, who wishes to inherit the mentor's experience and knowledge and apply it in the future. Its goals include broadening intelligence, transferring current information, and facilitating absorption into new academic and sociocultural situations. The GUIDed mentoring program has been in operation at Kaunas University of Technology since 2014. The initiative attempts to stimulate adolescents to follow their goals, assist them grasp the future chances and prospects that await them after graduation, and highlight what they should focus on throughout their time at college to accomplish as much as their selected mentor has (Kaunas University of Technology, 2024).

Aside from that, KTU offers a variety of financed programs, including Erasmus plus Traineeship. This program benefits students greatly since it provides them with finances to travel to other places and gain hands-on experience with diverse firms. The initiative provided multiple advantages, including firsthand experience, job development for students, socio-cultural exposure, and so on. This allows them to improve their leadership, communication, and organizational abilities, among other things. In this context, coordination between universities and industries is critical.

Tokat Gaziosmanpasa University -Türkiye

After reviewing the university website of "Tokat Gaziosmanpasa University" in Türkiye. The following results were observed. They operate a Career Application and Research Center (KARMER). In Turkish, it is known as Kariyer Uygulama ve Araştırma Merkezi. The Career Application and Research Center (KARMER) was developed to assist students in developing their concerns and capabilities, as well as forming career goals, beginning with their first year of university. Furthermore, the major purpose is to teach and assist graduates who are well-equipped, desired, employable, and leading in Türkiye and throughout the world (KARMER, 2019).

The primary objectives of that center were to assist individuals build their talents and skills through personal growth workshops and conferences, to collaborate with other colleges and universities (national and international) in the establishment of Career Planning services, and to offer students the chance to interact with supervisors and/or delegates of private (national/international) and public institutions and organizations, to

guarantee that the students who receive their degrees get to know the industry and business community that are related to the field and have insight into internship and employment possibilities, to enable students to uncover their passions and abilities in the process of self-awareness to encourage their dedication and achievement of their career goals, and to aid them in find employment and career possibilities where they can enhance themselves by integrating their professional expertise and abilities (KARMER, 2019).

Furthermore, the Presidential Human Resources Office established the National Internship Program (USP) to ensure that our young people benefit from internship opportunities provided by public and private sector organizations while adhering to equal prospects and merit rules. The initiative seeks to promote the employment of the next generation, enable equitable access to professional prospects, and expand internship opportunities to all departments, not only technical ones which demand mandatory internships (Career Gate, 2024).

Individuals enrolling in this program also have a benefit because firms submit internship offers to students based on their results in certain qualifying areas without knowing their names or university details. In addition to its achievement across the nation, the Program, which is embraced with enthusiasm abroad and demonstrated as an excellent practice four times by the OECD, provides many youngsters the chance to engage with business life while they remain students and to obtain early-career consciousness (Career Gate, 2024).

Finally, Tokat Gaziosmanpasa University provides student Erasmus+ traineeship opportunities. This program allows students to further their careers and get new skills by working in a variety of businesses throughout the world. This program relies heavily on university-industry partnerships, as students may only go to countries where institutions have agreements. As a result, engagement with well-known firms from throughout the world is essential. This can assist students, allowing them to better their talents and professions in the future.

4.7.2. Quantitative Analysis

Quantitative analyses were done using questionnaire data collected from business and engineering students from Pakistan, Türkiye and Lithuania. Questionnaire data was

analyzed by dividing into various sections such as demographic analysis, hypotheses testing, validity and reliability analysis etc.

4.7.2.1. Socio-Demographic Characteristics of Respondents

Table 4: Distribution of Respondents by Socio-Demographic Characteristics

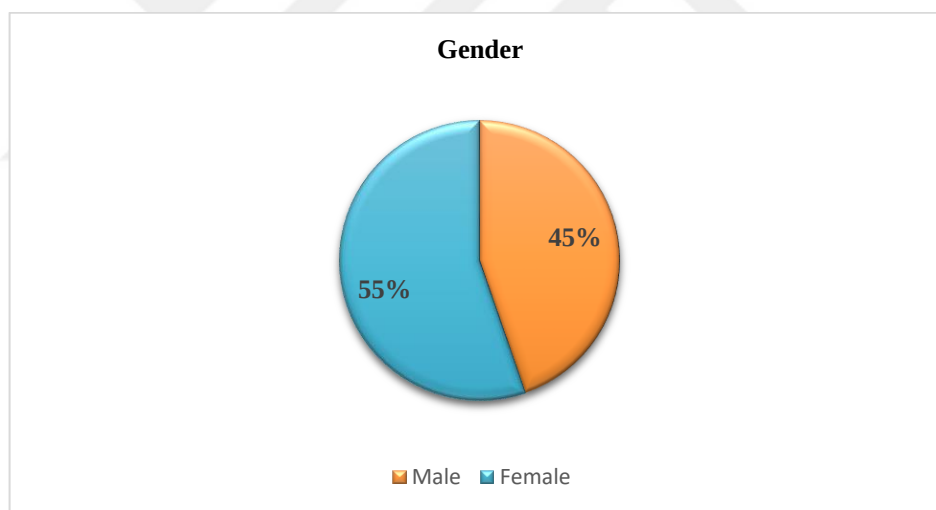
Factor	Variable	Frequency	Percentage
Gender	Male	249	45%
	Female	308	55%
Status of the Respondent	Bachelor Student	445	80%
	Master Student	61	11%
	PhD Student	10	2%
	Alumni	31	6%
	Other	10	2%
Country	Pakistan	191	34%
	Türkiye	190	34%
	Lithuania	176	31%
No. of Universities from Each Country	Pakistani Universities	10	42%
	Turkish Universities	9	36%
	Lithuania Universities	5	21%

Source: (Developed by Author, 2024)

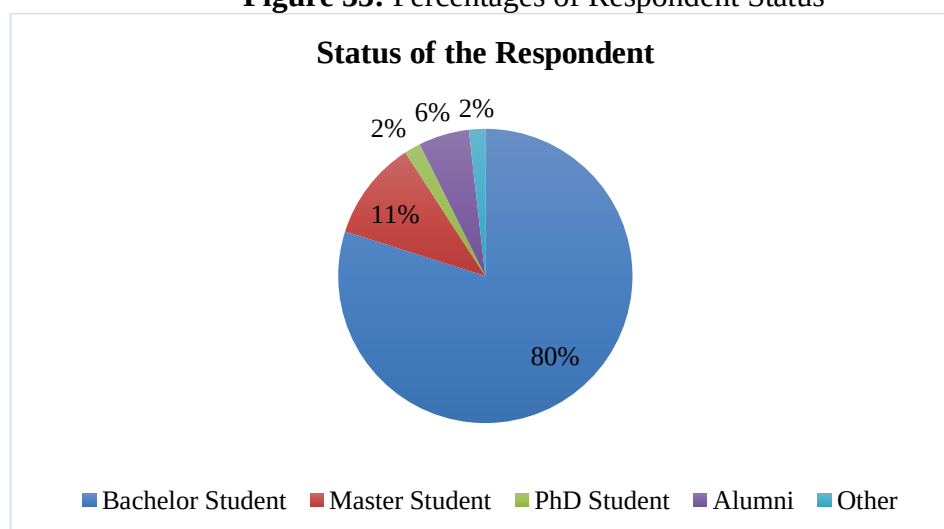
The analysis shown in Table 4 above describes the socio-demographic characteristics of the respondents of this research. These characteristics include gender, status of the respondent, country and number of universities from each country. The analysis showed that about 45% of the respondents were male and 55% were female as shown in Figure 32. Considering the status of the respondents, it is shown that 80% of them were bachelor's degree students, 11% of them were master students, 6% of them were alumni and 2% each were PhD students or belong to some other category as shown in Figure 33. Looking at the number of respondents from each country, it almost equals ranging from 176-191 respondents as shown below in Figure 34. Lastly, as the questionnaire was distributed randomly among business and engineering students, random sampling technique was used. There were 191 Pakistani students from 10 different universities as shown in Figure 35, 190 Turkish students from 9 different Turkish universities as shown in Figure 36 and 176 Lithuanian students from 5 Lithuania Universities as shown in Figure 37. The universities were mostly renowned business

schools and engineering institutes. Most of the students are from Lahore School of Economics (Pakistan), Gaziantep University (Türkiye) and Kaunas University of Technology (Lithuania), who were participated in the research. The students are also from 10 Pakistani Universities (Lahore School of Economics, Bahria University, Lahore university of Management Sciences, City University, FCCU, Comsats, University of Lahore, Information Technology University, LCWU & Punjab University), 9 Turkish Universities (GOP, Gaziantep University, HACET TEPE University, 19 Mayıs University, Kocaeli University, Sakarya University, Topkapi University, USAK University & Karadeniz Teknik University) and 4 Lithuanian Universities (Kaunas University of Technology, Vytautas Magnus University (VDU), Vilnius University & Vilnius Pedagogical University). The graphical representation of each variable is shown below in Figures (32-37) to easily understand each factor in detail.

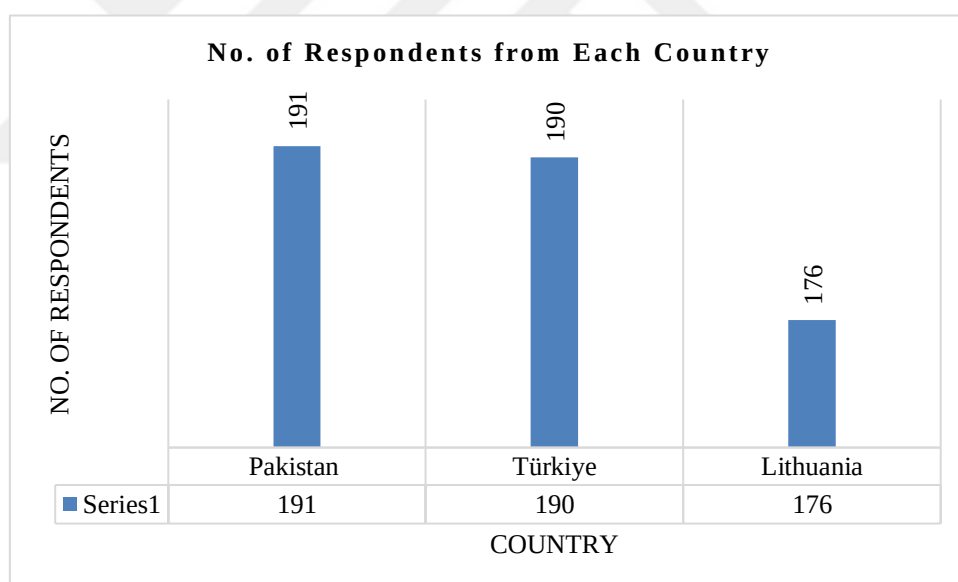
Figure 32: Percentage of Male and Female



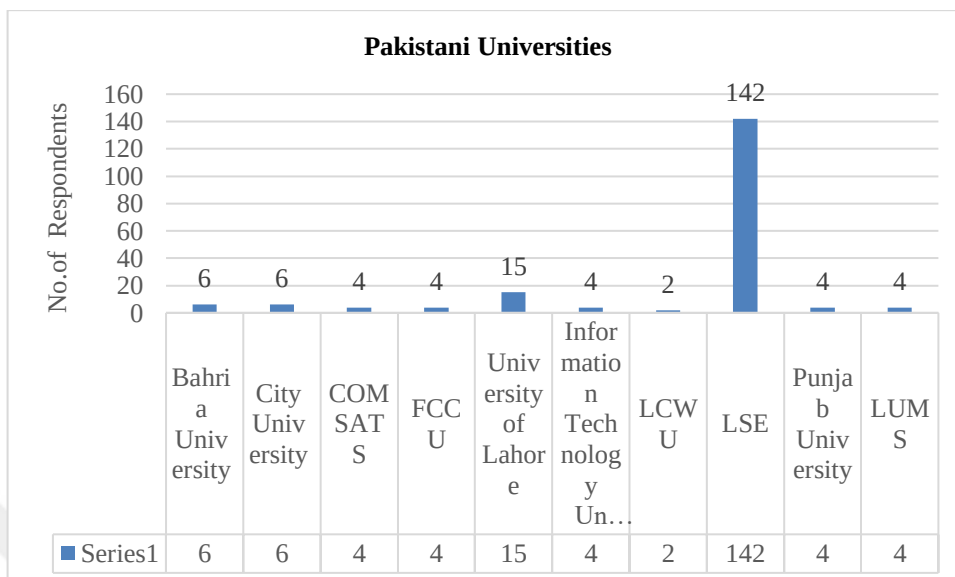
Source: (Developed by Author using questionnaire data, 2024)

Figure 33: Percentages of Respondent Status

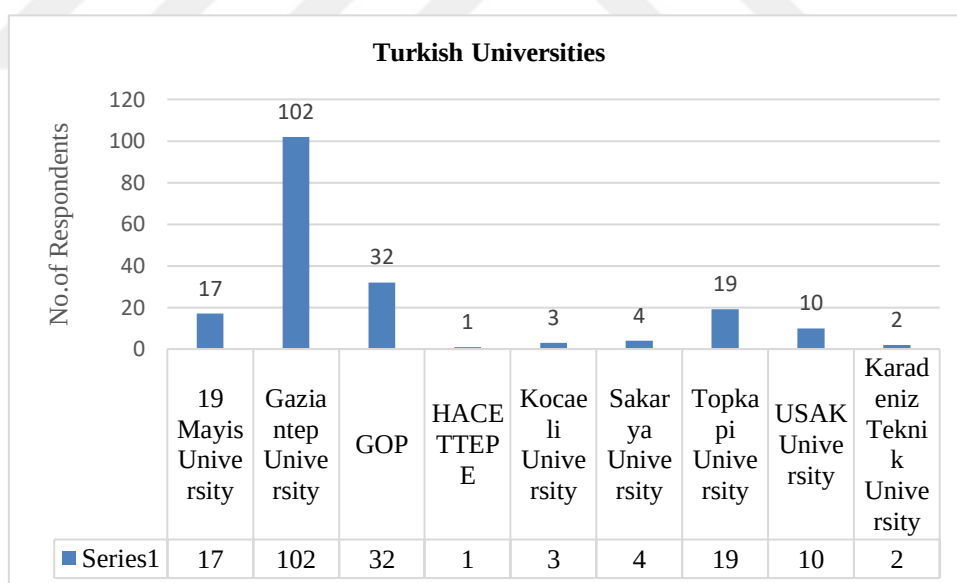
Source: (Developed by Author using questionnaire data, 2024)

Figure 34: No. of Respondents from each country

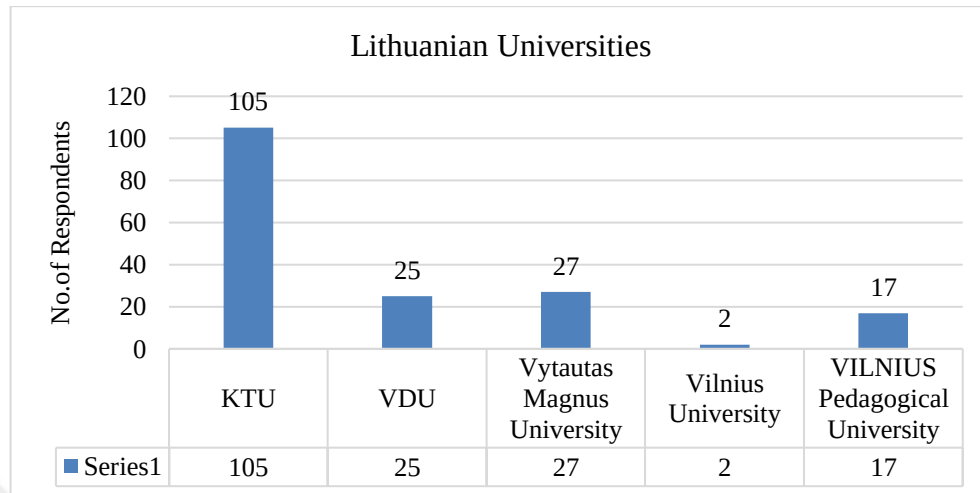
Source: (Developed by Author using questionnaire data, 2024)

Figure 35: No. of Pakistani Respondents from each university

Source: (Developed by Author using questionnaire data, 2024)

Figure 36: No. of Turkish Respondents from each university

Source: (Developed by Author using questionnaire data, 2024)

Figure 37: No. of Lithuanian Respondents from each university

Source: (Developed by Author using questionnaire data, 2024)

4.7.2.2. Validity and Reliability Analysis

It is very important to establish the validity and reliability of the questionnaire. The reliability of the questionnaire was checked through Cronbach alpha. The Cronbach alpha of all the variables were calculated, it comes out to be 0.926, it indicates very good reliability as the cut off value for the accepted Cronbach alpha and the data to be considered is reliable was higher than 0.6 in all fields and in social sciences it is greater than 0.7. The factor types of university-industry collaboration include 10 items, and the Cronbach alpha is 0.884, the second variable factors affecting university-industry collaboration include 8 items with Cronbach alpha 0.925 and the last factor students career development include 10 items, and the Cronbach alpha is 0.808. All the variables Cronbach alpha are greater than 0.7, indicates that data is strongly reliable of this research. This is also shown in Table 5 below:

Table 5: Cronbach Alpha and No. of Items

Variables	Cronbach's Alpha	No. of Items
Types of university -industry collaborations	0.884	10
Factors affecting University-industry collaboration	0.925	8
Student's career development	0.808	10
Total	0.926	37

Source: (Author's Computation, 2024)

The validity of each item in the questionnaire was also checked and it was noted that all the questions are valid as the questions significance level is 0.000 or less than

0.05. The validity of the data was checked by running bivariate correlation including Pearson correlation coefficients and two tailed significance tests.

4.7.2.3. Correlation Analysis

Correlation is a statistical approach that indicates how strongly two variables are correlated to one another. The correlation analysis for this research can be interpreted using Pearson's Correlation Coefficient. It is a statistical tool that assesses the relationship between two continuous variables. The bivariate correlation demonstrates how a change in the independent variable affects the dependent variable. Perfect correlation happens when the "value is near ± 1 , then it said to be a perfect correlation: which means that if one variable increases, the other variable tends to also increase (if positive) or decrease (if negative)". The variations within the variables can be seen in Table 6 below:

Table 6: Pearson Correlation between Variables

		Students Career Development	Types of University-industry Collaboration	Factors Effecting University-industry Collaboration
Students Career Development	Pearson Correlation	1		
Types of University Collaboration	Pearson Correlation	0.678**	1	
Factors Effecting University-industry Collaboration	Pearson Correlation	.477**	.429**	1

** Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Source: (Author's Computation, 2024)

In the preceding table, there is 1 in the diagonal, which is a mirror effect because the values below and above 1 are the same. We just look at the value marked with **. This indicates that they are significant. The 1 in the preceding Table implies that the variables are entirely positively associated with one another. The numbers with ** are positive, indicating that while one variable grows, another variable also increases. This

also implies that there is a high correlation between the two variables. The strongest link exists between the factors impacting university-industry collaboration, forms of university-industry collaboration, and student career growth, as all values are marked with ** in Table 6 above.

4.7.2.4. Regression Analysis

The hypotheses were tested based on the analyses made on the collected data by running simple linear regression using SPSS software. In the first place, the effect of the different categories of university-industry collaborations on Student's career development was tested, and the obtained results are presented in table 7 below. Secondly, the effect of the factors affecting UIC on Student's career development was tested, and the results obtained are displayed below in Table 8:

Table 7: Linear Regression Analysis Carried Out for the Effect of the types of UIC on Student's Career Development

	Stand Coeff.	t	p	Model		
Model	Beta			R ²	F	p
Types of UIC	.678	20.523	.000	.512	421.199	.000

Source: (Author's Computation, 2024)

The simple linear regression analysis carried out to determine the effect of the types of UIC on student's career development indicated that the students' career development had a positive effect of .678 on various types of UIC ($p=.000$, $p<.05$). As types of UIC affect student career development positively. In other words, the students' career development had a 67.8% effect on types of UIC. In addition, the students' career development accounted for 51.2% of the change observed in types of UIC ($p=.000$, $p<.05$). In the light of these results, the H1 hypothesis was accepted.

Table 8: Linear Regression Analysis Carried Out for the Effect of the factors affecting UIC on Student's Career Development

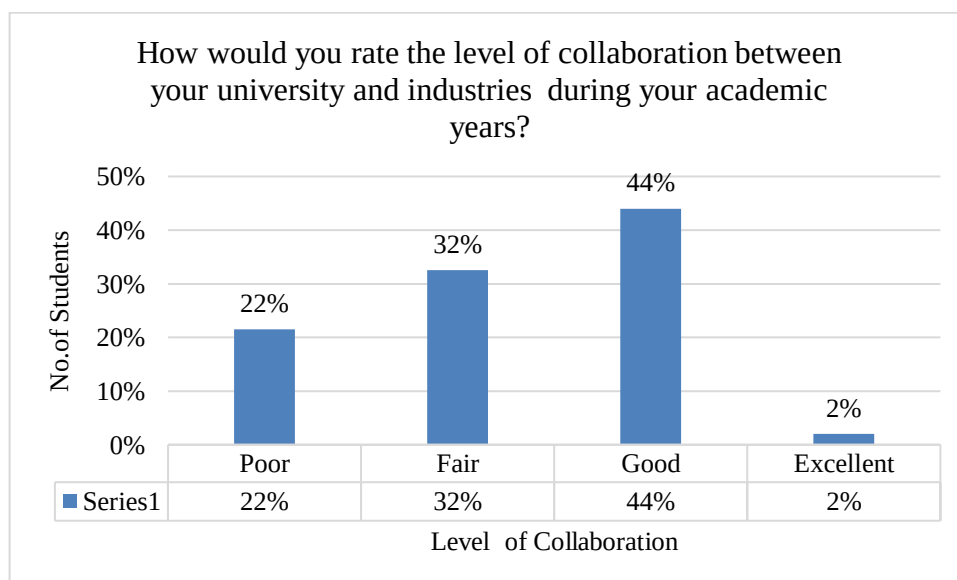
	Stand Coeff.	t	p	Model		
Model	Beta			R ²	F	p
Factors affecting UIC	.477	11.512	.000	.631	132.527	.000

Source: (Author's Computation, 2024)

The simple linear regression analysis carried out to verify the effect of the factors affecting UIC on student's career development indicated that the students career development had a positive effect of .477 on various types of UIC ($p=.000$, $p<.05$). As factors affecting UIC effects student's career development positively. In other words, the students' career development had a 47.7% effect on the factor affecting UIC. In addition, the students career development accounted for 63.1% of the change observed in factors affecting UIC ($p=.000$, $p<.05$). In the light of these results, H2 hypothesis was accepted.

4.7.2.5. Graphical Analysis of Questions

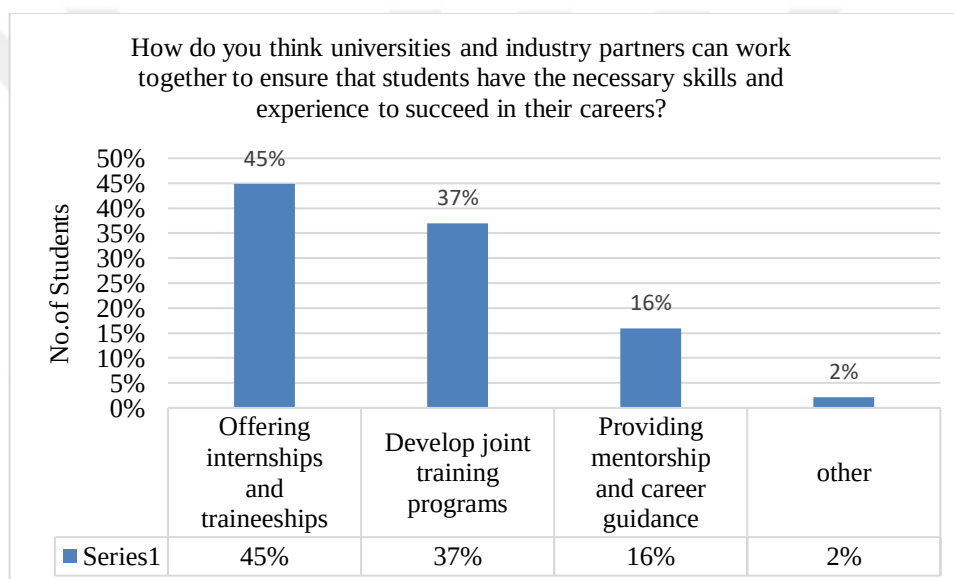
Figure 38: Students' perception about UIC during academic year



Source: (Developed by Author using questionnaire data, 2024)

The above Figure 38 explains how the students perceive the UIC in their universities during their academic years. It was observed that only 2%, which means 11 out of 557 students said that it was excellent, and they were mostly from the developed countries. And the 44% of the students said it was good for us, and we benefited from it, and it impacted our career. For 32% of them it's just fair and lastly 22% said it was poor, as there was no collaboration between our university and industry during our academic years and these students are from Pakistan. This indicated that collaboration is weak in developing countries compared to developed countries.

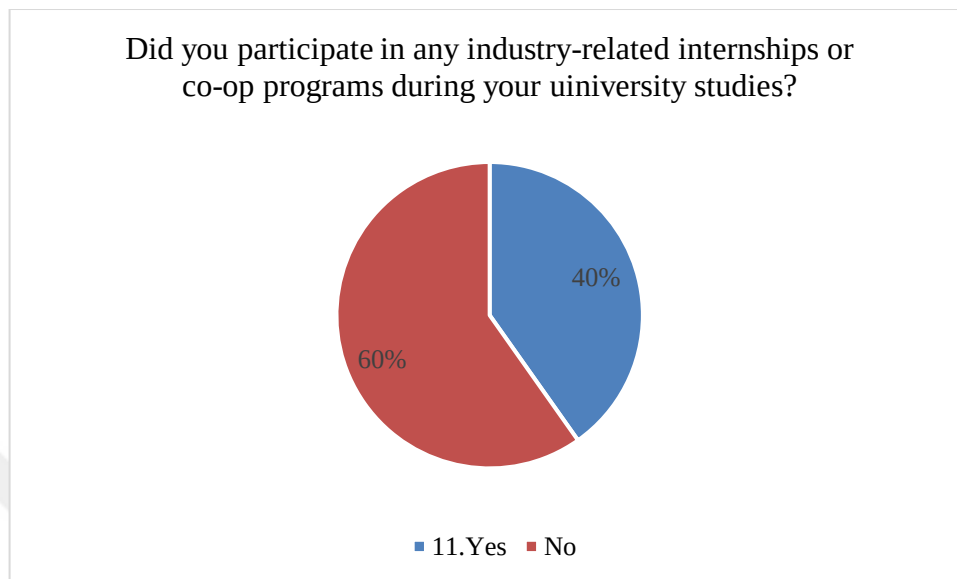
Figure 39: Necessary Skills for students



Source: (Developed by Author using questionnaire data, 2024)

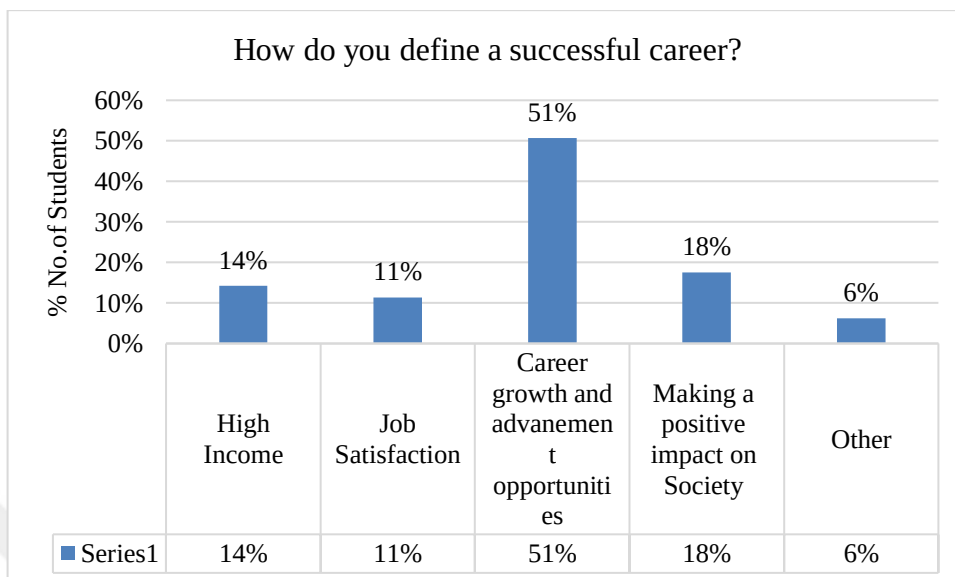
Figure 39 above explains the questions “How do you think universities and industry partners can work together to confirm that students have the necessary skills and experience to accomplish their careers? The answer of 455 students was that the universities and industries together can offer internships and traineeships to the students and 37% of them believe that by developing joint training programs for the students, it can help students to succeed in their career and in this way university-industry collaboration greatly impact students career development. This also helps to enhance students’ knowledge and their skills in different fields as they apply theoretical knowledge to get hands-on experience. Students from all countries have the same perspective.

Figure 40: Participation by students in industry related internships during university studies



Source: (Developed by Author using questionnaire data, 2024)

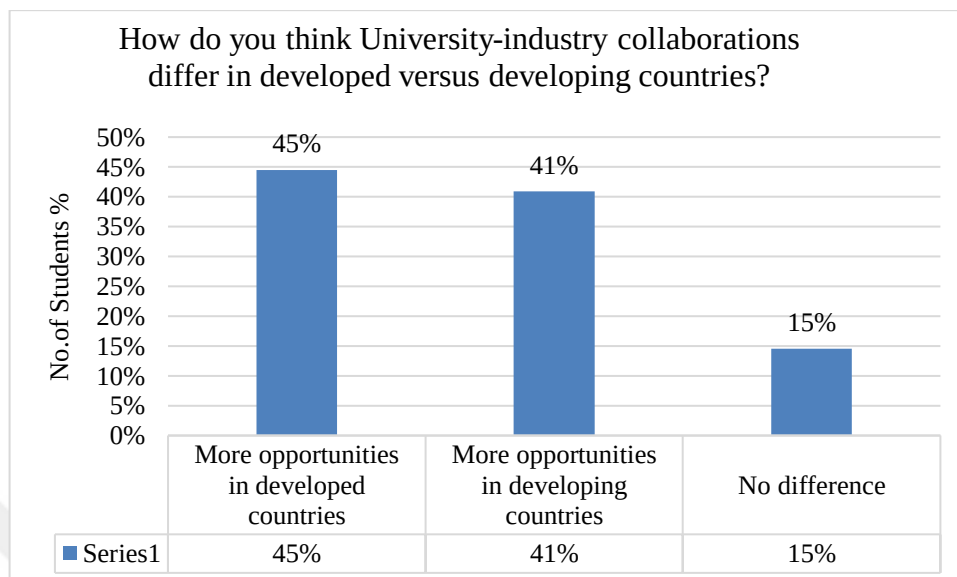
The above Figure 40 answers the following question “Did you participate in any industry-related internships or co-op programs during your university studies? The answer to 60% of the students were No, the main reason of that is the university does not have collaboration with industries especially in developing countries such as Pakistan. This can hinder student careers, as they won’t get the opportunity to work in industries and to apply theoretical knowledge to gain some practical experience. Only 40% of the students said yes, they were mostly from developed countries, as in developed countries universities collaborate more with industries, which in turn is beneficial for the students to enhance their career and improve their future.

Figure 41: Definition of Successful career by % of students

Source: (Developed by Author using questionnaire data, 2024)

Figure 41 above explains several definitions of a successful career according to the students how they perceive the successful career or define the successful career. 51% of them define a successful career as a career growth and advancement opportunities, 11% of them define as a job satisfaction as if the individual is satisfied with the job, it leads to successful career, 14% define if you have high income, it indicates successful career, 18% of them believe that if individuals make a positive impact on society, it is a successful career. Only 6% of them have some other definitions such as getting a promotion, more benefits, knowing their work perfectly etc.

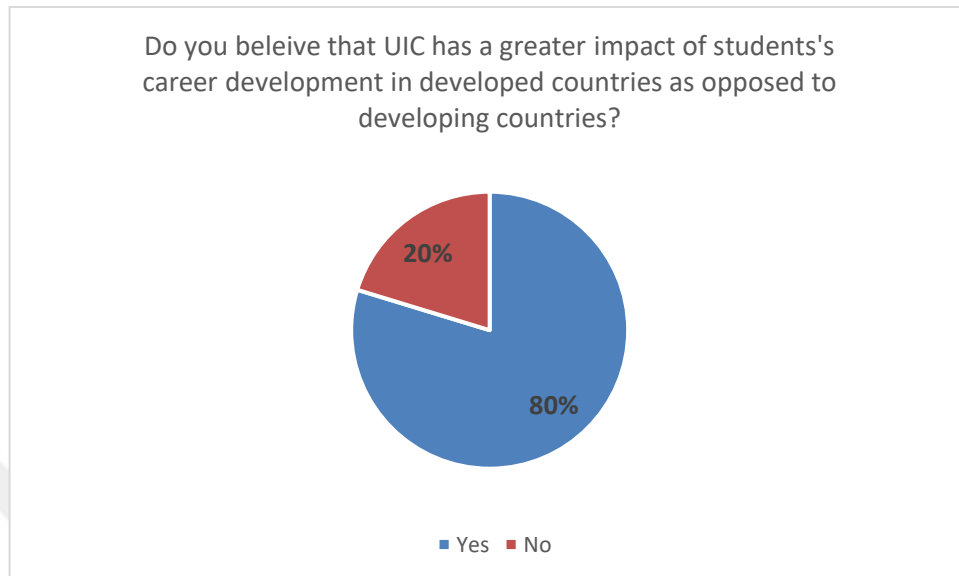
Figure 42: % of students defining how UIC differ in developed vs developing countries



Source: (Developed by Author using questionnaire data, 2024)

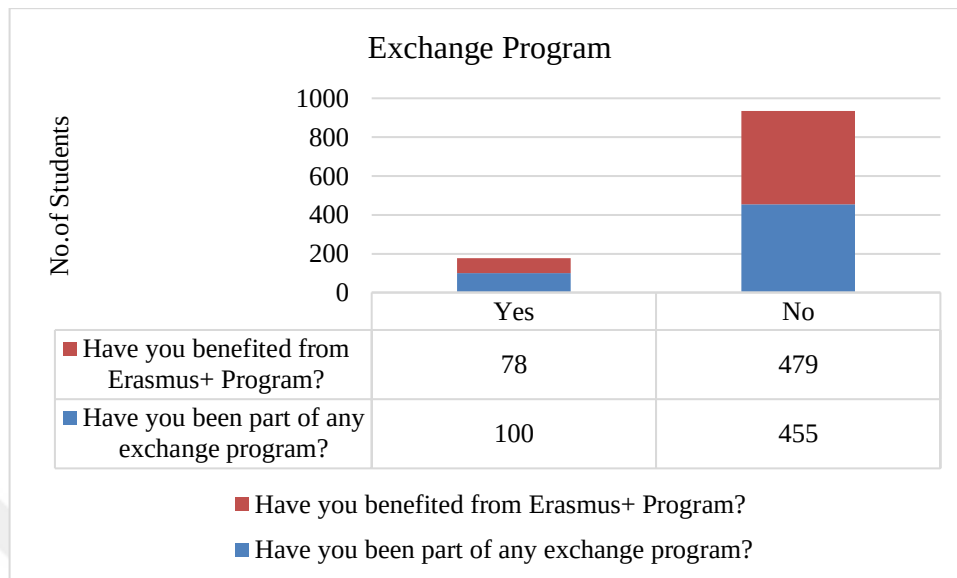
The above Figure 42 explains how students perceive that university-industry collaborations differ in developed versus developing countries. It was seen that 45% of students believe that there are more opportunities in developed countries compared to developing countries. It is also true according to past studies as there are more opportunities for students in developed countries. They have more programs and easy-to-get industrial experience in developed countries. However, 41% of them said there were more opportunities in developing countries and only 15% believe that there is no difference.

Figure 43: % of students defining the impact of UIC in developed vs developing countries



Source: (Developed by Author using questionnaire data, 2024)

The above Figure 43 explains a very crucial question “Do you believe that UIC has a greater impact of student’s career development in developed countries as opposed to developing countries? The answer to this question according to the students from Pakistan, Türkiye and Lithuania were yes. 80% of them believe that in developed countries UIC impact greatly student’s career development. This is also true according to the literature. Industry partnerships between universities and businesses have clearly benefited developed country industries, but developing countries face a wide range of difficulties in building robust industry-university partnerships (Temel & Glassman, 2013, p. 81).

Figure 44: % of students Participated in Exchange Program

Source: (Developed by Author using questionnaire data, 2024)

The above Figure 44 explains the no. of students benefiting from Erasmus+ or any other exchange program. It was seen that most of the students did not benefit from any exchange program even if they were from developed countries. The exchange programs have numerous benefits on students' careers as they not only get new experience but also get an opportunity to interact with people around the globe, experience new cultures and get to know about different industry environments. So, it is necessary for both developed and developing nations to focus more on this perspective. And make strong ties with other countries universities and industries across countries to have strong collaboration and to boost student's career.

From the above analysis it was concluded that the relationship between university-industry collaborations and student's career development depends on the level of country development. If the country focus on various dimesion and improve and advance the several aspects. They are able to collaborate more, which is beneficial for the youth career. So form the above analysis hypothesis H3 was accepted.

CONCLUSION

Collaboration between university and industry is crucial for effective innovation systems at a national scale. To better understand university-industry collaboration, it's important to look at the experiences of industrialized countries. This can help identify incentives, impediments to cooperation, and the responsibility of public policy in developing these relationships. Developing countries confront unique challenges in developing university-industry partnerships, necessitating a tailored approach. Collaboration between universities and industries is essential for advancing new knowledge. University-industry collaborations can help students apply their knowledge and comprehend fundamental concepts, which benefit both universities and industries. The university-industry collaboration identifies neglected regions while simultaneously charting a course for future growth. Students in Pakistan confront obstacles because of the divide between universities and industries. Enhancing the collaboration between academic institutions and business sectors is essential for producing cutting-edge research and giving students the chance to use their knowledge and skills to further their careers. A nation's institutional and technological resources, as well as the ambition to incorporate it into a broader program of science, technology, and innovation policy, are necessary for fostering university-industry partnership.

The literature evaluation found that prior experience is a strong predictor of university-industry collaboration. Boundary-spanning may improve collaborative experiences. The literature suggests that transferring research findings to a company, hiring a temporary researcher, or funding a PhD student by the industry can all support crucial learning. Personal interactions between universities and industries promote familiarity, trust, shared history, and awareness of each other's routines and expectations, resulting in institutionalised collaboration.

Finding out how university-industry collaboration affects students' career development in established and emerging nations was the main goal of the study. It is vital to foster global collaboration between universities and industries so that students can benefit from varied experiences and utilize their theoretical knowledge to advance their careers. Collaboration between universities and industries from other nations has a

substantial impact on the professional development of students. To summarize, developing countries require more collaboration to help students advance their careers and prepare for the future. There is also an advantage to developed countries collaborating with developing countries, as students from developing countries have access to a variety of programs, which is the greatest method for them to advance their careers and gain industrial experience around the world.

Numerous factors are known to affect university-industry collaboration, according to existing research. Network Ties, Shared Objectives, Cultural Norms, Trust, Motivation, Commitment, and Communication are some of the variables. These factors influence university-industry collaboration. Based on existing literature, this study examines four variables: trust, effective communication, network links, and cultural norms. These characteristics are found to have a substantial impact on university-industry collaboration.

A career is defined by one labor economist as "a sequence of experiences in the world of work, with objectives and consequences and with or without progression." Theoretical perspectives on careers encompass a variety of significant concepts and conceptual frameworks relevant to career development. Career Construction Theory, Metaphors for Careers, Social Cognitive Career Theory, Holland's Theory of Vocational Choice, and Sper's Career Development Theory are among the entries that deal with this problem. These ideas provide a solid framework for understanding the evolution of careers.

Both quantitative and qualitative analysis were offered in this study. While content analysis was utilized to examine the qualitative data, the questionnaire was utilized to examine the quantitative analysis. Qualitative data is collected from various reports, literature and universities websites. Three nations Pakistan, Türkiye, and Lithuania were chosen for this study. According to economic statistics, Pakistan is a developing nation, Türkiye is a combination of developed and developing, and Lithuania is a developed nation. Prioritizing university-industry collaboration has helped European nations become the most economically viable in the world. In Türkiye, just 6% of established industries collaborated with universities on technology and innovation-related projects. Turkish industries are frequently wary of working with international industries. Turkish

industries seldom ever collaborate with regional rivals, whereas in industrialized nations, rivals frequently collaborate to create new goods and services while sharing revenue and intellectual property rights. On the other hand, there is a lack of cooperation in Pakistan between universities and industries. In Pakistan, there are no strategic government initiatives that foster effective collaboration between universities and industries. Another order for university-industry collaboration policy aims to strengthen the industry. Industries in Pakistan face numerous challenges that jeopardize product pricing and worldwide market share.

The study includes 557 respondents from Pakistan, Türkiye and Lithuania and they are students (bachelors, master's, PhD & Alumni). The students are specifically from business and engineering backgrounds. A random sampling technique was used to collect data. SPSS, one of the commonly used statistical analysis software, was used to carry out regression analysis, validity and reliability analysis, correlation analysis etc.

The study includes dependent and independent variables. The conceptual model of the study includes variables such as types of university-industry collaborations, factors affecting university-industry collaboration, students career development and country-level development. Types of university-industry collaborations and factors affecting university-industry collaborations significantly impact student's career development, whereas country level development influences the relationship between university-industry collaborations and student's career development. All the hypotheses were accepted according to the regression and questionnaire analysis.

According to the findings of this study, approximately 55% of respondents were female and 45% were male. According to the status of the respondents, 80% were bachelor's degree students, 11% were master's students, 6% were alumni, and 2% were PhD students or belong to another category. Furthermore, the number of respondents from each country is about equal, ranging from 176 to 191 respondents. The study was done by business and engineering students. Most Pakistani students attend the Lahore School of Economics, while Lithuanian students attend the Kaunas University of Technology. Lastly, Turkish students attend Tokat Gaziosmanpasa University. The students are also from 10 Pakistani universities (Lahore School of Economics, Bahria University, Lahore university of Management Sciences, City University, FCCU, Comsats, University of

Lahore, Information Technology University, LCWU & Punjab University), 9 Turkish universities (GOP, Gaziantep University, HACET TEPE University, 19 Mayıs University, Kocaeli University, Sakarya University, Topkapi University, USAK University & Karadeniz Teknik University) and 4 Lithuanian universities (Kaunas University of Technology, Vytautas Magnus University (VDU), Vilnius University & Vilnius Pedagogical University).

Each country has established a variety of institutes to encourage university-industry collaboration, as well as to drive innovation and economic growth to promote innovation and economic prosperity. Some of the important institutes from Pakistan are National Science & Technology Park (NSTP) – NUST (Islamabad), Lahore Knowledge Park (LKP), National Incubation Centers (NICs) etc.; from Turkey are Technoparks, Technology Transfer Offices (TTO) etc. and from Lithuania are Santaka Valley Centre of Research, Studies and Business, Kaunas Science and Technology Park, Tech-park Kaunas etc.

Moreover, the study found that 80% of students feel university-industry collaboration has a bigger impact on student career development in wealthy countries than in developing countries. 45% of students believe that industrialized countries provide more possibilities for students than emerging countries. That is why students in developed countries have better jobs and careers, and they work in large industries with more experience, because there are more prospects for students in developed countries to improve hands-on experience and advance their various skills such as leadership, communication, and so on. However, only 20% of students believe that university-industry collaboration has a greater influence on student career development in developing countries, which is why they lack certain skills and do not have opportunities to advance their careers through traineeships or joint programs. Even student in Pakistan don't have Erasmus exchange opportunities to spend one or two semesters in another country, or to go for Erasmus internship in another country.

Furthermore, qualitative data were analyzed using content analysis. Data from each country's main university websites, as well as reports and literature, were used for study. The university selected from Pakistan was Lahore School of Economics, from Turkey, Tokat Gaziosmanpasa University and from Lithuania, Kaunas University of

Technology were analyzed during content analysis. The study's findings suggest that university-industry collaboration is gaining popularity. This is proven by a substantial increase in research that examines the subject from multiple views. The perspective on this issue varies between developing and developed countries. According to the research review, previous experience is one of the best forecasters of university-industry collaboration. Boundary-spanning likely lays the groundwork for building this type of shared experience. Research has also indicated that faculty members at universities, particularly in developing countries, prefer to enter into personal arrangements with firms to provide some consulting services in order to supplement their meagre university salaries.

In 2024, the Higher Education Commission of Pakistan sanctioned around 244 universities, including 99 private and 145 public institutions, with Karachi having the most, followed by Lahore and Islamabad. Furthermore, HEC approved 123 campuses, which included 84 public and 39 private sector universities. In Turkey, the higher education system includes public and private universities, as well as a small number of private vocational institutes that offer two years of non-academic employment training. Public universities remained the majority, with 129 institutions, while private universities grew to 75. Lithuania's higher education system is divided between colleges (*kolegija*), which provide practical training, and universities, which include 14 state and eight private universities, as well as a branch campus in Poland.

When developed companies are given the option to hire university students alongside university research personnel in their research projects, many practical benefits can be realized. For example, as an efficient method of attracting qualified employees to industries. Hiring recent graduates with specialized skills from university research projects has shown to be a very successful way to transfer academic knowledge to business. Second, collaboratively planned educational events, such training programs for staff members of the company and university students, are a good approach to learn new academic material and acquire internal company capabilities. In a similar vein, these programs provide colleges with access to actual industrial R&D activities and the challenges that come with them. Last but not least, educational cooperation enhances research-based cooperation between academia and business, enabling both to adopt

comparable mindsets and come to a shared understanding of the research methodology and cooperative strategies.

Attracting foreign institutions can help developing countries improve international technology transfer and dissemination, while also enhancing learning and demonstration at local universities. If universities and industries will collaborate through some institutions across boards, it will be beneficial for both of them.

The main lesson learnt from this study was that through collaboration students can have a lot of benefits which help them to shape their future. The university-industry collaboration also helps them to get experience in international industries and apply theoretical knowledge and improve their learning. This experience can also help them to achieve employability. Moreover, if students from Pakistani universities collaborate with Lithuanian industries, they get an opportunity to work in international companies that can help them to shape their future and to get international experience. Similarly, if Pakistani universities collaborate with Lithuanian universities or Turkish universities, students as well as employees both have an opportunity to get Erasmus. Erasmus is an international exchange program in which students as well as employees have an opportunity to spend one or two semesters for example for students or one week or so for employees abroad. This gives them an opportunity to experience different culture, methods of teaching etc. In addition, different countries differ in their university-industry collaboration models and how best practices from each country that can be applied elsewhere. Lastly, university-industry collaboration across countries fosters entrepreneurship, startups and innovation hubs.

There are also some recommendations for universities such as they can expand internship opportunities for students by establishing mandatory internship requirements in collaboration with industry partners in the curriculum. In addition, strengthen career services & mentorship by developing mentorship programs that helps connecting students with industry professionals. Also offer industry-led workshops, guest lectures, and networking events. Furthermore, there are also some suggestions for industry leaders which include strengthen internship & graduate hiring pipelines, this helps increase paid internship opportunities for students with structured career pathways. And also Implement rotational training programs for fresh graduates, so that they get experience

from each department and practice and improve their skills. Secondly, industries should adopt a global collaboration approach by facilitating international exchange programs for students in global companies and encourage cross boarder university-industry collaboration initiatives.

LIMITATIONS OF THE RESEARCH

This research has several limitations because it is a cross-sectional study rather than a longitudinal one as fresh data was collected for the analysis rather than available data. Most of the research in this field concentrates on projects and use cross-sectional data. The data is gathered all at once because of the short time range. To compare the variations between a sample of students from Pakistan, Türkiye, and Lithuania, cross-sectional data was employed. Secondly, the questionnaire data was collected only from business and engineering students, again due to lack of resources and time. This is the major limitation in this study as if the data were collected also from managers or employees from universities, they results would be more clear and understandable. Thirdly, there were also some geographical boundaries, that was the reason that data was collected only from three countries. If there were no geographical boundaries, the data should be collected from more countries and comparison can be made in more detail. Furthermore, the qualitative data was ungeneralizable as only three university websites were analyzed for content analysis because of sensitive information and ethical rules. Due to these limitations, the study results cannot be analyzed in detail. Lastly, due to lack of time and resources only a few types of university-industry collaboration were included in the research and their impact was studied on student's career development.

FUTURE DIRECTIONS OF THE RESEARCH

There are various future directions, the topic can be explored by considering an equal number of developed and developing countries. The data can be collected not only from students, but also from academicians and managers to study in detail the impact of university-industry collaboration on student's career development. The study can be longitudinal, to analyze if the respondent's point of view changed over the period. Moreover, interviews or focus groups can also be conducted to get the viewpoint of managers of various industries and academicians from various universities across the

globe to be more specific and to get more detailed results. Last but not the least is that several other forms of university-industry collaborations were also included to see their impact of student's career development. However, qualitative data can also be analyzed from various universities websites so that the data can be generalized.



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Appendix

Questionnaire (English Version)

Part I: Profile of the respondent

1. Age _____
2. Gender
 - ☐ Male
 - ☐ Female
3. Status of the Respondent
 - ☐ Bachelor Student
 - ☐ Master Student
 - ☐ PhD Student
 - ☐ Alumni
 - ☐ Other
4. College/School/University _____
5. Programme _____
6. Department: _____
7. Country: _____
8. Company Name (if tick Alumni in Question 3): _____

Part II: University-industry Collaboration

9. How would you rate the level of collaboration between your university and industries during your academic years?
 - ☐ Poor
 - ☐ Fair
 - ☐ Good
 - ☐ Excellent
10. How do you think universities and industry partners can work together to ensure that students have the necessary skills and experience to succeed in their careers?
 - ☐ Offering internships and traineeships
 - ☐ Develop joint training programs
 - ☐ Providing mentorship and career guidance
 - ☐ other

11. Did you participate in any industry-related internships or co-op programs during your university studies?

- ☐ Yes
☐ No

12. If yes in the above question; Did you find any job opportunity in that specific company?

- ☐ Yes
☐ No

If Yes in Question 11 then answer from questions 13- 20. Please note 5= strongly Agree; 4= agree; 3= neutral; 2= disagree; 1= strongly disagree

To what extent do you agree/disagree with the following statements?

	5	4	3	2	1
A13. My general skills, e.g. writing reports, communication, presentations, providing information, and organization of work, have improved.					
A14. I see the link between my theoretical knowledge and the practical application at the workplace.					
A15. My general self-confidence and self-esteem have grown.					
A16. I understand the work environment better.					
A17. I have a greater understanding of who I think I could be in the future.					
A18. I am better able to appreciate and respect diversity					
A19. I feel more equipped to work in a diverse team (multi-culturalism; different ethnic groups; multi-lingual groups; different lifestyles and worldviews).					
A20. I feel I am able to communicate on work-related issues more easily.					

Part III: Education and Training

Please indicate your perception regarding the influence of university-industry collaboration in the area of training on the career of students by putting a tick in the table

below. Please note 5= strongly agree; 4= agree; 3= neutral; 2= disagree; 1= strongly disagree

	5	4	3	2	1
A21. Student internships in companies increase the employability of the student.					
A22. Practical training of students in industry premises to be exposed to practical working conditions improves the students' careers.					
A23. Student internships in companies increase their skills and job competencies.					
A24. Practical support from industry to students during their theses improves the career of students.					
A25. Company collaboration with students during their work with their thesis improves innovation in the company.					
A26. Industrial guest lectures and part-time teachers from the industry improve the careers of students.					
A27. Industrial experienced lecturers have a positive effect on student career.					
A28. Collaboration between university and industry in arranging short courses for small businesses and entrepreneurs improves career opportunities among regular students.					

Part IV: Services and Consulting

Please indicate your perception regarding the influence of University-industry collaboration in the area of Services and Consulting on the career of students by putting a tick in the table below. Please note 5= strongly agree; 4= agree; 3= neutral; 2= disagree; 1= strongly disagree

	5	4	3	2	1
A29. Industry assistance in modernizing and developing university curricula and programs in line with industrial needs increases student employability.					

A30. Sabbatical arrangements in which university teachers spend time in the local industry or abroad have a positive effect on students' careers.					
A31. Lecturers engaged in university-industry consultancy projects improve students' career.					
A32. Seminars and conferences arranged jointly by university and industry have a positive effect on student career.					
A33. Joint projects between students and industry (for example recruitment events) have a positive effect on students' careers.					

Part V: Career Preparation

Please indicate your perception regarding the influence of university-industry collaboration on the career preparation of students by putting a tick in the table below. Please note 5= strongly agree; 4= agree; 3= neutral; 2= disagree; 1= strongly disagree

	5	4	3	2	1
A34. Most of my lecturers have played an important role in creating awareness of the importance of workplace skills and capabilities.					
A35. Most of my lecturers have clearly explained how my academic studies contribute to workplace skills and capabilities.					
A36. My lecturers are doing enough to prepare me for a future career.					
A37. I believe my internship training provides me with skills that equip me for different types of jobs.					

38. How do you define a successful career?

- ☐ High Income
- ☐ Job satisfaction
- ☐ Career growth and advancement opportunities
- ☐ Making a positive impact on society
- ☐ Other (Please specify) _____

39. In your opinion, how beneficial was the university-industry collaboration to your career development?

- ☐ Very beneficial

- ☐ Somewhat beneficial
- ☐ Not beneficial

40. How do you think university-industry collaborations differ in developed versus developing countries?

- ☐ More opportunities in developed countries
- ☐ More opportunities in developing countries
- ☐ No difference

41. Do you believe that university-industry collaboration has a greater impact on student's career development in developed countries as opposed to developing countries?

- ☐ Yes
- ☐ No

42. Have you been part of any exchange program?

- ☐ Yes
- ☐ No

43. If yes, please specify?

44. Have you benefited from Erasmus+ programs?

- ☐ Yes
- ☐ No

45. If yes, please specify?

Questionnaire (Turkish Version)

Bölüm I: Katılımcının Profili

1. Yaş _____
2. Cinsiyet
 - ☐ Erkek
 - ☐ Kadın
3. Öğretim Durumu
 - ☐ Lisans Öğrencisi
 - ☐ Yüksek lisans öğrencisi
 - ☐ Doktora öğrencisi
 - ☐ Mezun (Çalışan)
 - ☐ Diğer
4. Üniversite: _____
5. Fakülte: _____
6. Bölüm : _____
7. Ülke: _____
8. Şirket Adı (Soru 3'te Mezunlar seçeneğini işaretlerseniz): _____

Bölüm II: Üniversite-Sanayi İşbirliği

9. Öğrenim gördüğünüz dönemde üniversiteniz ile sanayi arasındaki işbirliğinin düzeyini nasıl değerlendirirsiniz?
 - ☐ Zayıf
 - ☐ Orta
 - ☐ İyi
 - ☐ Çok İyi
10. Öğrencilerin kariyer gelişiminde üniversite ve sanayi taraflarının başarılı işbirliği nasıl gerçekleşir?
 - ☐ Sanayinin öğrencilere staj imkanı sunması
 - ☐ Ortak eğitim programları geliştirerek
 - ☐ Üniversitenin kariyer rehberliği sağlaması
 - ☐ Diğer
11. Üniversite öğreniminiz sırasında sektörle ilgili herhangi bir staj programına katıldınız mı?
 - ☐ Evet
 - ☐ Hayır

12. Cevabınız evet ise; Söz konusu şirkette herhangi bir iş fırsatı buldunuz mu?

- ☐ Evet
☐ Hayır

Soruda cevabınız “Evet” ise 13-20. Soruları yanıtlayın. 5: Kesinlikle Katılıyorum; 4: Katılıyorum; 3:Kararsızım 2: Katılmıyorum; 1: Kesinlikle Katılmıyorum

Aşağıdaki ifadelere ne ölçüde katılıyor/katılmıyorsunuz?

	5	4	3	2	1
A13. Rapor yazma, iletişim, sunum yapma, bilgi sağlama ve iş organizasyonu gibi genel becerilerim gelişti.					
A14. Teorik bilgim ile işyerindeki pratik uygulama arasındaki bağlantıyı kurdum.					
A15. Genel olarak kendime olan güvenim ve özsaygım arttı.					
A16. Çalışma ortamını daha iyi anladım.					
A17. Gelecekte ne yapabileceğime dair daha iyi bir kanaate sahip oldum.					
A18. Çeşitliliği daha iyi takdir edip, farklılıklara saygı duyabiliyorum.					
A19. Çeşitlilik içeren bir ekipte (çok kültürlülük; farklı yaşam tarzları ve dünya görüşleri) çalışmak için kendimi daha donanımlı hissediyorum.					
A20. İşle ilgili konularda insanlarla daha kolay iletişim kurabildiğimi hissediyorum.					

Bölüm III: Eğitim ve Öğretim

Eğitim alanında üniversite-sanayi işbirliğinin öğrencilerin kariyerlerine etkisine yönelik algınızı lütfen aşağıdaki tabloda belirtiniz.

5:Kesinlikle Katılıyorum; 4:Katılıyorum; 3: Kararsızım 2: Katılmıyorum; 1: Kesinlikle Katılmıyorum

	5	4	3	2	1
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A21. Şirketlerdeki öğrenci stajları öğrencinin istihdam edilebilirliğini artırır.					
A22. Şirketlerde uygulamalı eğitim alarak pratik çalışma yapmaları öğrencilerin kariyerlerini geliştirir.					
A23. Öğrencilerin şirketlerde staj yapması onların becerilerini ve iş yeterliliklerini artırır.					
A24. Tez çalışmaları sırasında sanayiden öğrencilere verilen pratik destek, öğrencilerin kariyerlerini geliştirmektedir.					
A25. Tez çalışmaları sırasında öğrencilerle şirketin işbirliği yapılması şirketteki yenilikçiliği artırır.					
A26. Sektör yönetici olan kişilerin üniversitede yarı zamanlı derse girmesi öğrencilerin kariyerlerini geliştirir.					
A27. Sektörde deneyimli öğretim elemanlarının öğrenci kariyeri üzerinde olumlu etkisi vardır.					
A28. Üniversite-sanayi işbirliği için, küçük işletmeler ve girişimciler için kurslar düzenlenmesi öğrenciler için de kariyer fırsatları sunar.					

Bölüm IV: Hizmetler ve Danışmanlık

Üniversite-sanayi işbirliğinin öğrencilerin kariyerine etkisine ilişkin algınızı lütfen aşağıdaki tabloyu işaretleyerek belirtiniz.

5: Kesinlikle katılıyorum; 4: Katılıyorum; 3: Kararsızım 2: Katılmıyorum; 1: Kesinlikle Katılmıyorum

	5	4	3	2	1
A29. Üniversite ders müfredatı ve programların sektörün ihtiyaçlarına uygun olarak geliştirilmesi, öğrencilerin istihdam edilebilirliğini artırır.					
A30. Öğretim elemanlarının endüstride görev almaları, öğrencilerin kariyerleri üzerinde olumlu etki yapar.					
A31. Öğretim elemanlarının üniversite-sanayi projelerinde danışmanlık görevi almaları öğrencilerin kariyerlerini geliştirir.					

A32. Üniversite ve sanayinin ortak düzenlediği etkinlikler (seminer, konferans) öğrenci kariyerine olumlu etki yapar.					
A33. Üniversite ve sanayi arasındaki ortak projeler (örneğin işe alım etkinlikleri), öğrencinin kariyerleri üzerinde olumlu bir etki yapar.					

Bölüm V: Kariyer Hazırlığı

Üniversite-sanayi işbirliğinin öğrencilerin kariyer hazırlıklarına etkisine ilişkin algınızı lütfen aşağıdaki tabloda belirtiniz. 5: Kesinlikle Katılıyorum; 4: Katılıyorum; 3: Kararsızım; 2: Katılmıyorum; 1: Kesinlikle Katılmıyorum

	5	4	3	2	1
A34. Öğretim elemanlarımızın çoğu, sanayide (sektörde) farkındalık yaratılmasında önemli bir rol oynamıştır.					
A35. Öğretim elemanlarımız, eğitimimiz boyunca aldığımız derslerin işyeri becerilerine ve iş yeteneklerine nasıl katkıda bulunacağını açıkladı.					
A36. Hocalarım beni gelecekteki bir kariyere hazırlamak için yeterince çaba gösteriyor.					
A37. Staj eğitimimin bana farklı iş türlerine uygun beceriler kazandırdığına inanıyorum.					

38. Başarılı bir kariyeri nasıl tanımlarsınız?

- ☐ Yüksek gelir
- ☐ İş memnuniyeti
- ☐ Kariyer gelişimi ve ilerleme fırsatları
- ☐ Toplum üzerinde olumlu etki yaratmak
- ☐ Diğer (Lütfen Belirtin) _____

39. Sizce üniversite-sanayi işbirliği kariyer gelişiminize ne kadar faydalı olur?

- ☐ Çok faydalı
- ☐ Biraz faydalı
- ☐ Yararlı değil

40. Gelişmiş ve gelişmekte olan ülkelerde üniversite-sanayi işbirliklerinin nasıl farklılaştığını düşünüyorsunuz?

- ☐ Gelişmiş ülkelerde daha fazla fırsat vardır
- ☐ Gelişmekte olan ülkelere daha fazla fırsat vardır
- ☐ Fark yoktur

41. Gelişmiş ülkelerdeki üniversite-sanayi işbirliğinin öğrencilerin kariyer gelişimlerinde, gelişmekte olan ülkelere göre daha büyük bir etkiye sahip olduğunu düşünüyor musunuz?

- ☐ Evet
- ☐ Hayır

42. Herhangi bir değişim programına katıldınız mı?

- ☐ Evet
- ☐ Hayır

43. Cevabının Evet ise lütfen belirtiniz?

44. Erasmus+ programlarından faydalandınız mı?

- ☐ Evet
- ☐ Hayır

45. Evet ise lütfen belirtiniz?
