UNIVERSITY OF DEBRECEN

Faculty of Economics

Károly Ihrig Doctoral School of Management and Business

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Internationalization Strategies and Globalization at Hungarian Universities after COVID-19 Pandemic

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Debrecen

2026

Internationalization Strategies and Globalization at Hungarian Universities after the COVID-19 Pandemic

The aim of this dissertation is to obtain a doctoral (Ph.D.) degree in the scientific field of "Management and Business" Written by: Daniel Kibet Koech…… certified …… Supervisor: Dr. Edina Molnár…… Doctoral final exam committee: name academic degree Chair: .... Members: .... Date of the doctoral final exam: 20…. ..... Reviewers of the Dissertation: name, academic degree signature .... Review committee: name, academic degree signature Chair: .... Secretary: .... Members: ..... …… .... Date Of Doctoral Theses Defence:

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Daniel Kibet Koech

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Internationalization Strategies and Globalization at Hungarian Universities after the COVID-19 Pandemic.

Abstract

Globalization in higher education, being a dynamic, multi-dimensional process, has dominated modern academic discourse for decades. The investigation of the relationship between internationalization strategies and globalization has often been ignored due to unending scholarly debates and a lack of consensus on the distinction between internationalization and globalization in Higher education. This study addresses the knowledge gap on the contribution of internationalization strategies to Globalization in the current post-COVID-19 era from the perspective on international students in Hungarian Higher Education Institutions. The general objective of the study was to investigate the contribution of internationalization strategies to globalization in Hungarian Higher Education Institutions after the COVID-19 pandemic period. The specific objectives of the study were: to evaluate the contribution of Study Abroad Programs towards globalization, to determine the relationship between international Research collaboration and globalization, to evaluate the role of IPs, evaluate relationship between Funding Opportunities and globalization, to assess contribution of the Artificial Intelligence to globalization and to investigate if Perceived Globalization Risks mediate Globalization Hungarian Higher Education Institutions after the COVID-19 pandemic period. This study involved a quantitative survey of a sample of 443 international students and alumni from both public and private Hungarian Higher Education Institutions, who were staying in Hungary at the time of the study. Findings indicate that Study Abroad Programs, International Research Collaborations, and Funding positively and significantly contribute to Globalization in Hungarian higher education institutions. International Partnerships and Artificial Intelligence had no significant contribution. It was further discovered that Perceived Globalization Risks do not mediate the relationship between the independent and dependent variables. The findings suggest that Governments should support globalization in Hungarian Higher Education Institutions by funding networked internationalization alliances such as IRCs and SAPs, and balancing instrumentalist objectives, such as maximizing foreign talent and students in bridging the existing human resource gap, with idealist values, such as considering refugees and students from poor countries in the allocation of Study Abroad Scholarships. Universities should develop a hybrid model that can balance Uppsala's risk-averse gradual implementation of globalization with BNIPM's networking approach to fast-track globalization.

Because of the conflict between the instrumentalist, profit-oriented academic programs and the idealist free education for all, universities should develop a model that can help generate revenue for operations to safeguard against the exploitation of students. Alternative sources can be through collaborations with the business and private actors who can fund the financial deficits in the Hungarian Higher Education Institutions. While Uppsala represents the traditional ways of service delivery, BNIPM leverages technology to create and sustain globalization. The findings from the current study indicate a non-significant role that AI is playing in globalization in Hungarian HEIs. This exposes a critical space that is yet to be exploited by Hungarian Higher Education Institutions.

This study recommends the adoption and use of AI among HEIs in Hungary and globally to enhance, modernize, and sustain globalization.

Key Words: Internationalization, International Research Collaborations, International Partnerships, Artificial Intelligence, COVID-19 Pandemic, Globalization.

ACKNOWLEDGEMENTS

First and foremost, I express my deepest gratitude to God Almighty for granting me strength, health, and perseverance throughout my academic journey in Hungary.

My profound appreciation goes to my beloved wife, Jackline, and our children—Chepchirchir, Kipyegon, Kipchumba, and Kiprop—for their unwavering support and blessings, which enabled me to pursue this PhD far from home. I am also eternally grateful to my parents, Wesley Lang'at and Sally Lang'at, as well as my brothers and their families, for their prayers, encouragement, and care for my family during my absence.

I extend my sincere thanks to the Mukutma AGC, Tulwetab Mosonik District, and Tenwek AGC Area Council for their spiritual support and blessings as I embarked on this journey.

I acknowledge the Teachers Service Commission of Kenya, particularly Mr. Otieno, for granting me study leave, and the Ministry of Education of Kenya for facilitating my academic advancement in Hungary.

This achievement would not have been possible without the generous support of the Hungarian Government and the TPF, which fully funded my studies through the SH Scholarship Program. I am especially grateful to Ms. Almási-Fónai Lilla of the University of Debrecen for her instrumental role in disseminating my research questionnaire among international students in Hungary.

I owe immense gratitude to my supervisor, Dr. Edina Molnár, for her invaluable guidance, mentorship, and dedication, which have been pivotal to my academic and professional growth. Additionally, I sincerely thank my professors—Dr. Balogh Péter, Dr. Nábrádi András, Dr. Magda Róbert, Dr. Dajnoki Krisztina, Dr. Khun, and Dr. Fróna Dániel—as well as the university librarian, Berge, for their profound influence on my intellectual development.

Finally, to all who contributed directly or indirectly to this journey, thank you.

LIST OF ABBREVIATIONS

EU-EU

SAPs-Study Abroad Programs

IRCs -International Research Collaborations

FOs- Funding Opportunities

IPs- International Partnerships

AI- Artificial Intelligence

PGRs-Perceived Globalization Risks

HEIs -Higher Education Institutions

COVID-19 –coronavirus disease of 2019

ANOVA- Analysis of Variance

IMF- International Monetary Fund

WB-World Bank

HEIs-Higher Education Institutions

HEIS-Higher Education Internationalization Strategies

HHEIs-Hungarian Higher Education Institutions

SH- Stipendium Hungaricum

TPF- Tempus Public Foundation

LIST OF TABLES

LIST OF FIGURES

TABLE OF CONTENTS

1 INTRODUCTION TO THE STUDY

This chapter constructs the intellectual basis of this research. It begins by outlining the aims of the dissertation, the research problem, the scope of the study, the significance of the study, the research design, the definition of key concepts, research questions, research hypotheses, research variables, limitations, and delimitations, including an overview of the study.

1.1 Aim of this Study

This doctoral dissertation investigates the effect of Study Abroad Programs (SAPs), International Research Collaborations (IRCs), International Partnerships (IPs), Artificial Intelligence (AI), Funding Opportunities (FOs), and Perceived Globalization Risks (PGRs), on Globalization in Hungarian HEIs after COVID-19 from the perspective of international students.

1.2 Research Problem

Who would have imagined that one day the world would become a global village of scientific interest sooner than had been theorized by Marshall McLuhan in 1964? Research on internationalization and globalization in higher education constantly evolves alongside the ever-changing definitions and components of these terms, keeping researchers on their toes as they attempt to identify significant events that determine their attainment.

Disruptive forces from the internal and external environment, such as wars and pandemics, are perhaps the reasons that motivate scholars to occasionally emerge with new themes on internationalization and globalization in Higher education. This study fills the existing empirical, theoretical and contextual gaps on the contribution of internationalization strategies to globalization in Hungarian Higher Education Institutions, from the perspective of international students.

1.3 Rationale of this Study

Research on Internationalization and globalization in higher education remains a popular modern topic among scholars globally. A critical review of the existing literature, however, reveals that most researchers have focused mainly on attempts to define and distinguish the two terms, while others have investigated the levels of internationalization in various Higher Education Institutions (HEIs) of their choice. There are hardly any publications on globalization in higher education, especially when internationalization strategies are involved. Because of the confusion surrounding the definition of the two terms and divergent scholarly opinions on whether internationalization leads to globalization or vice versa, this study seeks to discover post-COVID 19 empirical understanding of the contribution of internationalization strategies to globalization in Hungarian higher education institutions from the perspective of international students.

1.4 Significance of this Study

Previous studies have sought to clarify the complex relationship between internationalization and globalization. For instance, Nielsen (2011) suggests that internationalization be regarded as the primary variable facilitating globalization. This perspective contrasts with an earlier viewpoint by Jane Knight (2004), who contended that scholars should consider globalization as a catalyst to which internationalization is the corresponding response to the unfolding events of globalization being witnessed globally. Knight (2004) further describes Globalization as the cross-border flow of economy, knowledge, technology, people, ideas, and values.

Existing scholarly publications reveal significant controversy surrounding the concepts of internationalization and globalization. This has consumed much of researchers' time in attempting to provide clear definitions and unpack key concepts (Altbach & Knight, 2007; Marginson & Rhoades, 2002), a situation that has kept many scholars focused solely on

definitions, hindering their investigation into the current trends in internationalization and globalization taking place in the higher education space. This study therefore addresses the existing empirical, theoretical and contextual gaps through a quantitative survey.

1.5 The scope of this Study

This study focuses on investigating Internationalization Strategies and Globalization in Hungarian HEIs from the perspective of international students, in the post COVID-19 era. This study examined Study Abroad Programs, International Research Collaborations, International Partnerships, Artificial Intelligence, and Funding Opportunities as independent variables. Perceived Globalization Risks were investigated as the mediating variable. The Dependent variable was Globalization in Hungarian HEIs, and the study population was international students in Hungary who were in an active student status at the time of study, including the alumni of Hungarian HEIs, who were domiciled in Hungary during the time of the study. Survey questionnaires were distributed online, and responses were collected from a sample of 443 respondents via online mode. Data analysis was performed using SPSS Version 29 and the results include Descriptive Statistics, Correlations, Inferential, and Regression Analysis.

1.6 Research Design

This study uses a quantitative approach. Based on this approach, descriptive, correlational, inferential, and regression analyses were performed. During the development of the questionnaire, research objectives and selected theories guided the drafting of questions, which were subsequently used to develop the hypotheses. The hypotheses were subsequently developed from literature review guided by the identified theories and the chosen research paradigm. The quantitative data were analyzed using SPSS Version 29.0.

1.7 Definition of Key Concepts

1.7.1 Globalization in Higher Education

The elusive nature of the definition of the terms internationalization and globalization has prompted scholars to approach them with caution. For instance, Buendia (1995) advises that globalization be defined by what it is not. From his perspective, globalization is neither a terminal state nor the reunification of people under one community because it is an evolving process. Globalization does not revolve around the question of completeness or non-existence at all, because every little bit of it is significant. Furthermore, globalization is neither a straight line nor a continuous process, since it is entangled in contradictions and contradictors. Many people are tempted to see globalization as a single-dimensional phenomenon, which, according to Appadurai (1990), is not true because it is characterized by several back-and-forth trends that are partly independent and sometimes disconnected. Finally, and far from the common belief that globalization is a new phenomenon, it is an ancient phenomenon.

As a result of diverse perspectives from which globalization can be defined, one way of defining the term is by conceptualizing what it entails. Three interwoven aspects of human interactions help to define globalization according to Buendia (1995). These are the international, transnational, and supranational fields. The international part comprises the relationships and interactions between nations, people, or groups of residents domiciled in different countries. The transnational sector involves interactions between international actors, while the supranational field comprises non-aligned actors brought together by aspects such as religions, pandemics, and global environmental concerns.

Walker et al., (2011) argue that because globalization is founded on the growth of international exchange of products, capital, and services, and the heightened economic activity, globalization

can be considered an alternative term for internationalization. According to Tight (2021), internationalization is a modern way of expressing internationalism as compared to Globalization, which can be seen as an anticipated outcome of internationalization.

Globalization is the process through which Knowledge, ideas, skills, information, goods, and services move across borders all over the world. Brecher (2013) categorizes Globalization into two. Globalization from above and that from below. If it originates from above and spreads within global powers, then it can be considered geopolitical and capitalism oriented. Globalization from below is social in nature and transcends international boundaries with its mission geared towards social protection, human rights achievement, and economic empowerment against poverty.

Marginson (2008) posited that global structures are fluid and fast-changing. They are always open to changes. Globalization is therefore establishing strategies that cope with the rapidly changing environment. The dimensions of Globalization in higher education include local, national, and global perspectives. According to Baldwin (2016), the Key drivers of Globalization are technological advancements in transport and AI. Tomlinson (1999) views the world as a common reference point for everyone.

Levin (2001) & Marginson (2007) explain that Globalization is the practice of growing social, economic, political, cultural, scientific, technological, and environmental interdependence among institutions of higher learning. This has encouraged institutions to become global actors in education, research, and development. Several countries across the world are therefore doing strategic marketing campaigns targeting brilliant and talented students and the workforce to champion innovation and research for strategic advancement.

1.7.2 Internationalization in Higher Education

Internationalization, similarly, has different perceptions and interpretations depending on the paradigm from which the users see it. According to Knight (2008), the confusion surrounding internationalization stems from the fact that different countries and stakeholders have their unique way of defining the term. According to her, there will never be a universal definition of internationalization.

Knight (2011) and De Wit (2011) advocate for an all-inclusive definition of internationalization in higher education. In this regard, De Wit (2011) advises scholars to revert to basics and carefully examine the "what, why, and how" of internationalization with solid reference to the modern global knowledge economy. In clear terms, researchers should consider every aspect of internationalization in higher education from the paradigm of globalization.

Arguably, the definition of the term 'internationalization has undergone a major evolution since 1980s, just as the process itself. Attempts to define internationalization can be traced back to the past few decades, when the institutional level paradigm was used. For example, Knight (2008) discussed the idea of defining internationalization as the set of activities, programs, and services in HEIs that can be categorised within international studies, exchange programs, and international technical cooperations.

The process paradigm was introduced, involving the integration of the international dimension into teaching, research, and service functions of HEIs (Knight,1994). This was followed by further improvement when Van Der Wende (1997) proposed a broader definition that incorporated the element of globalization, such that internationalization can be defined as those structured activities tailored to respond to globalization of communities, the economy, and labour markets. This definition was aimed at broadening the scope given by the institution-based approach. While this definition was progressive and better, it positioned

internationalization towards external factors captured in the inclusion of ‘globalization’. This meant, according to Knight (2008), that contextualization in terms of goals and functions of the education sector was excluded.

According to De Wit (2024), scholars are coming up with all manner of definitions, turning internationalization into a ‘catch-all-phrase’ for anything international and pointing to the need for a more focused definition which can reflect its critical importance in scholarly discourse. The pursuit of the best definition has surprisingly yielded more diverse definitions. For example, according to Currie, (2014), internationalization is the strategic response to the demands of global economic and academic trends, while Sanderson (2008) considers it a dynamic process involving a local-supranational interaction in a continuum.

According to Marianne; Larsen Larsen, & Larsen, (2016), the internationalization of higher education “is the expansion of the spatiality of higher education service delivery beyond geographical boundaries implemented through cross-border mobility of knowledge, staff, higher education programs, and service providers. Research shows that HEIs globally have prioritized building a good global profile of their institutions, which has overshadowed the objective of international centres of excellence.

Internationalization in higher education, as explained by Duffy et al. (2022) and the American Council of Education (2012), is a complex combination of global competencies and perspectives in higher education service delivery, specifically within the domains of teaching and research development, facilitated by international collaborations.

While all these definitions have well supported arguments, the definition of internationalization in Higher education should incorporate the terms “purpose, functions, and delivery of post-secondary education, “is more comprehensive, thus, internationalisation is the process

involving the integration of international, intercultural and global perspectives into the purpose, functions or delivery of post-secondary education (Knight 2004).

According to Knight (2007), internationalization in higher education is a broad topic which emphasises the relationships among people, countries, cultures, institutions, and other stakeholders. Because of the wide array of definitions on internationalization, Knight acknowledges that there is no universal fitting-size model of internationalization, an acknowledgement that exposes the intricate and complex nature of internationalization. This paints a picture of a process that can be customized to meet the unique individual needs of HEIs.

Table 1.A Summary of Internationalization and Globalization in HE Concepts according to different authors.

Definition of Concepts according to different authors			
Globalization in Higher Education			
Author	Year	Concept	Comment
Buendia, H. G. (1995)	1995	It is an evolving Process.	Globalization a process
Appadurai, A. (1990)	1990	It is multifaceted, perspectival, disjunctive and anchored on Imaginations	It has divergent trends partly interconnected and is basically a platform of tensions
Walker, S., Bukenya, J. O., & Thomas, T. (2011)	2011	It is Socio-economic and political interconnectedness.	It is a tradable Commodity/Service.
Brecher, M. (2013)	2013	Not a standalone phenomenon but systemic shaped by geo-political economic forces.	Globalization is shaped by external environments.
Marginson, S. (2008)	2008	Fluid and Fast systemic transformation.	Globalization is a systemic change from local to Global
Levin (2001) & Marginson (2007)	(2001-2007)	It is an interaction-oriented systemic process that characterizes relationships on an international scale	It is a process

Internationalization in Higher Education			
Knight, J. (2008)	2008	Process-oriented, driven by integration and infusion of intercultural, international and global dimensions into education service delivery.	Internationalization is a process
Knight, J. (1994)	1994	-Institution-oriented and Serves trinity of functions (teaching, research and service)	Integration of domains
Van der Wende, M. (1997)	1997	Interventions activated to respond to globalization.	Internationalization is 'reactionary'.
Currie, G. (2014).	2014	Strategic response to globalization demands.	Act as Strategies
Currie, G. (2014).	2014	Dynamic process	Is a process
Marianne; Larsen Larsen, & Larsen, (2016)	2016	Internationalization is beyond geographical borders	Internationalization in HE is borderless
Duffy, L. N., Stone, G. A., Townsend, J., & Cathey, J. (2022)	2022	Amalgamation of Global Competencies and paradigms in higher education functions and service delivery.	It is a system
Knight (2004)	2004	Integration of international, intercultural and global perspectives into the purpose, functions or delivery of post-secondary education	Is intergrated
Jane Knight (2007)	2007	Internationalization is built on relationships.	Internationalization thrives on interrelations among stakeholders.

Table 1 shows different concepts in the definition internationalization and Globalization according to different authors.

1.7.3 Distinguishing between Internationalization and Globalization in Higher Education

Internationalization in higher education is the micro-level process that involves the integration of the international, intercultural and global dimensions into the goals and services functions

of higher education (Knight,2004). Globalization in higher education is the broader, macro-level flow of resources, people, values, culture, ideas, knowledge, technology, as well as goods and services (Knight,2004). Cantwell and Maldonado (2009) further explain that in higher education research, Globalization is considered a social and economic process while internationalization refers to strategies by which institutions of higher education attain Globalization. Internationalization, according to Tight (2021), occurs within the precincts of universities while globalization can take place outside of the HEIs.

While acknowledging the general confusion surrounding the terms 'internationalization' and 'Globalization,' Altbach & Knight, (2007) distinctly define Globalization as socio-economic and political forces pushing higher education to greater heights of international commitment in the 21st century.

1.7.4 Internationalization Strategies

According to Zolfaghari et al. (2009), a strategy is an element used in internationalization and globalization in the context of higher education to describe the activities implemented by universities to integrate the international dimension into all the functions, operations, and services offered by the institutions, because internationalization is a process that needs an implementation strategy. The five strategies commonly used in internationalization and globalization in HEIs are: establishment of international research networks, internationalization and standardization of the curriculum, international collaborations with the global community, infrastructural upgrade to handle the international community, and formulation of a long-term internationalization framework.

1.7.5 Institutional-level Strategies

1.7.5.1 Academic Programs Strategy

The program strategies under the academic programs include student exchange programs, Internationalization of the curriculum, Study of foreign languages, work abroad programs,

Study Abroad Programs, Thematic studies on internationalization, Joint and double degree programs, internationalized teaching and learning, Visiting scholars, faculty and staff mobility programs, recruitment of international students, intercultural training and link between academics and other university programs.

1.7.5.2 International Research Partnerships

On the International Research Partnerships Strategy, universities can implement joint research projects, facilitate area and theme studies, collaborate on research and scholarly publications, organize international conferences and seminars, initiate and implement cross-border research agreements, and implement research exchange programs.

1.7.5.3 Local and International Relations

Domestically, HEIs participate in community-based partnerships within the immediate environment. Partnerships can also be established to bring together institutions of higher education with the public and corporate world. Internationally, universities can initiate International Partnerships, enter global contract-oriented programs, initiate and participate in international development initiatives, and offer both commercial and non-commercial education packages globally. This strategy also includes the establishment of global networks through international alumni programs.

1.7.5.4 Extra-curricular programs Strategy

Under this strategy, institutions of higher learning can organize intercultural events for students, collaborate with community-based culture immersion groups, and give international students options to form clubs, societies, and associations. This strategy also provides room for the formation of social support programs and groups to help international students and faculty adjust to life abroad.

1.7.6 Organizational-level Strategies

Organizational Strategies are demonstrated in the diagram below

Figure 1.Internationalization Strategies at the Organizational Level

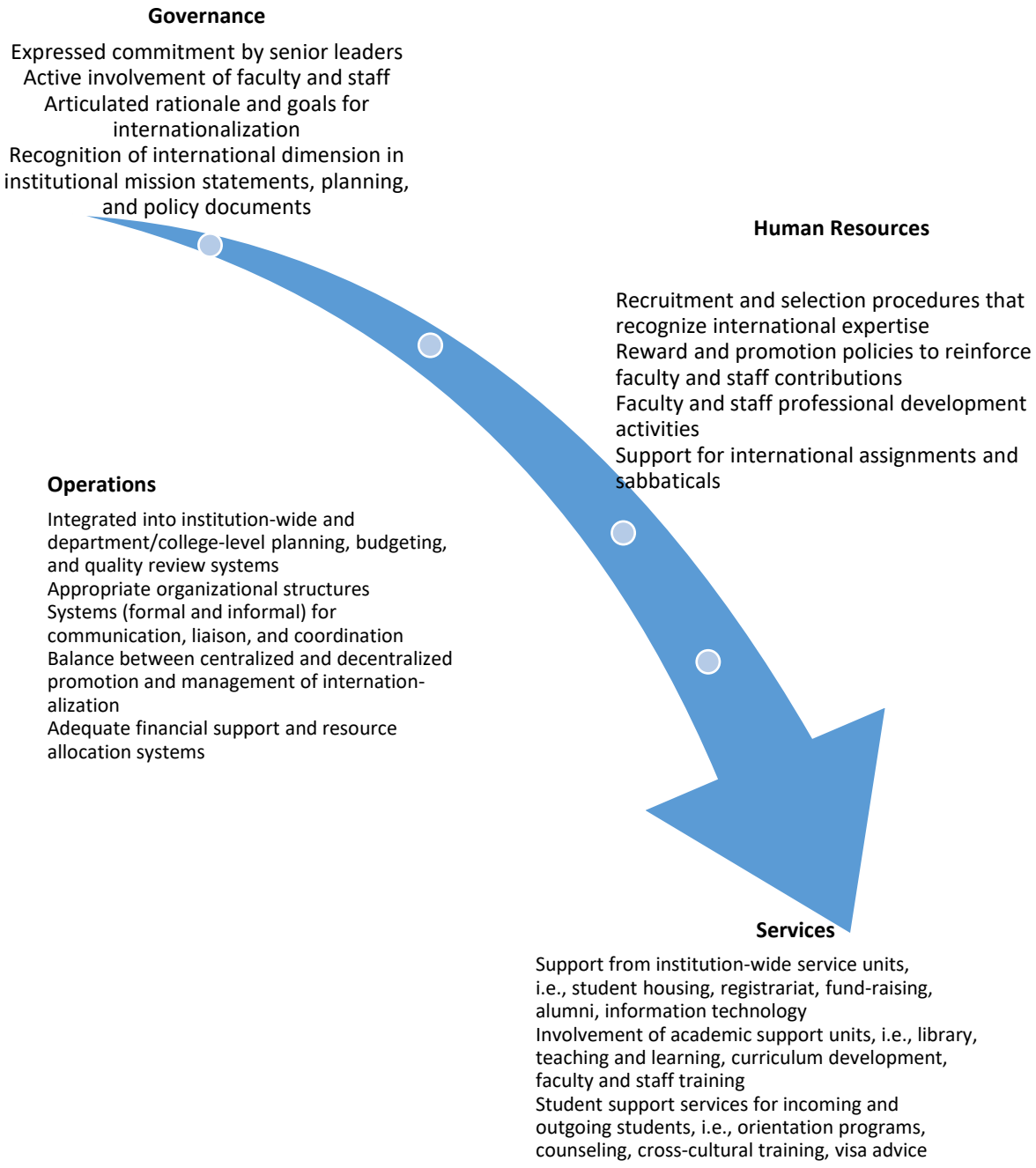


Figure 1 shows various components of internationalization at the organizational level.

1.8 Objectives of the Study

i. To evaluate the contribution of Study Abroad Programs towards the Globalization of Hungarian HEIs after the COVID-19 pandemic from the perspective of international students.

ii. To determine the relationship between International Research Collaborations and Globalization in Hungarian HEIs after the COVID-19 pandemic from the perspective of international students.

iii. To establish the role of International Partnerships in globalizing Hungarian HEIs after the COVID-19 pandemic from the perspective of international students.

iv. To assess the contribution of Artificial Intelligence to Globalization in Hungarian HEIs after the COVID-19 pandemic from the perspective of international students.

v. To investigate the effect of Funding Opportunities on Globalization in Hungarian HEIs after the COVID-19 pandemic from the perspective of international students.

vi. To determine the role of Perceived Globalization Risks in mediating the relationship between Internationalization Strategies and Globalization in Hungarian HEIs after the COVID-19 pandemic from the perspective of international students.

1.9 Research Questions

i. To what extent have Study Abroad Programs contributed to the Globalization of Hungarian HEIs after COVID-19 pandemic from the perspective of international students.?

ii. What is the relationship between Globalization and International Research Collaborations after the COVID-19 pandemic in Hungarian HEIs from the perspective of international students?

iii. How do International Partnerships contribute to the Globalization of Hungarian HEIs after the COVID-19 pandemic from the perspective of international students?

iv. What is the contribution of Artificial Intelligence to the Globalization of Hungarian HEIs after the COVID-19 pandemic from the perspective of international students?

v. What is the contribution of funding to the Globalization of Hungarian HEIs from the perspective of international students?

vi. Do Perceived Globalization Risks mediate the relationship between internationalization strategies and Globalization in Hungarian HEIs from the perspective of international students?

1.10 Research Variables

Table 2.Research Variables Investigated in this Study

	Independent Variables	**Mediating Variable**	**Dependent variable**
1.	Study Abroad Programs	Perceived Globalization Risks	Globalization in Hungarian HEIs
2.	International Research Collaborations		
3.	International Partnerships		
4.	Artificial Intelligence		
5.	Funding Opportunities		

Table 2 shows the different categories of the variables being investigated.

2 LITERATURE REVIEW

Having outlined the research problem, the scope of the study, the significance of the study, the research design, definition of key concepts, research questions, research hypotheses, research variables, limitations and delimitations, including the overview of the study in Chapter One, this chapter provides a critical literature analysis and synthesis on internationalization strategies and globalization in HEIs. This process begins with the examination of key concepts and models, debates, and contradictions, followed by a synthesis of recent research. In this chapter, the analysis of theoretical and methodological trends culminates in the identification of existing gaps that justify the present study.

2.1 Internationalization in Higher Education.

The journey of Internationalization in higher education has witnessed a strategic paradigm shift from a reactive undertaking to a more proactive, deliberate, and well-planned institutional program (De Wit,2013). Internationalization of higher education is a phrase that has been described by scholars using a variety of terms (De Wit, 2024; Knight, 2008). The initial perspective of internationalization was narrowly seen as revolving around the curriculum, as witnessed in the use of terms such as global studies, international studies, peace education, multicultural education, and intercultural studies. This has, however, been broadened to include cross-border terms such as borderless education, global studies, education across borders, offshore education, and international trade in educational services, as a way of integrating Globalization in higher education (De Wit, 2011).

Banks (2004) and Friedman (2005) explain that internationalization originated from the contingency reaction to forces of diversity and multiculturalism aimed at creating global competencies. Students' diversity can be defined as the existence of students from diverse social backgrounds, which include their ethnicity, race, culture, religion, spirituality, gender, sexual orientation, language, citizenship, age, disability, and social class, among others (Cantu,2013). According to Luke (2005), the concept of internationalization can be examined from both a local and global perspective. Internalization at home involves the incorporation of intercultural and global dimensions into institutional curriculum, teaching, research, as well as extracurricular activities, which enable students to acquire both international and intercultural skills within their home country (Lele & Gerrard 2004). Internationalization at home was conceived after Leask (2009) raised a concern that restricting internationalization to outbound mobility will lock out many students who may not get the opportunity to study abroad. Modern trends in university internationalization indicate a shift towards the delivery of transnational education through offshore campuses, international joint programs, distance learning, international student exchange programs, and the use of ICT in promoting internationalization.

Van Der Wende (1997) argues that internationalization in many settings across the world is seen as a strategy to achieve a wider goal. Internationalization comprises policies and practices undertaken by academic systems, individuals, and institutions to handle rapid transformations in the academic environment. This involves expansion in both scope and volume of the complexity of activities, ranging from study-abroad programs, intercultural education programs, foreign language education programs, and the establishment of cross-border cultural relationships (Albatch & Knight 2007).

Internationalization can also be broadly categorized into two categories according to either internal or external motivating factors: the organizational factors (from within) and the environmental factors coming from outside the organization (Tayeb, 2000; Hajiyeva et al.,

2023). According to Tayeb (2000), organizational factors include management motivation stemming from the desire and willingness of an institution's managers and executives to implement internationalization programs. This goal is driven by internal organizational motives comprising deliberate mobilization of resources, search for markets, and upholding efficiency. The external factors from the environment include spontaneous effect, Bandwagon effect, and global competition. Spontaneous offers from international firms also provide avenues for internationalization. While other institutions are motivated by peers to roll out internationalization in their organizations (bandwagon effect), some institutions face stiff competition from international firms operating in the domestic markets, forcing them to go international to remain relevant and competitive (Tayeb 2000).

Van Vught et al. (2002) view internationalization as the movement of students across international borders to access an internationalized curriculum enriched with quality knowledge and skills. Modern environment surrounding HEIs is characterized by collaborations among universities, which have created a competitive import and export market for educational products and services. This view, however, fails to link internationalization to the goal of Globalization. The definition also leaves gaps in what motivates institutions to adopt internationalization strategies.

According to Échevin & Ray (2002), and Thune & Welle Straud (2005), the key indicators of internationalization are four, namely, international student's recruitment, ICT use in teaching and learning, the choice of the type of language of instruction, the blending of human resource, the learning materials used and the location of institutions of higher learning. The strategic plans of universities and colleges, education policies of governments, regional and international education collaborations, and research collaborations all indicate a concerted effort towards Globalization. Although Internationalization of higher education is often seen as a possible response to Globalization (Kalvemark, & van der Wende, 1997), scholars have linked

economic and political objectives as key drivers of internationalization, and that internationalization leads to Globalization.

Among the factors that motivate internationalization among firms in competitive markets are cluster dynamics such as imitation, the desire to co-locate professional services, and industrial location (Luong et al.,2025). These clusters have, with time, proved to be the major drivers of globalization, prompting to firms to position themselves strategically within clusters to benefit from the unlimited access to the cluster pool of resources (Amdam et al.,2020), and can cooperate and share knowledge and business-related information (Hertenstein et al.,2017).

Internationalization in higher education has evolved gradually in the past 30 years. In its initial phase, internationalization in higher education was more characterized by traditional values such as peace building and mutual co-existence, human resource development, cooperation, and mutual help. This has, however, changed to strive for global competitiveness, image branding, and maximization of revenue generation (De Wit & Altbach, 2021).

The world saw a rapid increase in the internationalization of higher education after the late 20th century and early 21st century, and this trend has continued to grow steadily (Gu et al., 2010; De Wit, 2008; Seddoh, 2001). The United States, Australia, and the UK are among the top destinations for international students (Ryan & Carroll, 2005; Brown & Holloway, 2008). In 2019, 6.1 million international students seeking higher education studies crossed a border for education abroad. This was twice the figure recorded in the year 2007. Between 1998 to 2019, international student mobility increased at an annual rate of 5.5% (OECD, 2022). The cross-border movement of international students is forecasted to reach 7.2 million by 2025 as demand for internationalization continues to rise (Böhm et al., 2002).

The rapid upscaling of internationalization from a marginal concept to a top reform agenda is credited to the effort of the EU (European Union) and the Bologna process. A combined effort

by the European Commission, UNESCO, OECD, International Association of Universities (IAU), WB, European Universities Association (EUA), governments, and various international stakeholders propelled internationalization into a yardstick for global competitiveness in higher education (De Wit & Altbach,2021).

Figure 2.Countries and their Level of Internationalization at Home

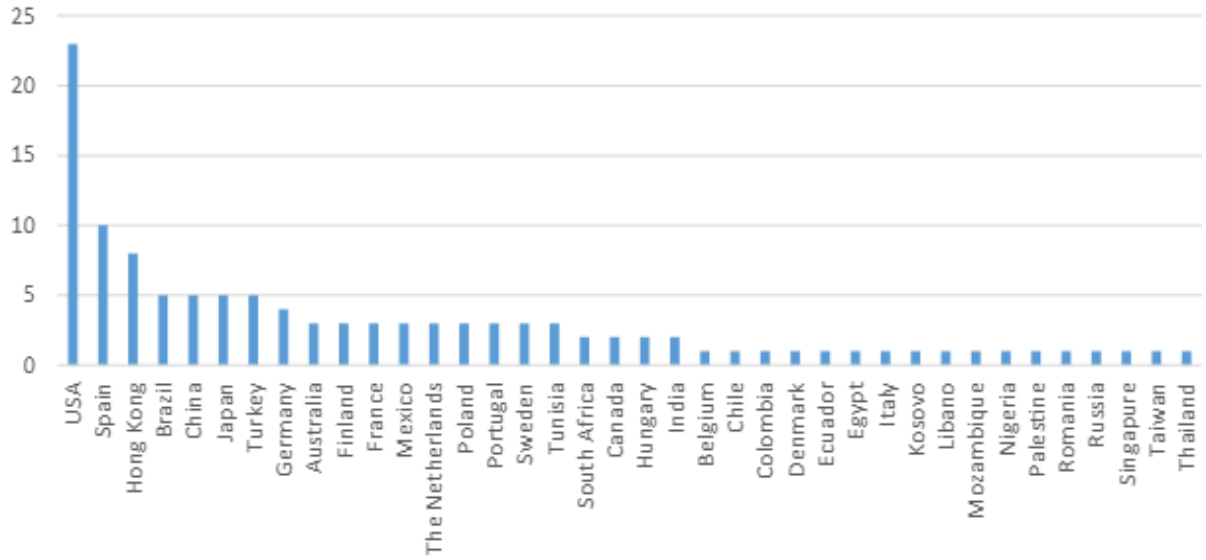


Figure 2 illustrates the countries and their levels of Internationalization at Home, as per Soulé et al. (2024).

Internationalization in higher education has undergone constant evolutionary and revolutionary phases since its popularization in the early 2000s. Student exchange programs were the most popular strategy in the US before the Second World War. The reason for this cross-border academic exchange was to develop an atmosphere of peace and international understanding (Altbach & Knight, 2007). According to the Elsner et al., (2025), the initial phases of cross-border mobility can be traced back to the era of the first industrial revolution. The second phase was the era of the new globalized economy, marked by the end of the Second World War. According to De Wit & Deca (2020), American foreign policy brought a paradigm shift from traditional cultural exchange to geopolitical diplomacy, which is characterized by political

interests. According to De Wit (2009), the 1980s were characterized by an economic agenda and competitiveness among HEIs. This later evolved into internationalization from commercialization of education services to maximize revenue and income (De Wit & Deca,2020).

De Wit (2019) recommended the study of internationalization in higher education from the perspective of the evolving role and position of higher education globally. He outlines 'massification', global knowledge economy, and the importance of higher institutions' image in terms of global rankings and reputation. According to him, massification entails the unprecedentedly high enrolment rate of international students in HEIs globally. A key spectacle is the high cross-border mobility rate of students from emerging economies such as China, India, and Latin America. According to De Wit (2019), this massive education immigration is the leading cause of brain drain, negatively impacting research output as top talent is exported to the developed world.

The development of dimensions of internationalization has been gradual, with a clear foundation found in the work of Mestenhauser & Ellingboe (1998), who narrowed down the perspectives into: internationalization of faculty, SAPs, international students and staff, and involvement of higher education institution stakeholders. According to Soliman et al. (2019), there are several strategies that HEIs employ to attain their internationalization goals. These include international students' recruitment, international research mobility, internationalization of the curriculum, establishing overseas campuses, Intercultural competence development, and study abroad integration programs.

According to Zolfaghari et al. (2009), HEIs can implement internationalization through the provision of global standard education, establishing international research networks, forging international cooperation with other global institutions, upgrading infrastructure to meet global

standards, and developing a long-term internationalization roadmap. Cantu (2013) identifies SAPs, international students' recruitment, and internationalization of faculty as three effective strategies boosting internationalization efforts among HEIs in America.

Previous studies on internationalization strategies discovered a variety of dimensions implemented according to the institution's strategic plans. For example, *Universitat Politècnica de València* (UPV) implemented internationalization of the institutional culture to improve linguistic competence, internationalization of teaching and research, international mobility and exchange programs, and entering international cooperation for development (Bas et al.,2017).

The 4.0 era of industrial revolution significantly shaped internationalization in HEIs using technological innovations in service delivery, towards Globalization (Morrar et al.,2017). According to Friedman (2005) advancements in technology have revolutionized and greatly influenced Globalization by increasing the speed and volume of movement of people across borders. Technology use has deepened and expanded international connectivity and access to higher education.

2.2 Types of Internationalization

2.2.1 Internationalization at Home

According to Soulé et al. (2024), the phrase 'internationalization at home' was coined by Bengt Nilsson to explain the process and effort that HEIs expend to offer their students international dimensions at their home university. This is internationalization that excludes cross-border mobility (Joris et al.2000; Nilsson, 2003). There are numerous benefits of internationalization at home. These include development of intercultural competence, communication skills, and improved students' motivation (Barbosa et al.,2020), cognitive development and improvement of cross-cultural linguistic competence (Karimova et al., 2023), open and globalized worldview (Leask, 2018).

Among the programs implemented by HEIs to foster globalization at home are: internationalization of the curriculum aspects such as participation in intercultural research, enhancement of open access to education, domestic collaborations among diverse ethnicities and marginalized groups, and the recruitment and admission of foreign students in local programs (Hofmeyr, 2021). Other strategies include the use of foreign languages in teaching and research (Hénard et al.,2012), utilizing international training materials (Lomer & Anthony-Okeke, 2022), blending classroom composition with foreign students, and using virtual technologies for online collaborations and service delivery (O'Dowd, 2022; Barbosa et al., 2020; Soulé et al.,2024).

2.2.2 Internationalization Abroad

Many scholars have defined internationalization using a variety of terms. Knight (2006), for example, calls it the cross-border mobility of students, teachers, institutions, course materials, and curricula. While Waterval et al. (2015) call it a cross-border curriculum partnership to signify the transformation of the home institution to accommodate the host institutions. Other terms used to explain internationalization at home are "Transnational education"," Borderless education", and "Offshore education" (Organization for Economic Co-operation and Development [OECD], 2005; OECD & International Bank for Reconstruction and Development/The WB, 2007; UNESCO & Council of Europe, 2001; Van der Wende, 2003)

According to Waterval et al. (2015), Internationalization abroad in the higher education sector is gaining momentum and involves transferring education services across geographical borders. This includes students' mobility outside their countries to seek further career opportunities (Choudaha & Chang, 2012). Internationalization abroad also includes faculty (Kim,2009) and program movement across borders (Waterval et al., 2015). The evolution of

internationalization abroad took a comprehensive turn when course materials and full curriculum crossed borders in addition to students and faculty (Lane,2011).

Figure 3.Foreign students according to host countries from 2002 to 2009

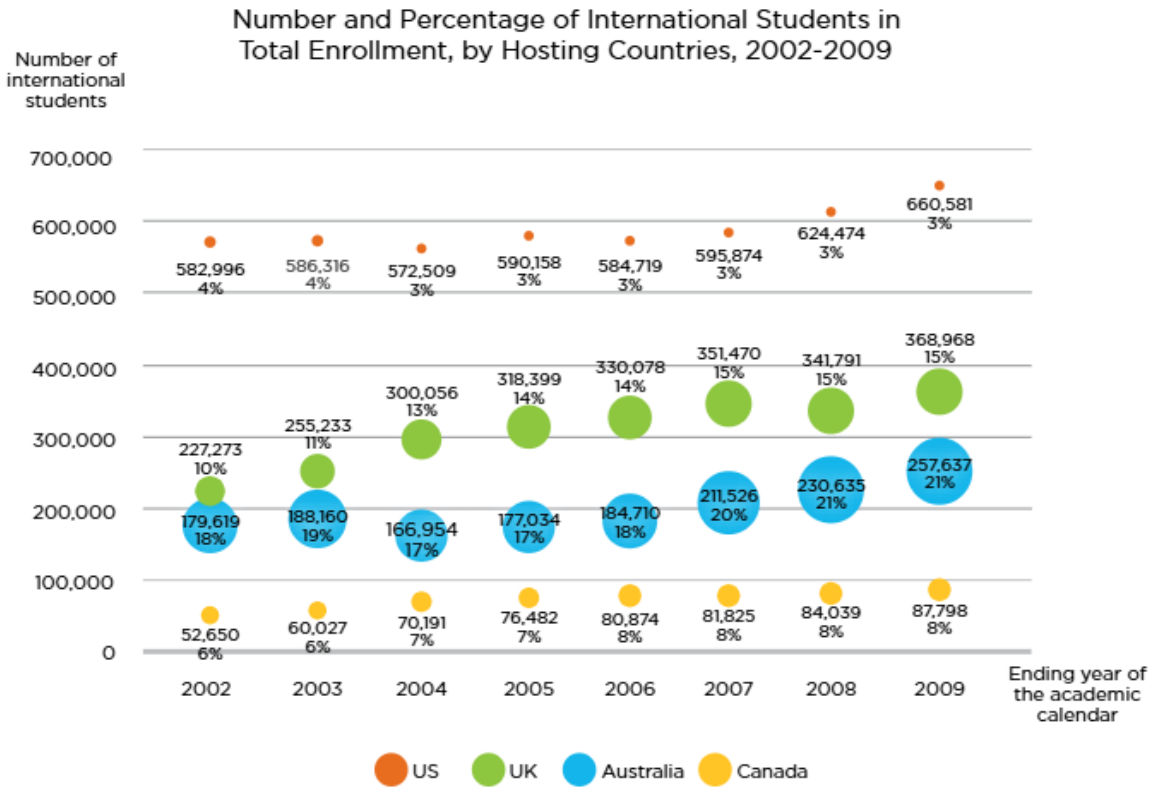


Figure 3 displays the number and percentage of International Students in Total Enrolment, by Hosting Countries, 2002-2009. Source: Choudaha & Chang (2012)

The figure above shows the statistics of internationalization abroad. Data shows that between 2002 and 2009, the proportion of international students by enrolment was comparatively high for Australia (21%), followed by the United Kingdom (15%), Canada (8%), and lastly, the United States (3%). The figures indicate that despite the seemingly high population of international students enrolled in universities in the US, their proportion compared to local students was relatively low.

In Europe, for instance, 1.66 million international students were enrolled across HEIs in 2022. Statistics indicate a high percentage (24%) of international students enrolled in Germany

compared to other European countries. 43 % of international students in different institutions originated from Europe, while 25% and 17% were from Asia and Africa, respectively.

Figure 4.Internationalization in Europe in 2022

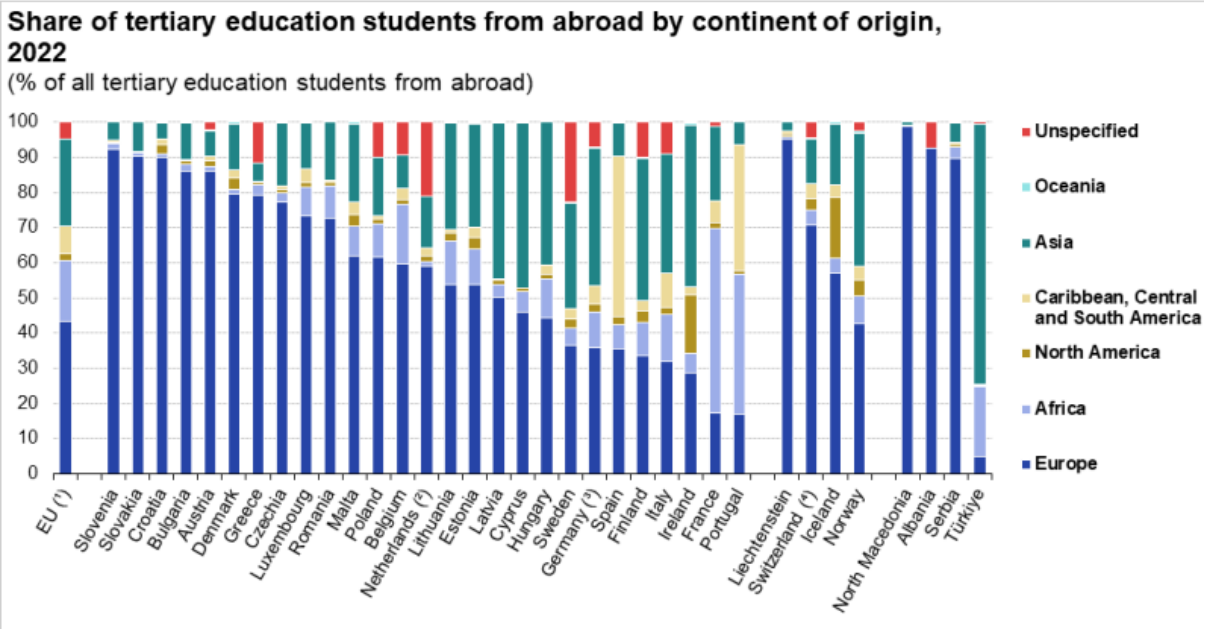


Figure 4 shows internationalization Abroad Statistics in Europe in 2022. *Source:* Eurostat (educ_uoe_mobs02)

2.3 Globalization In Higher Education

The strategic plan towards Globalization is enshrined in the comprehensive OECD roadmap, which was released in 2015 and 2017 and elaborates on the current developments in the digital sector and strategies for rolling out successful digital transformations (Andriukaitiene et al., 2021). Modern discourse in internationalization in higher education revolves around Industry 4.0 and the globalized knowledge economy. There is a modern shift towards a digital global economy, which has shaped service delivery in higher education and cross-border service delivery. This era is driven by big data, AI, and blockchain technology; cloud computing systems have laid a strong foundation for Globalization (Voronkova et al., 2023).

Globalization, just like the industrial revolution, has phases. The concept of Globalization traces its roots in the fourth industrial revolution. It came into limelight in 2019 at the World Economic Forum which were synthesized in the global competitiveness report (Pezzuto,2019; Wang, 2019). According to Aydin (2021), HEIs should develop policies and regulations to accommodate the changes in social media use, students' profiles, inclusivity, and intercultural competence.

According to Permitasari et al. (2019), HEIs have already started implementing internationalization 4.0 through collaborative digital technology. Scholars have continued to propose the instruction of globalization as a course in higher learning. This is aimed at empowering the students with the best approaches towards handling emerging challenges as they go through systems designed to accommodate multicultural diversity. According to Strielkowski et al. (2021), HEIs should develop a sustainable pool of international universities to provide options for students interested in studying abroad or participating in international internships and research endeavours. Curtis & Ledgerwood (2018) advise HEIs to offer options to multilingual international students to explore and benefit from dual degrees. This will safeguard against the challenges from the constantly changing trends in the higher education sector.

Table 3.Different Perspectives of Globalization

Conceptualisation	Past Reality	New Reality	Globalisation Equals
Geographical	Unconnected localities	The world-system that came into existence around 1900	Increasing interconnectedness
Authority	State sovereignty over clearly defined territories	Authority transferred upward, downward, and sideways	Deterritorialisation
Cultural	Mosaic of cultures without significant routes for cross-cultural exchange	Melange of cultures	Either uniformity or friction
Institutional	Nation as the institutional container of society: Identity, solidarity, and citizenship based on nationality	Social organisation and identity structured around aspatial systems	Cosmopolitanisation

Table 3 shows different Perspectives on Globalization. Beerkens (2003)

Enders & Fulton (2002) justify that there is always discourse on internationalization with respect to Globalization because higher education is operating in a globalizing world.

"Globalization is the flow of technology, economy, knowledge, people, values, ideas . . . across borders. Globalization affects each country in a different way due to a nation's individual history, traditions, culture, and priorities. Internationalization of higher education is one of the ways a country responds to the impact of Globalization yet, at the same time respects the individuality of the nation", Knight 1997; Kreber, (2009).

Knight (2004) postulates that Internationalization is transforming higher education across the world while Globalization is shaping the internationalization process. His view on Globalization shows a critical interrelationship that the two phenomena have. According to Smith (1999), the abstract link between Globalization and internationalization should be critically examined to uncover not only the influences of each other but also their limitations. Knight (2004) argues that HEI is not a synonym for Globalization and both should be considered distinct and separate. This view contrasts with De Wit (2011), who opines that both

HEI and Globalization behave like two connected universes with no possibility of drawing a separating line between them (Beck, 2012; Brandenburg & de Wit, 2011).

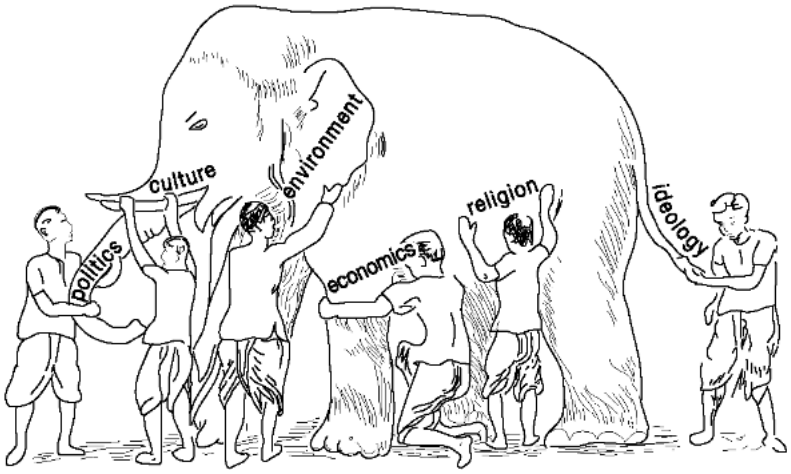
Friedman (2005) argues that modern Globalization is the vehicle that drives global cooperation and competition. In his view, the new Globalization phase (3.0) in its modern context started in the year 2000 and is an evolution from the initial Globalization phase (1.0) fronted by nations and governments witnessed between the years 1492 and 1800, which was followed by the second Globalization phase (2.0) which started in the year 1800 to 2000 and was promoted mostly by international corporations. Van der Wende (2007) discovered in t that Globalization has both development and underdevelopment aspects, with the results leading to both inclusion and exclusion. These can be seen from the socio-economic imbalances, which have negatively impacted social cohesiveness globally.

The products of Globalization include; integrated research, the rise of extensive use of English language as a global means of scientific communications, rise in globally oriented human capital, the rise in job opportunities for researchers and scientists in the global markets as we ass the extensive use of AI in the development and exchange of knowledge products and services across the world (Altbach, & Knight, 2007)

According to (Kreber, 2009), Globalization attempts to oppose the power of individual countries, while internationalization brings together states to contribute towards its success. This points towards the struggles among HEIs as they try to harmonize and tap into the opportunities that both internationalization and Globalization offer. It is worth noting that many scholars have identified internationalization as one of the contingent reactions to counter Globalization. Globalization is connected to multinational interdependency characterized by competition and struggle for survival, whereas cooperation and mutual benefit are key features of internationalization.

According to Johnson, (2002), there are a variety of factors that facilitate Globalization, including developments: an enormous increase in knowledge since 1750, improvements in transportation leading to efficiency and affordability, the development and growth of ICT, Higher incomes combined with comparatively reduced transport and communication costs and reduced trade barriers after the Second World War.

Figure 5.The Globalization Scholars Elephant.



The Globalization elephant. Source: Steger, M. (2003)

According to Steger (2003), as shown in Figure 5, the debate by scholars over the dimensions of Globalization can best be explained by the parable of the blind men and the elephant. While some scholars believe that economics forms the core part of Globalization, others argue that cultural, political, or ideological agenda is the engine of Globalization. This debate becomes vicious as a group of scholars identifies environmental aspects, all of which indicate a narrow perspective on the view of Globalization, which may be motivated by their area of expertise.

There is an endless debate on whether Globalization is a singular process. Scholars who believe in a singular Globalization aspect do not agree on the social aspect of life that comprises the primary domain of Globalization. While positivist scholars are attempting to unravel the true

face of Globalization, there are sceptics who argue that Globalization is a thing of the past and that its time and place in the modern era is over since its driving force entrenched in liberal global market economy, has been a utopian project (Gray,2002). The attitude towards Globalization is mixed, comprising the pro-globalization activists and those who are against, a trend that is best explained by the international trade theory, which is based on the concept of losers and winners in matters of Globalization. Structural theoretical approach explains Globalization from the angle of long-term consequences arising from Globalization because of the economic reorganization of countries. Scientism towards Globalization is further explained by the neo-classical economic theory, which bases its arguments on short-term upheavals in the global economic markets because of liberalization leading to unequal distribution of gains and benefits. adjustment process (Lundsgaarde,2018).

Beerkens (2003) argues that the internationalization of higher education is not a new phenomenon in the modern world and traces its roots to the distant past. In their study of Globalization from the geographical context, the status of sovereignty of nations is bypassed in a new era of global interconnectedness in a concept best described as internationalization.

Globalization in HEIs comes with numerous benefits to both students, host institutions, and host countries (Lillyman & Bennett, 2014). Learning in an international environment helps students develop high confidence levels through multicultural interactions (Warring, 2010) and improve chances of global employability (Campbell, 2010). For the host countries, international students are a source of much-needed income for universities and provide a pool of talent that can be tapped to boost innovation (OECD,2022). International students are often charged a higher tuition fee than local students. Host countries also tap income from foreign students through their expenditure on living expenses. Host countries' labour markets also benefit from highly educated international students (OECD 2021).

Globalization is credited to the seamless flow of goods and services across borders, the flow of ideas, the flow of capabilities, spread of literacy and education, international exchange of socio-economic policies, and the reduction of inequalities being witnessed as nations compete in attaining sustainable development goals (Johnson,2002). Education and research are key elements in the formation of the global environment, being foundational to knowledge, the take-up of technologies, cross border association and sustaining complex communities (Marginson & Van der Wende, 2007). According to Soliman et al. (2019), striving for competitiveness and sustainability are the major reasons explaining internationalization and globalization in higher education.

As Carnoy & Castells (2001) observe, HIEs are part of the web of agents of Globalization who play key roles linking global cities that make Globalization possible. A study done by Bloom (2005) indicates a strong positive correlation between the level of enrolment of international students with their global performance. (Bloom, 2005), a conclusion that is supported by the finding that less internationalized nations exhibit a relatively low enrolment in their HEIs.

According to Turner & Robson (2008), the prevalent strategies that institutions of higher education implement to achieve Globalization include; recruitment of international fee-paying students, establishment of overseas branches, recruitment of foreign faculty, global audit and compliance with international standards of competitiveness and good practice, adoption of global knowledge-based economy and notably the use of English language in teaching, research and publications.

2.4 THEORETICAL FRAMEWORK

2.4.1 Theories Guiding the Study

The following theories guided this research: Idealism, Instrumentalism, the Uppsala Model, and the Business Network Internationalization Process Model. Both Idealism and Instrumentalism were fronted by Stier (2004)

2.4.2 Idealism

This theory believes in a more democratic, fair, and equal world, which increases awareness of global relations, tolerance, respect, democracy, and philanthropy, involving helping the less fortunate in the world to increase international cooperation. Internationalization as an agent of Globalization 4.0 helps in bringing domestic and international students together by sharing cultural values, beliefs, living styles, and ideas. Internationalization in higher education is, therefore, holistic inducing virtues of tolerance, democracy, respect, and the need to alleviate poverty and suffering among the people. A globalized world is peaceful and free from racism, ethnocentrism, dictatorships, and self-righteousness. Internationalization of higher education aims at making the world a better place for mankind, which, according to Bauman (2000), has replaced the old perspective of universalism.

Guided by this theory, institutions of higher education align their curricula to global perspectives, which guide students and staff to engage in a global intercultural learning environment (Joseph, 2012; Anderson, 2016). UNESCO recommends opportunities to develop essential skills and knowledge for all and the elimination of the gap between the rich and the poor nations. This research will use this theory to determine the role of student exchange programs, IRCs, IPs and use of ICT in the achievement of a more democratic, fair and equal academic environment which is characterized by awareness of multicultural relations, tolerance, respect, democracy and the philanthropy among staff and students of selected universities, as enshrined in idealistic Globalization 4.0 goals.

From the perspective of Idealism, internationalization and globalization in higher education promotes the development of intercultural competence, tolerance, and communication skills

among students, aligning with the Idealist view of teachers as mentors for moral and character development. Faculty are tasked with creating supportive environments to achieve internationalization goals. However, internationalization also presents challenges like culture shock, language barriers, and economic stress, which faculty must address to help international students and staff adapt and thrive abroad.

Idealism theory, despite its instrumental role in the creation of responsible global citizens, has been criticized as too much oriented towards individual character development at the expense of society. Other critics see it as incapable of solving social injustices and inequalities that are a common feature of global societies.

2.4.3 Instrumentalism

According to Jürgen Habermas (2015), a renowned German thinker, instrumentalism in education is the outcome of "reification of consciousness", while instrumentalism, according to Bilan et al. (2021), sees instrumentalism as knowledge aimed at meeting practical human needs. Lubienski (2003) explains instrumentalism in education as a response to market demands, where it seeks to liberate consumers and prioritise consumer preferences and satisfaction. The rise of instrumentalism was sporadic and multifaceted. A more elaborate foundation for modern instrumentalism in higher education is informed by the arguments of Ellwood Cubberley, who considers educational institutions to be factories that create workers needed in society (Oladi, 2013).

According to Molnar (2013), there is a paradigm shift from the traditional view of education as a foundation for democracy to a commercial perspective, a trend that depicts the growing influence of capitalism, culminating in the erosion of democratic civic institutions. The earlier role of education in fostering public and community welfare has now been overshadowed by for-profit motives and the pursuit of maximizing revenues.

This theory advocates internationalization in higher education to meet the demands of the capitalist, global, and multicultural world for sustainable development, economic growth, and profitability. According to John Dewey (1934), human benefit is what drives the world into using ideas to empower people so that they can direct natural phenomena, social processes, and institutions. Instrumentalism is the outcome of humanistic naturalism, which seeks to safeguard the place of man in the competition of innovation and technological advancement. This theory is a pragmatic response to human activity involving thoughts, theories, and concepts used as instruments for solving practical problems facing human beings. The current wave of internationalization among institutions of higher education is motivated by the desire to establish transparency and mobility of students and staff between educational institutions, national and international, with the main goal of maximizing profits. Stier (2011) considers higher education as a means towards ensuring economic growth, sustainable development, and exchanging knowledge, attitudes, and skills between governments and transnational organizations across the world. This includes the EU's investment in lifelong learning, international studies, SAPs, and student exchange programs to tap into global talent, knowledge, innovations, and technology. The implementation of lifelong learning, all-inclusive education, and internationalization of education, with the drive to generate money through building a sufficient labor force empowered with competence-based skills to tackle demanding jobs in a global market. This will enable organizations to cope with multilingual, multicultural job market demands.

Instrumentalism is motivated by capitalism, where people desire and pursue wealth in a free society. In the neo-liberal framework guided by the capitalistic mindset, the state influences the creation of an ideal market economy to stimulate economic growth for all (Hyslop-Margison, 2005). Neo-liberalization is the cause of massive reforms in the internationalization

agenda being witnessed in many countries, for instance domination and control of the education sector through the enforcement free market economy.

According to Lehmann (2009), students oriented towards instrumentalism are motivated to seek higher education to secure their economic future through earnings from employment. This perspective of seeing education as more of a ladder to employment and income does not motivate students to think about building their society but rather how the society will benefit them culturally, economically, and socially, as argued by Sternberg (1999).

In a reflection by Oladi (2013), credentials obtained at the end of formal education are a genuine medium of exchange for the measure of learning, as those that certified as graduates proceed to the labour market and get employed. It is evident that HEIs in the modern world are operating in a market–driven world. Institutions of higher learning are forming partnerships with business corporations to fill the funding gaps and enhance their research and development capacities.

This study was guided by instrumentalism to establish the contribution of SAPs, IRCs, IPs, FOs and AI technology harnessed by selected universities in attaining sustainable development, economic growth, and profitability.

2.4.4 The Uppsala Model

The development of the Uppsala model is credited to Johanson & Vahlne (2017), who created it to describe the process of internationalization in firms. The model has undergone a series of improvements; for instance, insider-ship and outsider-ship elements were added to improve its assumptions and micro-foundations (Johanson & Vahlne, 2015).

Figure 6.Uppsala model

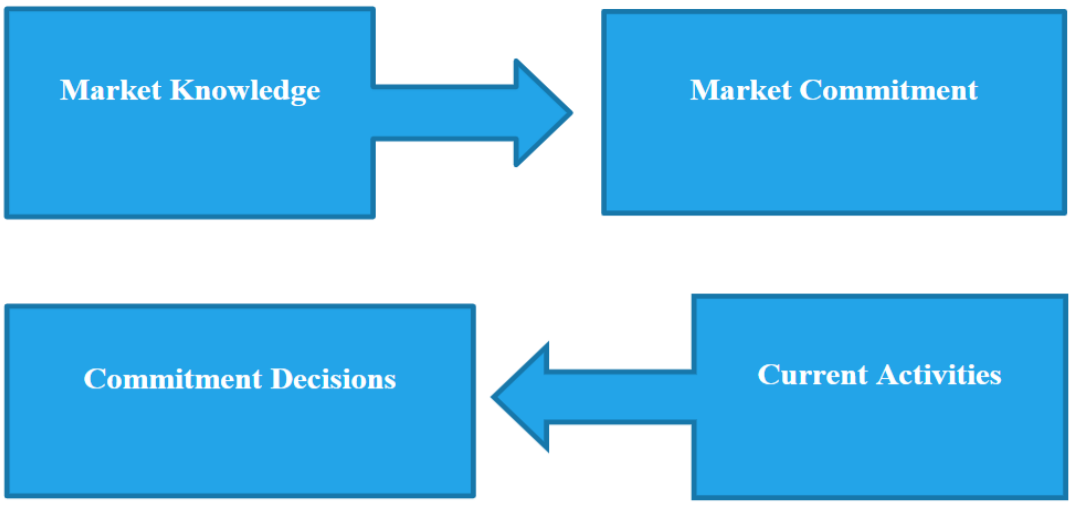


Figure 6 shows Uppsala Model. Source: Johanson, & Vahlne (2017).

According to Johanson & Vahlne's (2017) Uppsala model in Figure 6, the success of the implementation of internationalization begins with a comprehensive understanding of the markets, which relies on the discovery of existing and new opportunities. This is followed by the mobilization of resources to meet market demands. At times, internationalization stakeholders encounter new market challenges, which are always navigated successfully through learning the experiential knowledge that is only gained after the process of implementation.

The connection between internationalization and the markets resonates well with the objective of this research, as it unravels the relationship between internationalization strategies and Globalization in Hungarian HEIs. The commercialization of higher education systems for profit maximization is proactive. This happens when institutions of higher learning target foreign students by aligning their products according to foreign students' language preferences. Programs are also customized to meet international standards required for research development, alongside provisions of unique education programs that meet the current market

demands. Through their ambitious targets to transform their institutions into international research centers, university authorities employ a blended international workforce to bring in international experience. On the other side of the reactive approach, educational institutions respond to external stimuli that originate from the local, national, and international education environment.

Although this model has been criticized that it lacks theoretical explanations on non-linear and often interrupted internationalization events such as leap-frogging phases (Santangelo & Meyer, 2017), and that it fails to focus and explain the individual's contribution in the internationalization process (Schweizer & Vahlne, 2022), a combination of theories such as used in this research provides significant outcome.

This theory guided the development of research questions and hypotheses on internationalization strategies contribution to language competence development among foreign students, the commercial aspects of internationalization strategies, and the global world-view development among international students in Hungary.

2.4.5 The Business Network Internationalization Process Model

Figure 7. The *Business Network Internationalization Process Model*

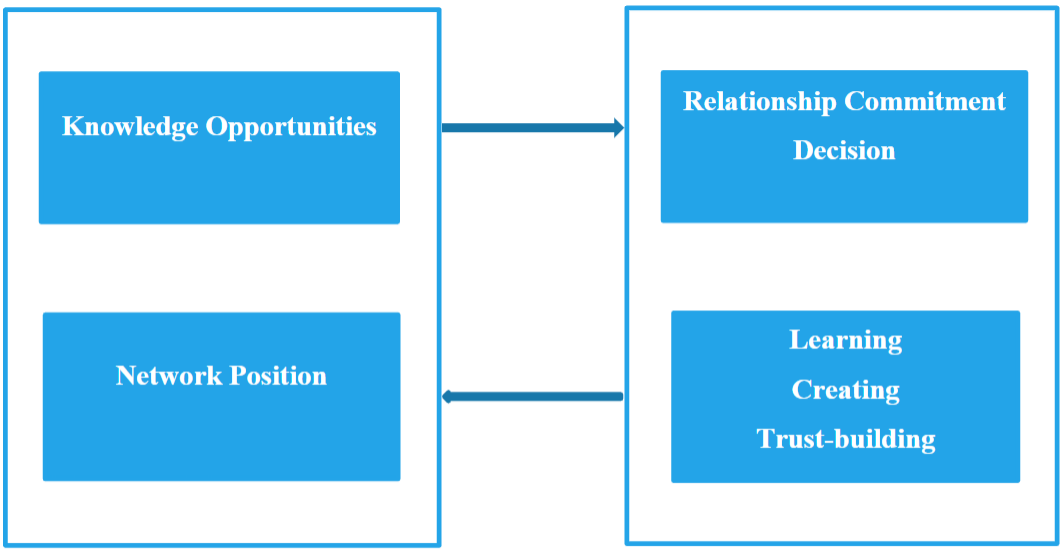


Figure 7 shows the business network internationalization process (Johanson & Vahlne 2015), which is an improved Uppsala model.

The business network internationalization model is characterized by the addition of opportunity recognition to the knowledge stage because, without opportunity, there will be no room to implement knowledge. In the second phase, relationship commitment decision replaced market commitment, where networking was fronted as the major driving force for commitment to the internationalization agenda. In the third phase of the earlier Uppsala model, learning, creating, and trust building replaced current activities. In the final stage, network position replaced commitment decisions because of the instrumental role that networks play in the internationalization journey (Johansson &Vahlne, 2015; Hajiyeva et al., 2023).According to Brandenburg et al. (2020) and Jones et al. (2021), the strategic approaches to internationalization comprise global higher education values for the common good, participation of all stakeholders, and maximization of resources.

2.5 Approaches to internationalization and Globalization in Higher education

There is an interconnectedness in modern approaches and strategies of internationalization in higher education, although the two terms have their diverse meanings. The difference, according to Hasanova et al. (2021), is that an approach is guided by a set of principles or beliefs and provides the philosophy that governs processes, while a strategy is a careful plan outlining goals and their expected time of achievement. In this case, an approach can be a specific method of executing the strategies of an institution.

According to De Wit (1995), Wysocka et al., (2022), and Žilinskienė & Rakšnys, (2023), there are four approaches to internationalization in higher education. These are the activity approach, competency, ethos, and process. The activity approach considers internationalization in higher education from the perspective of academic and extra-curricular events. In the higher education context, internationalization is explained in terms of students and faculty exchange programs, development and implementation of the curriculum, international studies, collaborations in research and development, technical cooperation and assistance, and intercultural competence development. According to De Wit (1995), the activity approach provides the best and most used description of internationalization in HEIs. The most prominent is the internationalization of the curriculum, a common characteristic in modern global institutions. This also is accompanied by integrating international content in courses the activity approach provides the best and most work, the use of foreign languages in teaching and learning, signing of international partnership agreements, cross-border mobility of students, international exchange of staff and faculty, international education fares and social events and creation of international bodies of associations to handle international students' affairs among others.

The competency approach to internationalizing higher education institutions focuses on developing new knowledge, skills, and experiences in students, faculty, and staff. This is achieved through international mobility programs, global partnerships, and collaborative research that contribute to worldwide knowledge sharing. In contrast, the Ethos approach

emphasizes intercultural competence development by fostering international community events and cross-cultural interactions. The Process approach represents the most comprehensive model, systematically integrating international perspectives into all operational functions of higher education institutions. Examples of activities in this domain include organizational policies, strategies, and internationalization procedures to be implemented.

2.6 Internationalization Strategies

According to Knight (2004), internationalization strategies transcend the activity boundaries of HEIs, as they encompass both programs and organizational activities carried out by HEIs to integrate the international dimension into their systems and institutional functions, thereby achieving globalization. The culmination of the activities in diverse approaches informs the implementation roadmap, which is grouped into program and organizational strategies that universities use to achieve their internationalization and globalization. According to Knight (2004), internationalization can be examined in terms of policies, programs, and strategies that are implemented at the national or institutional level. This can be broken down further into institutional level strategies, such as academic programs, research collaborations, external relations, and extra-curricular initiatives, and organizational level strategies, which include governance, operations, services, and human resource strategies. This study will investigate institutional-level strategies from the perspective of international students. These are: student exchange programs, International Research Collaborations, International Partnerships, Funding opportunities and Artificial Intelligence.

2.6.1 Study Abroad Programs

Study Abroad programs refer to those higher education programs that are accessible outside the student's country of origin (Iskhakova & Bradly,2022). According to Holtbrügge & Engelhard (2016), SA is a major strategy for equipping students with the skills necessary for global markets through the enhancement of international professional and intercultural

competence. SAPs according to Iskhakova & Bradley (2022) have no single globally accepted classification criterion due to the diversity in classification attributes, such as length, group size, and location purpose, among others. For the past decades, SA has been made possible through student exchange programs, semester and short-term, and long-term year abroad programs, as well as summer or winter abroad programs (Czerwionka et al., 2015). This field of SA has witnessed evolution and the introduction of more options. These include short-term research integrated studies abroad (Ruth et al., 2019), short-term cross-cultural tours (Wood & Peters, 2014), language programs (Kimura & Hayashi, 2019), and community volunteering abroad (Gullekson et al., 2011) and immersive programs abroad (Lokkesmoe et al.,2016).

Although Student Exchange Programs and Study Abroad Programs are often used to substitute for each other, the terms refer to different approaches. Marchik & Lukashenkova (2011) define student exchange programs as the process of acquisition of knowledge and skills by students in institutions of higher learning outside their home country, especially where this happens in partner institutions. Student exchange programs are guided by formal agreements that allow students to pursue or complete part of their study programs at designated overseas partner institutions whereby their status student remains active at their home country's institutions, where they continue paying tuition fees. The duration of students' exchange programs varies and normally takes one or two semesters, and the credits obtained by students count towards their course in their home country. SAPs allow students to participate in studies in foreign countries without a formal agreement between learning institutions.

Erasmus is a popular student exchange and study abroad program that brings students from all over the world to Europe. Launched in 1987, the program is currently the housing umbrella to more than 4000 universities from across the global sphere. The scholarship program has funded more than two million students and over 240,000 university teaching staff, making it one of the most successful higher education internationalization agents in the world (Marciniak &

Winnicki, (2019). Since its inception up to the year 2006, the Erasmus program formed part of the Socrates Community program, after which its status changed to be part of the EU program for lifelong learning (Kłopotowska, 2023). Erasmus is striving to offer support to the provision of quality lifelong education in Europe and beyond. This will lead to quality jobs, research, and innovation for sustainable development, geared towards strengthening European identity and advancing Globalization and cooperation with the international community

Daly & Barker (2005) concluded that students' exchange programs increased self-confidence and maturity and led to greater self-awareness. It also leads to intercultural acceptance, understanding, and appreciation, which leads to the creation of international networking and cooperation. Globalization has tremendously shaped the strategies universities use to attract foreign staff and faculty. SAPs have been a physical phenomenon involving the actual cross-border mobility of international students and settlement in host countries for study purposes

According to Jager et al. (2019), virtual exchange programs are a common strategy in modern internationalization efforts among HEIs. This collective term refers to technology-driven strategies facilitating intercultural interactions and collaborations among international students across geographical boundaries.

Mittelmeier et al. (2025) opine that global disruptive pandemics such as COVID-19 have popularized virtual exchange programs among HEIs. Another motivating factor for the adoption of Virtual exchange programs is the economic and environmental negative consequences of traditional SAPs. As institutions of higher learning battle the spiraling costs of operations, streamlining their operations has been the priority. This has led to the implementation of cost-cutting measures and internationalization models, which have been made available by digital innovations in the Globalization era. According to O'Dowd (2020), online intercultural communications significantly contribute to the development of

intercultural competence, foreign language competence proficiency, and the development of a global mindset.

Existing literature indicates a strong attention of scholars and worldwide researchers focusing on internationalization discourse generally or in colleges and universities outside Europe. These include Altbach, 2004; Altbach & Knight 2007, Knight (2004), Scott (2000) and Van Der Wende, (2001). This leaves a research gap among the European Universities and colleges, which justifies the need for this topic of internationalization to be carried out among Hungarian Universities.

2.6.2 International Research Collaborations

IRCs have increased gradually over the last decades (Rostan et al.,2014), especially from the fact that scientific research has always been a collective effort. Researchers have continued to co-author publications (Hoekman et al.,2010), which have enabled scientists to jointly tackle emerging global challenges through collaborative research, regardless of their geographical locations. Kwiek (2021) argues that IRC has achieved massive growth in Europe because of the diminished role of national restrictive policies and the subsequent adoption of Globalization in research. European Globalization policy has continuously invested in IRC at both national and global levels by availing funding opportunities for researchers with extensive research networks (König,2017)

International research collaboration types that have dominated scholarly discourse include individual-to-individual collaborations, group-based, departmental, institutional, region-to-region, and international collaborations (Chen et al.,2019). The domain of international research collaboration has also been identified as inter-individual, department–to–department collaborations, inter-institutional and global collaborations (Chen et al.,2019; Han et al.,2014) According to Fu & Li (2016), IRCs offer more significant research outcomes as compared to localized collaborations.

Research indicates that the scientific community has made significant advances in team science. Modern trends in research indicate a surge in global teams engaging in research and development. This upward trend in international collaboration has been paced by the rapid innovations in technology, more subject-specific and disciplinary specialization, and the unlimited opportunities brought about by AI and cloud computing capabilities. According to Hall et al. (2018), these technological revolutions explain the advances in IRCs.

Modern research collaborations are mainly done in teams (Wuchty et al., 2007). Although studies reveal that researchers prefer working in collaboration with their team members within the boundaries of their organizations (Mayrose & Freilich, 2015), findings indicate that these local collaborations have contributed to scientific impact. This trend, however, is superseded by the immense contribution of IRCs, which have proved to produce greater outcomes in terms of scientific productivity and impact (Mayrose & Freilich, 2015; Larivière et al., 2015).

Collaboration can be done from different perspectives. Studies on cross-disciplinary collaborations happen within fields, disciplines, and professions. To produce an exceptional outcome, teams bring together theories, concepts, and approaches to problem-solving (Hall, 2017) and make high-impact publications in global impact journals. To enhance their publications' impact, cross-disciplinary collaborators maximize interdisciplinary diversity with their research, sourcing citations from multi-disciplinary knowledge domains. Although IRCs are considered a performance indicator through its role of facilitating the exchange of scientific knowledge and skills between the developed and the developing world, existing research indicates that the developing world seeks collaboration opportunities from the developed world more than from countries at the same economic level and that the developed nations rely less on collaborations with researchers from third-world countries.

IRCs are also influenced by the existing socio-cultural factors, such as the language being used (Boekholt et al., 2009). IRCs are expected to benefit researchers by enriching them with international travel experiences where they can interact and learn from different cultures. This also helps in broadening researchers' perspectives toward global thinking in their scientific works (Freshwater et al. 2006). The globalized world of scientific research is often measured by the level of co-publications by authors collaborating from across the world and the bibliometric data indicating the global citation index. IRCs have bolstered the quality of scientific works among the Nordic countries (Wang et al.,2015)

2.6.3 International Partnerships

There has been a trend of engagement in international activities across HEIs globally. In the UK, for instance, universities have been engaging in international activities for decades using a variety of strategies such as student and staff exchange programs, international research partnerships, and a range of cross-border mobility programs (Woodfield et al.,2009).

The term partnership in higher education is used to describe an array of undertakings that bring together researchers and practitioners toward performing a common task. Universities globally have forged IPs to consolidate and maximize their resources to achieve their goals. Partnerships can be considered joint ventures, commonly seen as strategic alliances or international collaborations (Eddy, 2010). In the international partnership arena, there are several types of IPs, such as study abroad partnerships, research partnerships, collaborations in projects, publications, and joint grants.

IPs in higher education have existed both under informal frameworks where individuals and institutions of higher education faculties have traditionally engaged in study abroad activities, and in formal settings where partnerships are integrated into institutions' missions (Amey,2010). IPs can be categorized into three stages, namely: The pioneering initial stage, consisting of building strong partnership foundations and the roles of key partnership founders.

The second stage involves the actual partnership and its development, which is based on social and capital resource mobilizations for the partnership. The third stage is partnership sustainability, and termination of policy framework development and implementation.

According to Gutierrez et al. (2024), partnerships among higher education stakeholders are deliberate arrangements motivated by their vested interests and the desire to address common challenges facing the partner institutions. Partnerships among higher institutions of learning are not a new phenomenon, according to Rybnicek & Königsgruber (2019), as they have been integrated in many universities' strategic plans in the past decades to guide operations and functions. IPs' Economic advantages have enabled institutions to compete effectively in the global knowledge market.

IPs in education can take a variety of forms. These include virtual classroom exchange programs, collaborative online projects, and faculty exchange programs. These partnerships significantly help students to acquire intercultural understanding, diverse multi-cultural experiences, promote responsible global citizenship, contribute to international language competence, and prepare students for the increasingly interconnected world. In a study on global partnerships, Wächter (2000) outlines five distinct categories based on their associations. These are associations of HEIs, Combined associations of higher institutions, individual members' associations, regional associations, and associations of members from inside and outside HEIs.

International Research partnerships have many anticipated benefits to participating institutions (Atta-Owusu et al.,2021). IPs enhance academic opportunities by widening the pool of courses that partnering institutions are offering. This eliminates the challenge that always forces students to take courses against their preferences because their institutions do not have their preferred subjects. Universities in a partnership can expand the range of programs they offer,

diversifying disciplines to enrich students' learning experiences and equip them with an international skill mindset that will prepare them well for the globalized employment market.

Research indicates that IPs in higher education are mutually beneficial to the partners. According to Mamdani (2016), IPs promote innovative teaching. In the modern interconnected world, students must be empowered with knowledge, skills, and experiences that will enable them to develop empathy and understanding of diverse cultures, improve teamwork and cooperation between international students, enhance their global communication skills, and acquire global leadership and conflict resolution skills. To further shape innovative teaching, partners can learn from each other's different teaching methodologies and research methodologies, thus constantly reviewing and upgrading their teaching and research practices for the benefit of students.

University-industry partnerships bridge the gap between theory and practice by allowing students to apply their knowledge in real-world settings, gaining valuable work experience and fostering innovation. This collaboration enhances students' problem-solving skills, often leading to discoveries that address industry challenges, while also promoting creativity through mentorship and career guidance from experienced professionals. Additionally, universities support industry by offering workforce development courses and certifications, ensuring continuous professional development and lifelong learning opportunities for employees.

This lifelong path for workers, in return inspires creativity and innovation in the workplace. A partnership between universities and industry significantly contributes to the development of a positive image among the partners. This improved reputation builds trust and is associated with high prestige that attracts high enrolment figures for universities from prospective students. Partnerships are instrumental in building a resource network for students where opportunities can be matched with talent.

IPs in the higher education sector can take the form of research collaborations, according to Freeman et al. (2017), to generate and transfer knowledge. By partnering with each other, universities can maximize their broadened research network, specialized research systems and infrastructure, and funding resources. This pooling together of research resources through partnerships has been associated with cutting-edge discoveries and innovations, and new knowledge generation.

Research indicates that IPs between HEIs allow students to shape their minds towards a global mindset. International exposure is made possible through intercultural interactions between local students and their international colleagues. Engagement with international faculty also gives students an international perspective and experiences, which are highly valued and rewarded in the globalized world.

According to McFee (2023), university-business partnerships have surged as universities help fill corporate research gaps, driving innovation and providing students with industry-tailored education. These collaborations offer key benefits such as improved student employment, career growth, and responsible globalization, while fostering continuous professional development for graduates.

According to Wubah (2024), it is advisable to create new partnerships in the global markets to diversify campus enrolments and enrich the learning environment with international perspectives. Research shows that international students are a significant source of revenue for institutions of higher learning in the United States, with their contribution reaching a significant high of $33.8 billion in the year 2021-2022. According to Wubah (2024), tuition fees, living costs, and off-campus spending have all contributed to the revenue generated by international students. IPs allow students to make global friends and develop foreign language fluency, intercultural competence, and problem-solving skills. Through IPs, students gain skills for

adapting to multicultural environments and gain a global perspective in understanding the world.

IPs in higher education are created for institutions to maximize state spending on education and prevent inefficiencies and redundancies and to harness international talent (Russel & Flynn 2000). It is imperative to research more on partnerships in higher education to understand the factors underpinning their implementation failures and develop structures and policies governing their successful implementation (Eddy, 2010). This prerogative is informed by research findings, which indicate that international higher education partnerships are not always successful (Reed 2018). According to Eddy (2010), an international partnership is a collaboration between two or more institutions of higher learning, business, or social entities with the goal of resource maximization, talent exchange, and dissemination of knowledge and skills. HEIs should therefore explore ways of supporting partnership formations that are beneficial to them.

2.6.4 Artificial Intelligence and Globalization

The genesis of artificial Intelligence gained momentum after the release of Generative Pre-Trained Transformer (GPT) in California in 2018. This robust AI is aimed at replicating human beings' language processing capabilities. The world is witnessing an unprecedented digital revolution like never before. This development, coupled with its sustainability goals, has enhanced global interconnectivity (Akkaya et al., 2023). Technology innovations can therefore be credited with the rapid Globalization in HEIs. Patnaik (2024) highlights the elements of Globalization, such as rapid technology adoption and integration, the efficient and speedy global flow of information, and a revolutionized work and skills system.

According to Rudolph et al. (2023), the unlimited range of digital applications offered by language learning models such as *Ernie*, *Bing*, *Chat*, and *Bard* elicited an interest in the higher education sector. These language learning models are resourceful tools for researchers in

developing interactive learning resources to enhance teaching and learning-powered applications, such as GPT-3, for example, improves learners' interrogative skills by stimulating curiosity and helping simplify coding skills.

The discourse on the role of AI in Higher education is strongly linked to Globalization, a concept characterized by upscaling hyper-connectivity and hyper-interdependence among nations (Blessinger & Wankel, 2024). The President of the International Higher Education Teaching and Learning Association (HETL) explains that Globalization is rapidly transforming global education economies through rapid movement of people, products, information, and services, courtesy of cutting-edge innovations in the global transport and communication industry.

According to Karakaş & Meri-Yilan (2024), Globalization is characterized by hyper-digitization and virtual connections, which are crucial in the development of intercultural competence among international students. This helps in seamless intercultural interaction among international students (Mayo,2021; Schwab, 2017). Karakaş & Meri-Yilan (2024) recommend the development of high-impact teaching models through innovative technology to deliver globalized intercultural learning within the campus and on virtual platforms.

Modern characteristics evident in globalized HEIs include virtual networking, online learning, flexible and convenient scheduling of learning programs, and technologically enhanced teaching and learning experiences. AI can empower faculty capacity to globalize academic workshops, webinars, exchange programs, and virtual training events, among other faculty activities that require instant communication among global partners. According to Hysa & Foote (2022), the use of digital innovations empowers global education stakeholders to transform the marginalized world by sharing their values and supporting the less developed nations to participate in the global knowledge economy, an act which enhances inclusivity.

Blair & Shabut (2024) highlight the critical role that virtual technologies play in allowing students to benefit from cross-border experiences from the comfort of their locations. In what can be considered a breakthrough in digital innovations, three university students, led by their lecturers at Leeds Trinity University, co-created an app “Globalizer”, designed to facilitate connections and collaborations, and provide a global platform that blends international perspectives into the classroom. This app, christened “Tinder for academics,” facilitates sustainable internationalization and democratization of HEIs toward the attainment of Globalization

On the contribution of digital technology in developing intercultural competence towards Globalization, Sabbah (2024) credits the new wave of Globalization to innovations in AI, which have sped up the mobility of people, knowledge, experiences, ideas, products, and service.As a result of AI use, language learning, for example, has been made easier through online, flexible language learning platforms, which enhance intercultural communication skills and promote cross-cultural interactions with efficiency. An example of a digital platform for language learning is *YouTube,* which provides the best international library, bringing together unique multicultural content creators and a resource center for language learning videos through talk shows, vlogs, mini-documentaries, and public debates from a blended diverse cultural background (Sabbah, 2024). Studies show that *BookTube* and *BookTok* are popular with the young generation of community readers because they can efficiently and effectively share their book recommendations, literary analyses, and writing styles, among other language learning experiences.

According to Samarji & Sengupta (2023), intercultural competency and skill development among international students improve greatly through their participation in virtual global cultural meetings. The use of AI in language learning applications promotes an interactively rich, convenient, and readily accessible environment that is conducive to intercultural

competency development. Sabbah (2024) recommends the development of peer-friendly programs adapted for asynchronous applications such as emails, video messaging, or audio messages, and synchronous forms such as video conferences or instant messaging applications.

According to Patnaik (2024), disruptive technologies have been the major contributors to Globalization 4.0 with high impact, driven by AI, blockchain technology, and internet resources. As a result of this rapid transformation in the global knowledge economy, HEIs should align their service delivery to incorporate and tap into the capabilities of AI. Ways of adapting the existing organizational structures to accommodate digital resources can be curriculum review and redesigned to match modern technologies, upgrading the existing Information systems infrastructure, and training the faculty to match the current competitive technology demands.

Dempere et al., (2023) observed that the arrival of CHATGPT into the global knowledge economy raised concerns among higher education institutions. The fears of motivating these drastic actions included the replacement of independent and critical reasoning and learning among students and the erosion of existing academic creativity, integrity, and ethics. There are also fears that machines and AI may render human resources jobless through replacement, and fears of high initial costs of investments in technology and subsequent need to meet the cost of staff training and the maintenance of ICT systems and equipment.

According to Nautiyal et al. (2023), HEIs globally have developed an interest in using ChatGPT versions 3.5 and 4 because of their customizability in teaching, learning, and student support. The numerous benefits of ChatGPT in higher education include adaptive learning (Kuo & Chang 2023; Peng & Spector 2019), individualized feedback (Raisch & Krakowski 2021; Farrokhnia et al.,2024; Sok & Heng,2023), research writing and data analysis (Dwivedi et al.,2023; Lund & Wang,2023; Rahman et al.,2023 and Gao et al.,2022). Other innovative

solutions driving Globalization in higher education are automated administrative services to efficiently and effectively support students and faculty (Zhao et al.,2022; Abbas et al.,2022; Dwivedi et al.,2023; Okonkwo & Ade-Ibijola,2021; and Merelo et al.,2024). The use of AI in higher education innovative assessment tasks has provoked critical thinking and linking situations to real-life experiences among students while promoting learner-centered learning approaches.

Rasul et al. (2023) highlighted key challenges of using AI in higher education, including ethical concerns, academic integrity risks, bias, unverified information, and unreliable assessment of learner outcomes.AI aims to foster a sustainable and equitable world economy by addressing earlier shortcomings. It is characterized by digital transformation driving new business models, enhanced global connectivity and collaboration, rapid innovation disrupting traditional industries, integrating environmentally sustainable practices and promoting social justice and fair distribution of global benefits.

In blended learning designs, modern learning platforms are characterized by media-empowered education portals, customized and adaptive learning materials, and digital collaboration systems that enable students to access education from the comfort of their locations. HEIs' stakeholders have also witnessed a proliferation of open educational resources accessible from distant locations (Alexander et al., 2019).

Table 4.Developments in Education Technology

Developments in Educational Technology	2012	2013	2014	2015	2016	2017	2018	2019
Analytics Technologies								
Adaptive Learning Technologies								
Games and Gamification								
The Internet of Things								
Mobile Learning								
Natural User Interfaces								
Bring Your Own Device								
Makerspaces								
Flipped Classroom								
Wearable Technology								
3D Printing								
Tablet Computing								
Artificial Intelligence								
Next-Generation LMS								
Affective Computing								
Mixed Reality								
Robotics								
Quantified Self								
Virtual Assistants								
Massive Open Online Courses								
Blockchain								

Table 4 Developments in Education Technology from 2012 to 2019.EDUCAUSE Horizon Report: 2019 Higher Education Edition (Alexander et al.,2019).

Rahiman & Kodikal (2024) acknowledge that AI tools are opening new frontiers for globalization in higher education by revolutionizing the evaluation and assessment methods, leading to improved faculty engagement, despite perceived risks, level of awareness, and performance expectancy challenges. The focus on the contribution of AI to globalization is motivated by the myths and fears that have prompted HEIs to embrace this technology with caution and much ‘suspicion’. Scholars have raised concerns about the dehumanizing beliefs that AI is a shortcut to valuable academic credentials because it helps students manoeuvre the confines of academic integrity. Leask (2006), for example, noted that foreign students are frequently profiled as perpetrators of academic dishonesty using technology to plagiarize. This study delves into the position of AI as a pillar strategy in globalization in higher education from the perspective of international students.

European higher education's embrace of digital learning and internationalization as key strategies (Gaebel et al.,2018) has shaped research discourse on Globalization and led to the concept of “Bologna Digital”, a new term shaping the digital revolution in Globalization ICT use in cross-border dissemination of higher education has led to virtual internationalization.

2.6.5 Funding Opportunities

Higher education started gaining the commodification tag in the early 20th century when the global economy was liberalized. This contemporary perspective of seeing higher education considers higher education as a private good that can be exchanged in the free market for profit maximization. According to Altbach & Knight (2007), higher education has evolved into a tradable good, shifting away from the earlier identity of a public responsibility. Before this significant shift, higher education has always been regarded as a path to an ideal society governed by good citizenship that encapsulates knowledge, moral values and attitudes skills-set. And This trend has exposed higher education to commercial forces that characterize the free competitive global markets. The consumers who majorly comprise students cross international geographical borders to seek higher education abroad purchase this skill set so that they can use it in the global competitive job marketplace. According to Altbach (2002), HEIs, multinational organizations are the key traders of the higher education “commodity”. According to Altbach & Knight (2007), citing examples of Laurente and Apollo groups in the United States, identifies the main motive of internationalization in higher education as earning money. The effort by HEIs to enter international markets through establishment of overseas campuses, IPs in higher education, and purchasing of education institutions globally motivated by the pursuit of profits. This chase for profits characterizes both public and private HEIs in the modern world. According to Davies & Elias (2003) many countries such as Canada, the UK, US and Australia implement internationalization through recruitment of international students and levy exorbitant fees to earn huge profits leading to students dropping out.

Due to the commodification of higher education, funding opportunities have become a major pull factor for international students and staff seeking career opportunities abroad.

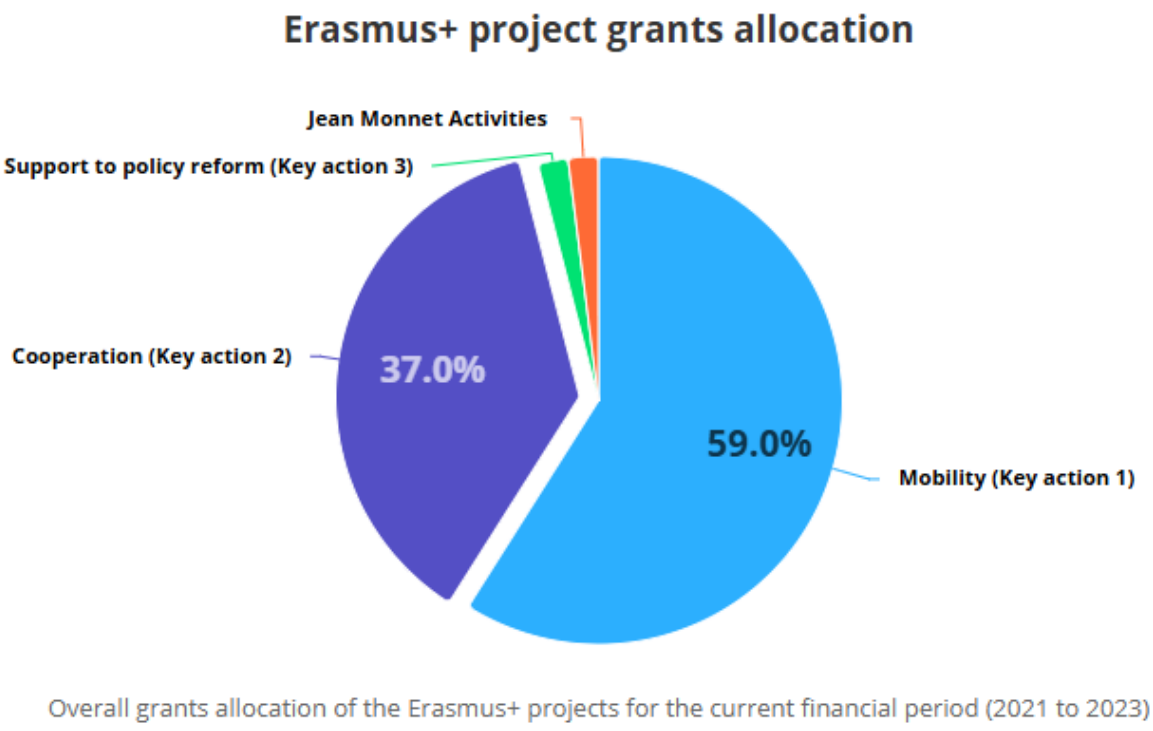
In a study by Hussin & Ismail (2009), it was discovered that the Malaysian government invested prominently in funding universities' budgets through grants that supported research and development, leaving out the burden of infrastructure development and improvement of the existing facilities to the university management. This trend is a mirror reflection of huge funding gaps among HEIs that eventually devise various funding models, including the recruitment of international students, to fill the gaps.

Availability of funding opportunities to study abroad has continued to drive higher education internationalization to unprecedented levels. According to Hazelkorn (2015), universities in the competitive global markets outdo each other, offering study opportunities in world-class environments.

The globalization in European Higher education has been massive due to the availability of funding opportunities from the European Commission and parliament, which targets internationalization through the flagship Erasmus+ mobility program (Curaj et al.,2015).

According to OECD (2005),75% of international students taking PhD courses in American universities are beneficiaries of scholarships and other subsidies between 2004 and 2005. According to Marginson & van der Wende (2007), improvement of global research quality remains a product of a strong foundation enshrined in policy that maximizes internationalization activities with provision for academic scholarships, funding for international mobility and life abroad, and funding for short-terms academic exchanges, including financial resources to support research and publications in leading journals.

Figure 8. Erasmus + *Project Allocation chart 2021 -2023*



Overall grants allocation of the Erasmus+ projects for the current financial period (2021 to 2023)

Figure 8 displays the overall grant that were allocated to a diversity of Erasmus + Projects between the years 2021 and 2023.

Figure 9. Erasmus Total Project Grants 2014-2025

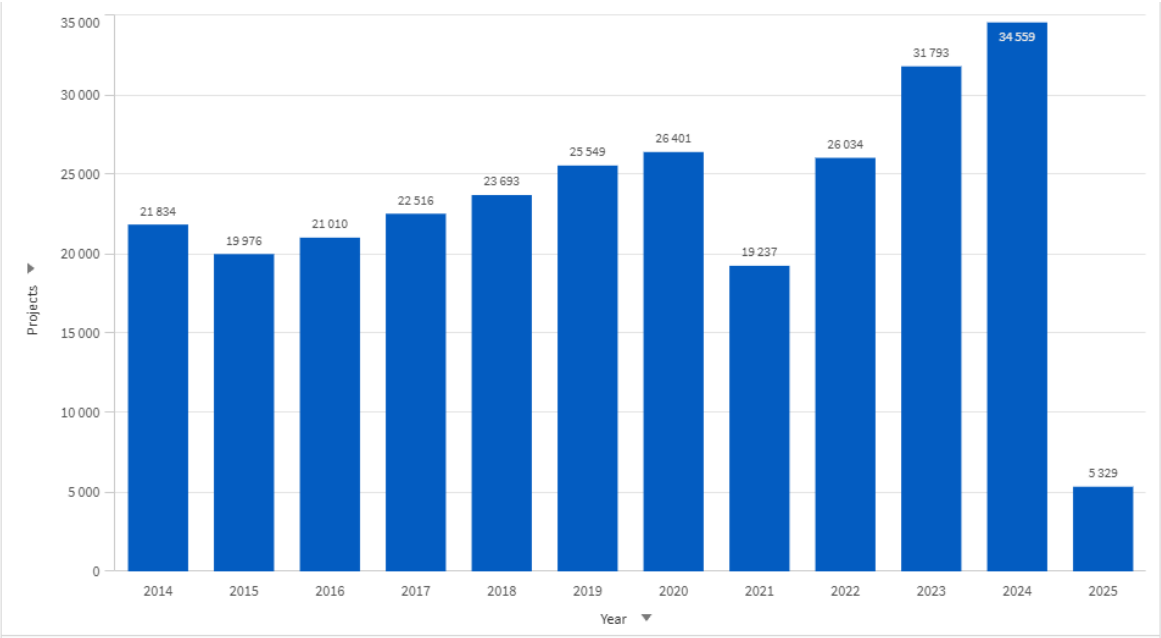


Figure 9 shows the total number of projects, grant amounts awarded and number of organisations funded by the Erasmus+ programme since 2014, per year and field.Source: Erasmus + (2025).

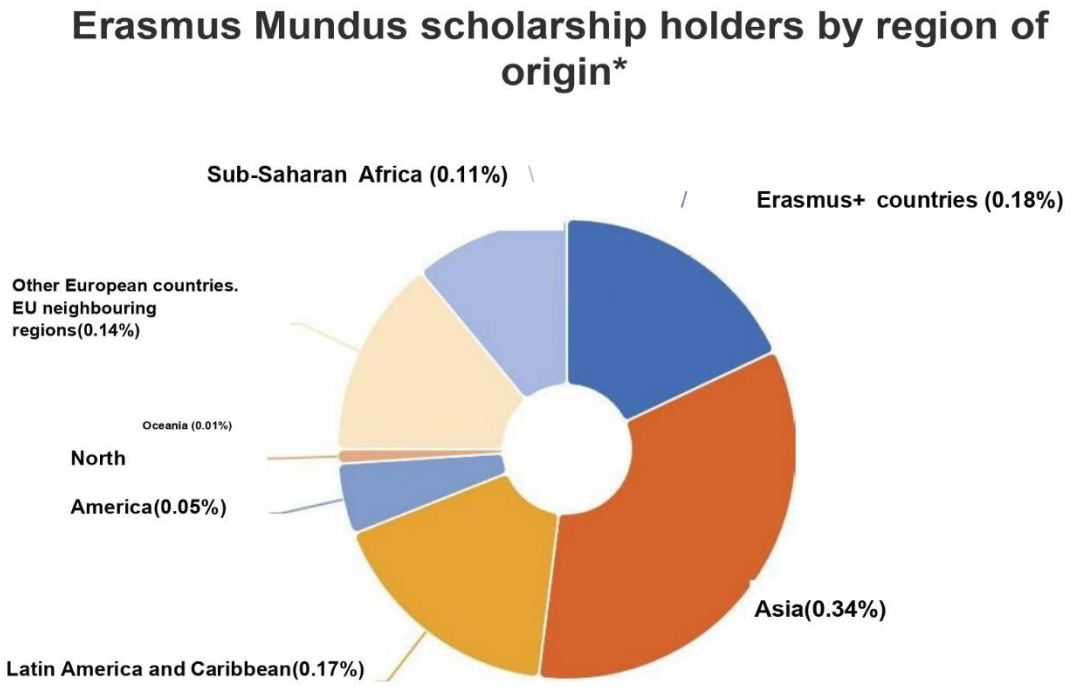
According to Granato et al. (2021), Erasmus+ is the most successful mobility program in the EU, facilitating internationalization through grants to HEIs students. Their findings show Erasmus+ positive impact on bachelor’s students' Academic performance on their graduation.

Table 5.Erasmus+ Work Program budget and EU commitments for 2023

	Work Programme Budget				EU Commitments			
Key Action	**Direct Management**		**Indirect Management**	**Total**	**Direct Management**		**Indirect Management**	**Total**
	European Commission	*EACEA*	*National Agencies*	*in EUR*	*European Commission*	*EACEA*	*National Agencies*	*in EUR*
KA1 - Learning Mobility of Individuals	-	37 150 000	2 233 946 000	**2 271 096 000**	-	36 900 388	2 233 946 000	**2 270 846 388**
KA2 - Cooperation for innovation and the exchange of good practices	18 250 000	717 370 000	565 250 000	**1 300 870 000**	18 179 474	720 850 542	565 250 000	**1 304 280 016**
KA3 - Support to policy reform	34 160 000	59 749 000	54 150 000	**148 059 000**	21 442 062	52 814 654	53 366 425	**127 623 141**
Jean Monnet Activities	-	60 037 112	-	**60 037 112**	-	60 038 196	-	**60 038 196**
Sport	6 650 000	59 770 000	8 000 000	**74 420 000**	3 717 940	60 692 400	8 000 000	**72 410 340**
Management fee National Agencies	-	-	140 000 000	**140 000 000**	-	-	140 350 000	**140 350 000**
Sub Total	**59 060 000**	**934 076 112**	**3 001 346 000**	**3 994 482 112**	**43 339 476**	**931 296 181**	**3 000 912 425**	**3 975 548 082**
Administrative expenditure	28 116 419	34 066 144	-	**62 182 563**	26 189 196	30 619 771	-	**56 808 967**
International cooperation (Heading 6)	-	195 449 736	231 182 264	**426 632 000**	-	194 128 301	231 171 094	**425 299 395**
Contribution to Erasmus+ from ESF+	-	-	12 000 000	**12 000 000**	-	-	12 000 000	**12 000 000**
Sub Total	**28 116 419**	**229 515 880**	**243 182 264**	**500 814 563**	**26 189 196**	**224 748 072**	**243 171 094**	**494 108 362**

Table 5 shows Erasmus + 2023 Budget Commitments. Source: Erasmus+ (2024).

Figure 10. Erasmus Scholarship Regional Distribution



*27 EU member states and 6 third countries associated to the Erasmus+ programme (status as from May 2024).

As shown in Figure 10, Erasmus Scholarship program benefited international students from 27 European countries and six nations outside the union.

2.7 CONTEXTUAL FRAMEWORK

2.7.1 Internationalization and Globalization in Europe

Internationalization in Europe traces its roots to the medieval times through the Renaissance era. Significant events related to internationalization in higher education in Europe involved

educational pilgrimage to institutions of higher learning, which was motivated by the thirst for knowledge. According to Deca & Fit (2015), the 1960s and the 1970s in Europe witnessed massification, where many foreign students thronged European Universities. This widespread movement for educational purposes was also motivated by attempts by countries to attain their SGSs.The history of internationalization in Europe dates to 1970, triggered by the mass migrations of Asian students visiting European institutions of higher learning.

English-speaking countries, pioneered by Britain, the United States, and Australia, became champions of internationalization in education. This was shortly followed by internationalization in Europe. It was projected that more than seven million students would prefer studying in foreign countries by 2020. Are institutions of higher learning engaging themselves in a show of might on who can blend their students and human resources better with international entrants? This question calls for a critical evaluation of HEIs' goals and objectives to realign the missed objectives with internationalization, global standards, and best practices.

Scholars acknowledge that internationalization and Globalization in higher education exist in smaller and less pronounced forms since HEIs have all along had the concept of global dimension, the universality of knowledge, and the pursuit of knowledge through the cross-border movement of students and faculty. Deca & Fit (2015), for instance, identifies universities as institutions that have always had a global perspective. The modern face of internationalization can therefore be attributed to a long-term evolutionary process that culminated in the variety of mobility options for students and staff, intercultural competence development through the exchange of systems, traditions, and cultures, IRCs, global partnerships between universities and other stakeholders, cross-border knowledge export, digital learning, online collaborations, virtual mobility and AI use in internationalization of curriculum development and dissemination.

Studies show that international students, teaching and non-teaching staff who studied abroad under Erasmus+ reached 725,000 in 2016. The Erasmus program, launched in the EU in 1987, was the first successful student mobility support program to facilitate the cross-border movement of students within Europe to access higher education studies for a given period and the program became a fundamental pillar for regional student mobility by the early 2000s.

2.7.2 Nationalization Perspective

Nationalism in Europe was characterized by some of the darkest periods, which culminated in the Second World War. The end of the Second World War brought Europe together into peaceful co-existence and collaboration in many sectors. In the 18th and 19th centuries, universities in Europe were oriented towards achieving their purely nationalistic goals and functions. European countries have developed a collaborative culture that has been responsible for responding to global issues from a joint approach. Globalization, for instance, has been a uniting factor for the EU through joint socio-economic, environmental, and political conscious responses.

The European Universities Alliance brings together more than 2200 partner institutions spanning 43 countries. The prominent feature of the alliance is the geographical balance and inclusivity. According to the report on the outcome and transformational potential of the alliance, respect for member institutions' diversity upholds internationalization practices.

European higher education policy has high standards governing teaching, research, and development in institutions of higher learning. The key performance indicator considered is the level of internationalization in terms of the number of foreign teaching staff in comparison to local lecturers, the total number of visiting researchers, and the number and percentage of foreign students as compared to locals. The European system also appraises the percentage of

students on exchange programs outside Europe and those coming to study in European universities.

2.7.3 Massification Trends

The term “massification in higher education” according to Trow (2007) is the rapid and large-scale development of higher education systems from the earlier elite model which served a smaller population to the one that opened the higher education system to the larger diverse population. Scholarly literature portrays an upward surge in global enrolment of international students. The trends from the UNESCO database indicate Asia leading in massification, followed by Europe, and North America. South America and Africa follow as Oceania shows a significantly low trend. The first and most important mega-trend is the fact that all over the world, participation in higher education is going through the roof. Before the rise of Asia as the modern massification hub for international students, Europe was the preferred destination. The upward trend in Asia’s growth in internationalization and Globalization is directly related to their blooming economy, especially since the year 2000.

Statistics indicate that the student population in Asia has climbed to more than triple its normal percentage. The hyper growth by more than 180% was a significant global spectacle considering the earlier association of internationalization and Globalization with the English Language as witnessed in the European and American cases. The surge in massification was also witnessed in Latin America by a margin of more than 120% and in Africa, which had an index of 114%. Contrastingly, Europe witnesses a slow and occasional drop in enrolment of international students, with Russia displaying the least growth at 20%.

The rise in internationalization in higher education has been partly contributed to by the commodification of education services, with the pioneer champions of internationalization climbing up the prestige ladder. This has brought about classes among HEIs. This, according

to Usher (2017), has brought about a situation where the class of higher education institution where one attends signifies some positional advantage that comes with class and prestige of the host institution. Studies show that as vacancies for international students in the 'normal universities' increase and the international student body grows, the prestigious institutions have kept the vacancies for international students relatively constant. This can be seen in China's exponential growth in the total student body in the less prestigious universities (approximately 600 million students per year), compared to approximately 50,000 per year enrolled in prestigious universities.

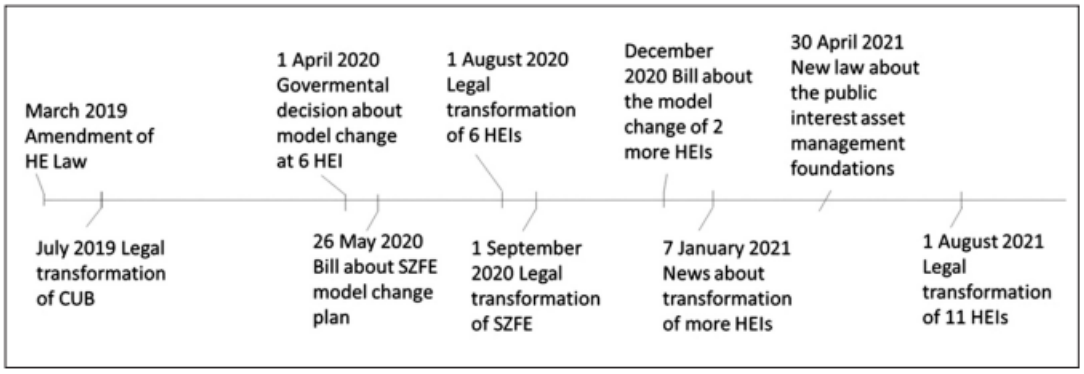
2.7.4 Hungarian Context

Hungarian higher education history stretches back 600 years ago when the first Hungarian university was established in Pécs in the year 1367. The higher education model in Hungary is mixed and exercises autonomy, state or non-state, with a common objective of delivering world-class research and development and delivering education domestically and across borders, through a range of internationalization programs. Internationalization in Hungarian higher education systems is rooted in the globalization programs across Europe.

According to Temesi & Kováts (2012), the Hungarian Higher education sector consists of 18 state universities, 7 non-state universities, 12 state-sponsored colleges and 34 non-state colleges. In Hungary, the Hungarian Academy of Sciences has been at the forefront in the development of intense and well-coordinated research and development programs in higher education to promote competitiveness, excellence in research and make Hungarian HEIs a hub of internationalization and globalization. According to the presidium of the Hungarian Academy of Sciences (MTA,2021) resolution number 10/2021(II.23), the European tradition upholds scientific freedom and the independence of institutions of higher education. Accordingly, the Hungarian Academy of Sciences discovered a lapse between

existing education infrastructure and the massification of higher education, which could handle the high influx of international students. Moreover, there were insufficient funds and appropriate programs to cater for internationalization and globalization needs. From their findings, it was recommended that the existing higher education infrastructure be reviewed, and a vision be established to guide implementation. According to Keszei (2021), Internationalization in Hungarian institutions of higher learning should invest in diversity and cross-border mobility should be emphasized in the path towards internationalization and Globalization in Hungarian institutions of higher learning.

Figure 11.Hungarian Higher Education Reforms between 2019 and 2021



Major transformations in Hungarian HE sectors from 2019 to 2021.Source: Géring et al., (2024).

Figure 11 shows Major changes in Hungarian Higher education between 2019 and 2021.According to Géring et al., (2024), there are 62 reasons identified in the media Corpus published between 2019 and 2021 in support of the model change in the Hungarian higher education sphere. The arguments are shown in the following table.

Table 6.Reasons for Hungarian Higher Education Model Reforms

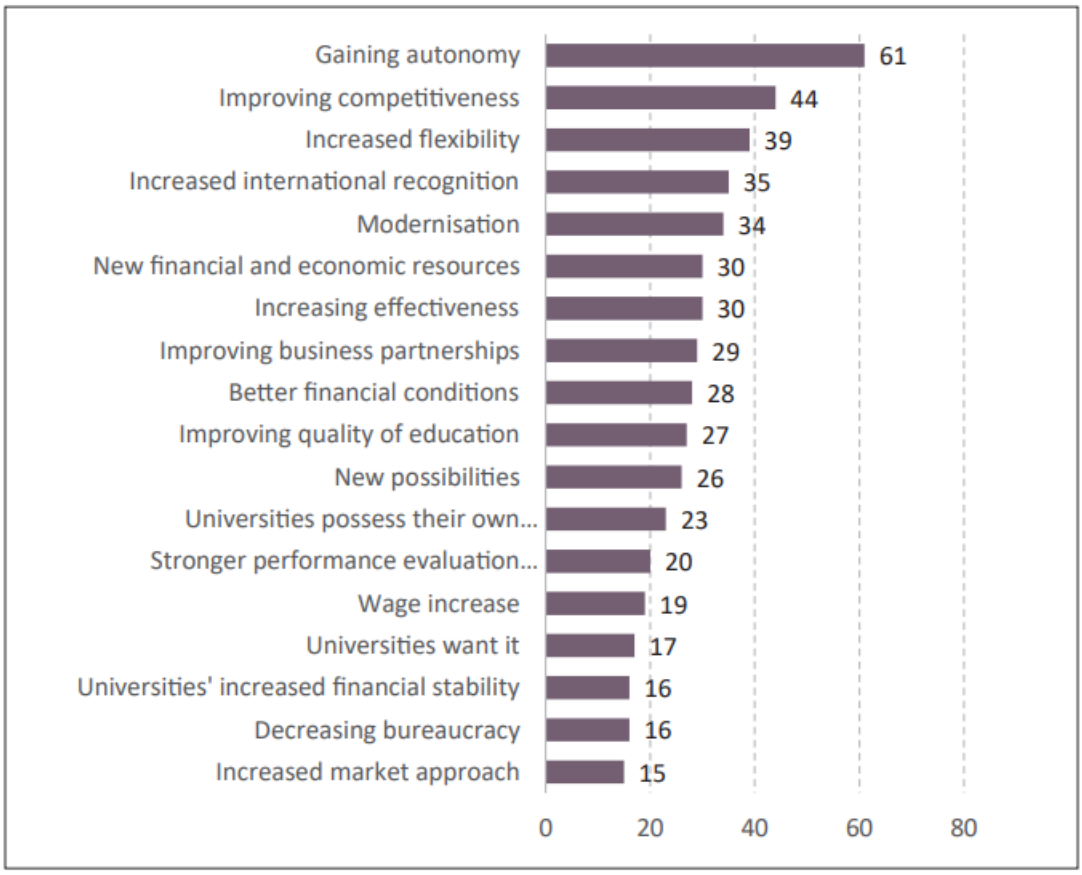


Table 6 show the ranking of reasons that prompted Hungarian Higher Education Model Reforms. Source: Géring et al., (2024).

The reforms involved transformation of public HEIs into Public Interest Asset Management Foundations. The process started with a single pilot institution - the Corvinus University of Budapest, whose status was changed into a foundation university. This was shortly followed by the transformation of the other 20 public universities.

Kovács & Kasza (2018) attribute internationalization in higher education in Hungary to the Bologna declaration, which charted a new strategic path for European Countries to increase internationalization through mobility programs to ensure that by 2020, at least 20% of graduates will be products of SAPs. There has been a rising trend of internationalization activities in Hungary since the year 2000. This significant growth was contributed by the structural reforms in the governance, organization, and operations of HEIs. The growth is also

due to significant support locally and internationally that targeted the internationalization of higher education. The Stipendium Hungaricum Scholarship program, established by the Hungarian Government, was a significant milestone in boosting Diploma and Credit mobility of international students, which has so far brought students from Asian and African countries (Kováts et al.,2018).

Kovacs & Tweneboah (2020) attribute the recent strides towards Globalization, aiming Hungarian institutions of higher education at European integration and the Bologna process, which greatly opened doors to internationalization of higher education. Coupled with the entry of Hungary to the EU, Hungarian institutions of higher learning found access to national and EU funding developed for international cooperation.

A major milestone in internationalization was further initiated through the creation of the SH Scholarship program in 2013. Between the years 2012 and 2015, Campus Hungary and Campus Mundi were established with joint financing from the EU and the government of Hungary to fast-track internationalization goals for both inbound and outbound student mobility (Kovacs & Kanza, 2018). Perna, (2016) recommends further research to understand the effectiveness of specific strategies that are geared towards internationalization.

Table 7.Preliminary Statistical Data of Hungarian Tertiary Education

Level of training	Students in full-time and part-time education	Of which:		Students in full-time education	Of which:	
		foreign students	women		foreign students	women
Tertiary level vocational training	8 310	98	4 604	4 704	76	2 519
BA/BSc training[a)]	205 584	23 309	109 388	145 007	22 109	72 172
MA/MSc training	41 201	6 898	22 702	21 407	6 384	11 168
Undivided training	46 102	11 789	27 565	40 170	11 674	23 890
Postgraduate specialisation	16 348	583	11 074	186	83	93
PhD, DLA training	11 017	3 078	5 509	9 966	2 962	5 012
Total	**328 562**	**45 755**	**180 842**	**221 440**	**43 288**	**114 854**

Source: Hungarian Central Statistical Office (2025)

Preliminary data from the Hungarian Central Statistical Office in Table 7 show that 98 out of 8310(1.18%) of Tertiary and vocational level students were in full-time and part-time studies and were international students. For the bachelor's programs, 23309 (11.34%) students out of 205584 who were at the same level were international students, while those pursuing the master's programs were 16.74% (6898 of 41201). Foreign students in the Undivided program account for 25.60% (11789 out of 46102), compared to international students doing post-graduate specialization, 3.57% (583 out of 16348). The figure further shows that 27.94% are in their doctoral level of studies. In the full-time study mode, 1.62% (76 out of 4707) were foreign students. Other statistics of foreign students in this category were bachelor's students 15.25%, master's students (29.82%), Undivided training (29.06%), post-graduates Specialists (44.62%), and PhD students (29.72%). Cumulative data indicate that international students

doing mixed Part-time and Full-time studies are 45755 accounting for 13.93% of all students (328562), while those in full-time studies are 43288 accounting for 13.17% of total students.

In an Earlier study carried out by TPF in 2018, findings indicate that the inward mobility of international students seeking doctoral studies was much less compared to master's students. Findings from the report show that the population of international doctoral students almost doubled from the year 2006 to 2016, with a significant record drop in the number of Hungarian students enrolled for doctoral studies.

2.7.5 Hungarian HEIs

According to Lannert & Derényi (2021), Internationalization in Hungary is balanced from the perspective of inward and outward mobility, and the percentage of foreign students is higher than the OECD average. This view supports the earlier finding by OECD (2017) that discovered a balanced ratio of inward and outward mobility. It was further found that doctoral-level students have a lower mobility rate than those studying at the lower levels, a trend which deviates from the global trend.

According to Kovacs & Tweneboah (2020), TPF, which has been coordinating the Study in Hungary initiative since 2013, invested in building robust diplomatic ties with foreign missions, which have facilitated cross-border sharing of knowledge. In addition, this public foundation has been championing internationalization and globalization in HE through international education expos, workshops, and international and regional diplomacy forums. TPF is also working with embassies, consulates, and national diplomats to push the Hungarian HE internationalization agenda.

Lannert & Derényi (2021) estimate a significant drop in the total student population in Hungarian universities by 140,000, contrasted with a growth of international students by

10,000 in the last 10 years, which caused an imbalance and a huge gap that foreign students could not fill.

2.7.6 Globalization in Hungarian Education Institutions

There is little Research focusing on Globalization in Hungarian HIEs as an outcome of the implementation of internationalization strategies. This is attributed to the significant focus and orientation toward Internationalization in higher education. A notable study by Mihaly (2019) found that in modern times, HEIs are engaging in a fierce competition, just like companies, as they chase higher economic returns. To effectively compete in the current education market, HEIs are maximizing the resources at their disposal to generate higher revenues as they deliver quality market-oriented knowledge to meet the knowledge market demands.

According to KOF Swiss Economic Institute (2025), the overall globalization index for Hungary in the year 2024 was 83.175, with a position of 18 globally. Hungarian Economic globalization stood at 82.371, placing the country in position 18, while social globalization and political globalization were 77.86(position 49) and 89.295 (position 26) respectively. These statistics reflect the effort that the Hungarian government is investing in placing the country in the global visibility profile.

To enhance global visibility of European HEIs, the Bologna process emphasized cross-border student mobility, promoted standardization and comparability of academic programs and qualifications, established and promoted quality assurance, and emphasized improvement of higher education infrastructure to enhance global attractiveness. The process also sought to improve the global employability of graduates of European universities in the world job market (European Commission,2022). The Bologna system introduced the European Credit Transfer System (ECTS), which makes it possible for graduates from European universities to be recognised and accepted universally within the region.The Hungarian Higher education

grading system is compatible and seamlessly transferable between the Hungarian Academic institutions and the European Credit Transfer System (TPF, 2023).

Takacs-Gyorgy & Villanyi, (2009) strongly believe that mastery of a foreign language improves global visibility in the job market among university students. According to Zoltán (2021), the significantly high enrolment of international students in Universities such as the University of Debrecen, Semmelweis, and the Budapest University of Technology and Economics is attributed to the English Language Programs. In addition, the dominant international language for research and publications in Hungary is English, according to the Hungarian Academy of Sciences (MTA,2021). According to Bartha et al. (2019), students and faculty members identify English as their primary and preferred language for communication. This has enabled Hungarian students to participate in academic programs internationally. Hungarian University staff have also secured opportunities for IRCs and teaching in international HEIs, such as at the Central European University.

Globalization in Hungarian HEIs can be largely attributed to the political and economic reforms of the early 1990's which sought to streamline the education sector towards the free market economy. According to Halász (2003), education modernization in Hungary was further strengthened by the return of the conservatives to power in the 1990s, who continued the higher education modernization reforms initiated earlier by the liberals. The modernization of the Hungarian higher education sector involved the granting of institutional autonomy and academic freedom to HEIs following the establishment of the 1993 Act LXXX of 1993. Furthermore, the globalization of HEI through the provision of equal opportunities, integration of public and private institutions, and guided the vocational training (Understanding Hungarian Higher Education - Hungarian Diaspora Scholarship, 2025).

According to Vincze & Bács (2020), international students are a source of much-needed revenue to the host institutions. This comes in the form of tuition fees, which are significantly higher for programs offered in foreign languages. Compared to lessons taught in the local language, instructors earn much higher pay for classes held in foreign languages. Economic boost for cities and towns located within the precincts of the universities hosting international students has been witnessed. The cities of Debrecen and Pécs, for example, have benefited significantly from the presence of international students through their spending on consumer goods and local services. The presence of international students in Hungary has filled the labour force gap that has been persistent due to the aging Hungarian population, the diminishing population, and the gap left by the youth seeking jobs outside Hungary.

2.8 The Perceived Globalization Risks in Hungarian HEIs

While defining the two terms Van Vught et al. (2002) approached the topic from both the practice and perceptions paradigm. For example, they associated internationalization in higher education with adherence to the critical values of quality and excellence, which govern internationalization strategies, and associated globalization with the control of education as a tradable commodity by the competitive market forces. According to Brandenburg & De Wit (2011), this portrayal of education as a tradable commodity often paints internationalization as good and globalization as bad.

Stemming from this act of commercialization and commodification of education are effects related to access and the quality of education offered. According to Marginson (2013), globalization in higher education has led to the proliferation of for-profit education institutions whose goal is the maximization of profits, a scenario that has compromised the affordability and access to education. Societies in low-income countries have become casualties of this market-driven approach to education provision, a situation which continues to widen the

inequality gap (Patrinos & Barrera-Osorio, 2009), leaving students from poor countries with no alternative education options.

Listening to the voices of anti-globalization campaigners, the major detrimental effect of globalization in Higher education is felt by small nations and linguistic groups, a serious concern that Van Vught et al. (2002) claim will worsen the already existing gap of inequalities among HEIs globally. This view is supported by Altbach (2001), who noted that poorer nations lack the competitive energy to compete with dominant industrialized countries, a situation which diminishes their chances of remaining autonomous. Studies have shown that poor or developing countries are struggling to survive the onslaught of uninvited higher education providers in their countries. An example is South Africa and Israel (McBurnie & Ziguras, 2001) in their effort to address uninvited globalization in their higher education sector through regulation, policy development, and implementation.

The brain drain is another negative aspect of globalization in higher education. This concern is common in developing nations due to the migration of skilled workers to developed countries for greener pastures. This migration happens especially when highly skilled workers are highly conscious about their professional development and career advancement (Larson et al., 2016). According to Docquier & Rapoport (2012), benefits such as better career options and competitive remuneration, and other packages offered by developed countries are irresistible to skilled professionals from poor countries. As they migrate to the developed nations, education professionals such as skilled teachers leave a human-resource gap in their home-country education institutions, leading to a quality-compromised and incapacitated education system characterized by impaired service delivery (Freeman,2006).

Further illustration of the deterioration of the quality of education can be observed from the radical cost-cutting measures that institutions take to primarily attain their profit goals. A study

by Roberts (2016) describes a series of cost-cutting measures that for-profit institutions take to safeguard their profit targets. These include embracing larger class sizes with fewer staff, reduced teacher salaries, and reduced investments in educational resources. In a study done by Mashau & Makhunga (2018), cost-cutting measures negatively affect staff morale, service quality, and significantly contribute to job dissatisfaction. From the study, workloads and stress levels, and frustration rise among staff members when their institutions implement cost-cutting measures.

Research by Mitchell et al. (2017) indicates that the increasing burden of paying tuition is harmful to students and their families, especially those from low-income countries.In addition, Hossler et al. (2018) reveals that the hiking cost of higher education due to for-profit motives is piling student debts, limiting them from accessing education services. This negative side of market-oriented education may slow or reverse the gains of globalization that HEIs have achieved so far.

According to Apple (2017), the tendency to lean towards the market-driven approach by HEIs is unfairly biased towards favouring rich families which happens when HEIs prioritize profits and competition at the expense of equitable access to education for all students.

The gains of internationalization and globalization in higher education often reflected in global minded citizens who exhibit high levels of multicultural tolerance, the spirit of peaceful co-existence and intercultural competence are facing the highest threat of being eroded. A study by Reardon et al. (2020), for example demonstrates the role of market-oriented in reinforcing racial and socio-economic segregation by facilitating classification of the society according to their socio-economic powers. In the Sub-Saharan Africa, Wainaina & Kamau (2018) discovered that globalization has led to the neglect of indigenous knowledge, culture and promotion of foreign mindset which has no link with the local community needs. Similarly,

research by Smith (2021) reveals erosion of local cultural heritage and endangered indigenous languages in Canada. Research by Torres (2016) reveals a widening gap between private and public schools because of market reforms.In the Context of Europe, globalization in higher education is more inclined towards cooperation than competition as observed by Van Vught et al., (2002) who describes the nature of European globalization as political and value-based, characterized by free access to higher education.

Despite the huge benefits that Globalization in Hungarian Universities is reaping from globalization, Saha (2023) is alarmed by the rising challenge of brain drain, where more developed countries continue to poach highly skilled graduates and workers. According to Dóra Busi (2024) in *Daily News Hungary*, highly skilled Hungarian human capital is looking for jobs in other developed countries despite the availability of 70,000 opportunities in the Hungarian job market. The factors identified as the motivators include economic recession, rising inflation, widening gap between the social classes, corruption, poor remuneration, and the deteriorating conditions of the health and social systems. This happens in contrast with better opportunities in the host nations, which offer better working environments, enhanced work-life balance, career development opportunities, better leisure opportunities, and professional recognition and rewards. According to (Penzcentrum.hu, 2024), approximately 100,000 foreigners work in Hungary, with more than 70,000 jobs lacking employees. Germany, Austria, and England continue to be popular destinations for Hungarians seeking better opportunities abroad. There is also many Hungarians working in the United States, Canada, Australia, the Netherlands, Sweden, Ireland, and Switzerland, a significant indicator of brain drain in Hungary.

2.9 COVID-19 and Globalization in Higher Education

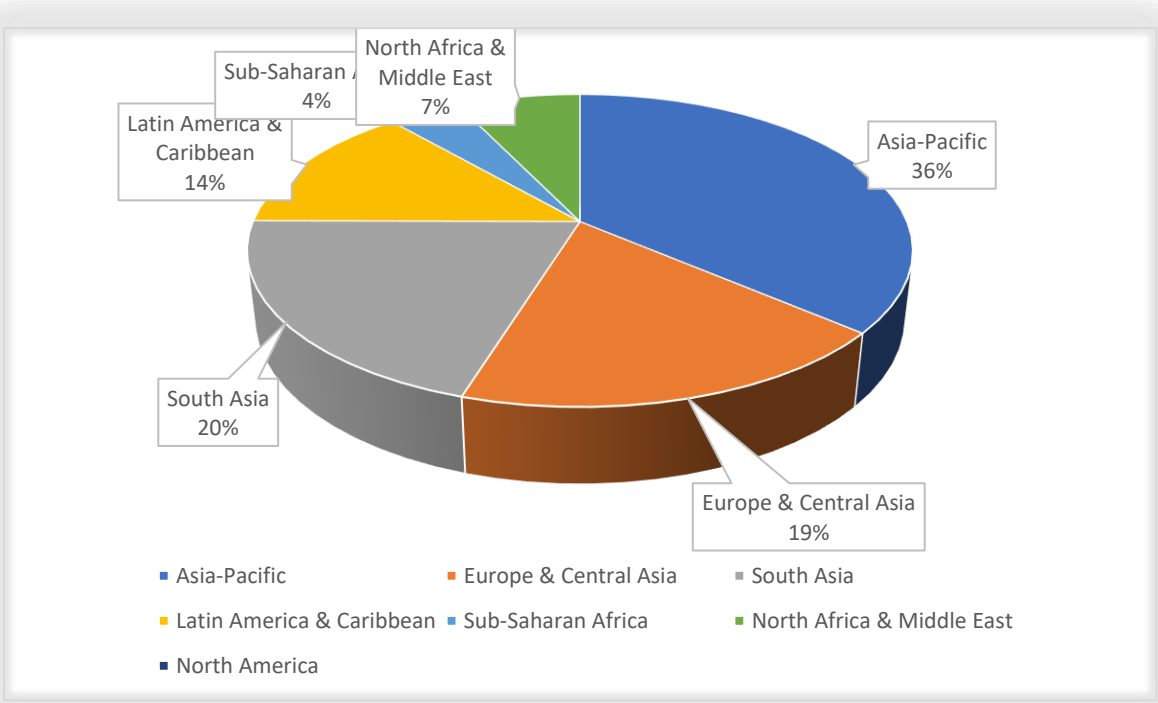
COVID-19 is a global pandemic caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-COV-2). Transmission of the virus from person to person is mainly through droplets generated from an infected person's body fluids. These droplets are sneezed, coughed, and exhaled into the surrounding environment. According to Wang et al. (2020), (SARS-CoV-2) is the seventh strain of human coronavirus which originated in Wuhan, Hebei province in China, after the recent epidemic of pneumonia in January 2020. The virus eventually spread rapidly to all parts of the world, affecting education services globally.

Studies on the extent of damage caused by COVID-19in HEIs indicate a massive disruption of teaching and learning globally. UNESCO statistics (2020) suggest a shutdown of HEIs in 185 nations globally as of the first quarter of 2020. Further statistical records show that the Pandemic directly affected the academic lives of 1.5 billion learners globally (Marinoni & De Wit, 2020). Findings from the WB indicate a whopping 220 million learners whose studies came to a sudden halt, a phenomenon never witnessed before.

The sudden breakout of the COVID-19 pandemic rendered institutions of higher learning helpless as they lacked financial, psychological, and even physical readiness to handle the emergencies caused by the pandemic (Mok & Montgomery, 2021). The high dropout rate of students was witnessed due to the closure of institutions of learning. According to Wang & Sun, (2022), courses that required students to be present to conduct experiments were halted. This impacted negatively on life sciences such as medical courses, chemistry, and performing arts because institutions offering the courses had no alternative mode of course delivery (Marinoni et al.,2020).

The figure below indicates data on the regions and their corresponding number of students impacted by COVID-19.

Figure 12.Global HE Dropout Rates Due to COVID-19



Global Higher Education Dropout rate due to COVID-19. Source: Wang &Sun ,2022.

Figure 12 shows the dropout percentage due to COVID-19 according to regions Hungary's strategic response to the pandemic was implemented in early March 2020.

According to Snowden, (2019), previous studies identify pandemics as key agents of change and development among societies in the world. Thus, the sudden entry of the COVID-19 pandemic brought unprecedented disruptions to education service delivery across the globe. Ahlstrom et al. (2020) acknowledge a new normal characterized by changes witnessed after the 2008 global recession, which led to a turbulent socio-political, demographic, and technological crisis, resulting in an environment with new challenges and opportunities.

2.10Research Gaps

The existing research attempted to show the existing knowledge on internationalization and globalization in higher education; however, the literature review exposed significant research gaps, which this study seeks to address. In the study by Soliman et al. (2019), for instance, the

study focused on whether internationalization strategies implemented in case study universities were emergent or deliberate. Although the study discovered that internationalization strategies were deliberate, it did not examine any relationship between internationalization strategies and globalization. The study also used case studies compared to the current study, which uses an empirical survey. Their study also left a theoretical gap, which globalization theories in the current study use. Other scholars who investigated internationalization in higher education through case studies are Choudaha & Chang (2012), O'Dowd (2023), Barbosa et al. (2020), and Leask (2018), who used extensive literature reviews and case studies.

Previous studies also used surveys to discuss internationalization strategies and globalization in higher education. Hofmeyr (2021), for example, explored initiatives driving internationalization at home using online surveys. The study concluded that internationalization at home remains low despite efforts by universities to nurture it. This study, however, did not investigate the influence of internationalization at home on Globalization. Lomer & Anthony-Okeke (2022) used a combination of student surveys and document analysis to examine intercultural competence development. The study left a gap for an empirical study, which this research fills.

In their study on internationalization in higher education, Zolfaghari et al. (2009), the researchers used a literature review to identify internationalization strategies; however, there was neither a conceptual framework linking these strategies to globalization in higher education. Their study was also limited to the meanings, definitions, importance, and prerequisites of Internationalization in HEIs. Similarly, Cantu (2013) reviewed existing literature to identify effective internationalization strategies in American Universities. This study not only motivates a new study in a different context but also ignites the need for the use of a different methodology, conceptual framework, and time frame. While Qiang (2003) provided a conceptual framework after examining the previous literature, the framework was

not tested and does not show the relationship between the internationalization strategies and globalization in higher education. The current study discovered that most scholars used literature reviews to explore the topic of internationalization strategies and globalization in higher education. Other scholars who used this method include Soulé et al. (2024), Joris et al. (2000), Leask (2018), Altbach & Knight (2007), De Wit & Deca (2020), and De Wit (2019), whose discussions mainly focused on clarifying the definitions and concept of internationalization in HEIs.

Bas et al. (2017) developed and proposed the use of a composite indicator to measure internationalization in higher education. Although this provided a good framework to guide future studies, the aspect of globalization in HEIs was not factored in, and the relationship between the strategies and globalization in HEIs is not captured.

On SAPs, Choudaha & Chang (2012) investigated the trends and issues in the recruitment of international students by HEIs. Although the study identified Second Language competence as an important factor, and the use of social media, recruitment agents, and state marketing as important factors in international recruitment of students, the study focused on the US context and used a case study method. Despite the use of surveys by Deca & Fit, (2015), Kłopotowska, (2023), Daly & Barker (2005) and Jager et al., (2019) to investigate the SAPs from the internationalization context, all of them focused on non-variable -SAPs, leaving a room for the current study. The studies also did not conceptualize their investigations from the perspective of globalization in higher education. Waterval et al. (2015), Kim (2009), and Mittelmeier et al. (2025) examined SAPs from a literature review methodology, leaving a gap for an empirical study. Their literature reviews also did not dwell on the relationship between the variable and globalization in higher education. A qualitative study done by Marciniak & Winnicki (2019) through Computer-Assisted interviews revealed that male gender considered studying abroad for fun and to have a great time, while women were driven by the desire for language

competence development. This study, however, did not examine the contribution of SAPs to globalization in higher education. While Deca & Fit (2015) studied the role of trends and issues in SAPs, the study did not focus on the contribution of SAPs to globalization in HEIs and used a different paradigm from the current study.

IPs have been a key topic for scholars. In a book chapter, Eddy (2010) described the forms, benefits, and factors that lead to such partnerships. This discussion, however, focused on partnerships without showing any relationship with globalization in higher education. Gutierrez et al. (2024) also analysed the types of IPs using a systematic literature review, while Rybnicek & Königsgruber (2019) identified factors that determine the success of IPs using a systematic literature review. This analysis, however, was not correlated with globalization in higher education, thus creating a research gap. The study by Atta-Owusu et al. (2021) discovered that the quality and intensity of research output at the university level are negatively correlated with the firms' participation in partnerships with the universities. This study did not interrogate the relationship between these partnerships and globalization. A literature review by Amey (2010) recommended that IPs should be integrated into the systems, activities, and core functions of HEIs at the department level. The study only focused on IPs, leaving a gap for search on other strategies, and an investigation on their contribution to Globalization in Higher education. Russel & Flynn (2000) surveyed to decipher the factors that drive IPs.Although their study identified Willingness to learn, mutual respect, commitment over a long period, flexibility, communication, and careful selection of partners, the study limited the survey to a sample of 11 articles and open-ended interviews. Reed (2018) used literature review and symposium presentations to discuss the aspects of internationalization and globalization in HEIs, an indicator that a strong empirical study must be done to examine the strategies identified.

On AI, Rasul et al. (2023), MacNeil et al. (2022), and Rudolph et al. (2023) used systematic analysis to investigate its adoption and use in HEIs. All these studies focused on AI and its impact on higher education. There is a need, therefore, for a study on a multi-strategy contribution to globalization in HEIs. While using experimentation and field observation to study generative AI in higher education, Abdelghani et al. (2024) concluded that Large Language Models promote efficiency and development of interrogative skills among learners. The study, however, was limited to Large Language Models and GPT-3 driven systems in training curiosity in Children.

There is a popular assumption among scholars which links the development of internationalization and Globalization in higher education to modern innovations in ICT (Thune & Welle-Strand 2005). Internationalization of higher education is further associated with key advancements in ICT use across the world, to eliminate space and time boundaries, thus enabling internationalization to thrive in real-time. The use of ICT, therefore, has a direct link to higher education, Globalization, and the emergence of the global economy.

The literature review also reveals a research gap in the contribution of AI to globalization in higher education. The use of AI as a variable has been intentionally conceptualized to avoid the blanket term "AI", which many scholars often prefer to use as an umbrella term to refer to all the technologies related to communication. AI stands out in every sector because of its social and cognitive capabilities to facilitate interaction between humans and machines, and its ability to automate the performance of tasks (Abbass, 2021).

There are fragmented studies, such as those investigating the contribution of AI to HEIs, for example, Zouhaier (2023), whose findings suggested that AI significantly and positively affects learning experiences by equipping students with new knowledge and skills, and that it has the potential to transform HEIs. According to Abbasi et al. (2025), frequent use of AI, the

level of AI knowledge among faculty members, coupled with stakeholders' support, enhances curriculum development. This success, however, faces implementation challenges related to its adaptability to different cultural and knowledge contexts in the global education sector.

A study by Ocen et al. (2025) further discovered that AI promotes research capabilities of HEIs and can streamline the performance of administrative duties through automation. This suggests that AI has the potential to help institutions attain globalization through automation. Although AI is being blamed for a proliferation of a small group of “super-star” institutions that monopolize the global economy (Korinek & Stiglitz,2021), globalization of higher education, which embraces maximization of revenue and profits, can potentially benefit from this technology, hence positioning higher education on the on the winners’ side of globalization.

Other scholars, such as Akkaya et al. (2023), Sabbah (2024), Patnaik (2024), Karakaş & Meri-Yilan (2024), Nautiyal et al. (2023), Raisch & Krakowski (2021), Peng & Spector (2019), and Farrokhnia et al. (2024), similarly used literature reviews to explore the role of AI in globalization in higher education. Sok & Heng (2023) used a literature review to discuss the advantages and risks of AI in education. Similarly, Dwivedi et al. (2023), Lund & Wang (2023, Rahman et al. (2023), Okonkwo & Ade-Ibijola (2021), and Wächter (2000) carried out literature analysis on AI and Internationalization in higher education. It is evident from the vast literature reviews that scholars are yet to test the outcome of these reviews empirically. The current study takes this approach and brings internationalization strategies to an empirical investigation of their true nature in the context of globalization in HIEs.

Lee & Stensaker (2021), acknowledge the little value that existing scholarly publications on redefinitions and reclassification of internationalization and globalization have added to the pool of knowledge and recommend more in-depth studies to decipher the empirical status of the internationalization and globalization situation in HEIs.

The theories underpinning this study majorly explains what is happening regarding internationalization and globalization in HEIs. This study identified a theoretical gap: the need for a hybrid model that can not only explain the *what*, but also *why, when and how* globalization is taking place among higher education institutions globally.

2.11HYPOTHESES DEVELOPMENT

2.11.1 $H_0$1: Study Abroad Programs do not contribute to Globalization in Hungarian HEIs after the COVID-19 pandemic period.

According to Walker et al. (2011), North Carolina State University entered into study abroad program agreements with some of the highly ranked Chinese universities to strengthen its globalization mission. In the international context, study abroad programs are associated with globalization of societies, liberalisation of economies and development of global labour markets (Qiang, 2003). Daly & Barker (2005) and Anderson et al. (2006) concluded that SAPs improve intercultural tolerance, understanding, and enhance self-awareness among international students, while Nyamsuren et al. (2024) found that SAPs facilitated the development of foreign language skills, multicultural competence, and enhanced future career success among international students. Other scholars, such as Arevalo et al. (2008), Bryła (2015), and Aydin (2012), linked SAPs to higher chances of employability domestically or globally among international students, while Whatley et al. (2021) posited that SAPs led to the development of a globalised world perspective. Zemach-Bersin, (2008), however argues that study abroad programs may not result in the attainment of a global worldview, but an experience of reflecting on existing complex socio-economic inequalities in the world.

2.11.2 H_2: International Research Collaborations contribute positively and significantly to Globalization at selected universities after the COVID-19 pandemic.

International Research Collaborations are linked to greater global scientific productivity and impact (Hu et al. 2014; Aman,2016; Mayrose & Freilich, 2015; Larivière et al.,2015; Hall,2017; Guan et al.,2017). According to Freshwater et al. (2006), IRCs empower researchers with a global worldview. According to Gui et al. (2019), International Research partnerships are agents of economic globalisation facilitated by co-authorships, patenting, citation networks,

academic conferences, and research and development networks. Gök & Karaulova (2024) explains that IRCs networks promote exchange of knowledge, technology and movement of resources which result in globalization among HEIs.

2.11.3 $H_0$3: International Partnerships do not play any role in Globalisation in Hungarian HEIs after the COVID-19 pandemic.

According to Wubah (2024), international partnerships facilitate the diversification of campus communities, resulting in globalisation. Although Atta-Owusu et al. (2021) consider globalisation as full of benefits to participating institutions, other scholars such as Leng (2015) and Mwangi (2017) found no mutuality between international partnerships and globalization in higher education but rather linked globalisation to socio-economic inequalities and poor resource sharing. According to Unterhalter & Carpentier (2010) and Marginson (2022) IPs are often the major reinforcers of global inequalities because they are engulfed in the Western agenda. Leng (2015) in a study on IPs between Cambodian HEIs and those in the USA, Japan, South Korea, and France similarly discovered a low mutuality between Cambodian universities and their South Korean partners.

2.11.4 H_4: There is a positive and significant contribution of Artificial Intelligence to Globalisation in Hungarian HEIs after the COVID-19 pandemic.

According to Akkaya et al. (2023), the digital revolution in higher education has enhanced global interconnectivity. Karakaş & Meri-Yilan (2024) posit that hyper-digitization and virtual technology enhance the development of intercultural competence in the globalised world while acting as a vehicle towards global interdependence, where it links nations by upscaling hyperconnectivity. Digital innovations are empowering education stakeholders to uplift the marginalized world, promoting inclusivity and enabling them to participate in the global economy. According to Blair & Shabut (2024), virtual technologies facilitate globalization of the knowledge economy across international borders. Sabbah (2024) links AI with the new wave of globalization, while Samarji & Sengupta (2023) link digital technologies to enhanced intercultural competence and skills development among international students because of participation in global virtual intercultural immersion meetings.

Despite the ravaging effects of COVID-19, globalization in higher education was evident thanks to technological advancement, which facilitated international collaborations in areas such as research and publication production. According to Sweileh (2017), the rate of country-

to-country collaborations in research ranged between 21% (Turkey) and 86.9%(Switzerland), with a significant relationship between the rate of collaboration and citation per paper. Chinchilla-Rodríguez et.al. (2019) discovered a positive correlation between research collaboration and citation levels. Scholars such as Subedi et al. (2020) discovered that collaborative technologies experiences challenges during the COVID-19 lockdown. Other researchers such as Basilaia & Kvavadze (2020), and Hollweck, & Doucet (2020) investigated the benefits of collaborative technology in facilitating teaching and learning during emergencies. According to Ioannidis et al. (2021), the COVID-19period is characterized by 'hyper-prolific productivity in the publication of COVID-19-related articles.

Pantelimon et al. (2021), discovered that AI was put into optimal use during the pandemic period as compared to the pre-COVID-19 period, which Chen et al. (2020) discovered was characterized by minimal utilization of the technology. AI tools such as chatbots and text-to-speech applications were put into use in online learning. Yildirim & Bengtsson (2024) discovered that the success of AI use in internationalizing HEIs in higher education rely on levels of strategic collaboration, sufficient resource allocations and utilization, co-creations, and labor division. According to Shaikh et al. (2022), AI use in education is inevitable for the current and future generations. The motivating factor for scholars investigating COVID-19is the variety of available publications and authors (Ioannidis et al. 2021). According to Marginson (2022), modern trends in research collaborations exhibit four tendencies: rapid proliferation of publications, growth in research diversification capacity globally, expansion of co-authorship across borders, and increased research output in quality and quantity from emerging countries such as China.

It was not business as usual in HEIs after COVID-19. The place of technology in modern globalization necessitated rethinking and re-strategization to safeguard learning during disruptive disasters or global pandemics. There were significant delays in the re-opening of HEIs, such as the deliberate postponement of the resumption of learning across all education institutions in the Republic of Korea due to fears of COVID-19 re-emergence (Stewart & Lowenthal, 2022). According to Hodges (2020), a raft of measures to mitigate the disruption of learning due to COVID-19 included Emergency Remote Teaching, which he argues is not the same as 'normal online learning' because of its unrefined nature. This is because they were implemented without prior preparations that characterize the development of the conventional online teaching curriculum.

Bali et al. (2021) appraise COVID-19 as both a curse and a blessing. The transition to virtual students' exchange solved the global learning demand gaps, which brought relief to higher stakeholders. This use of technology, however, strained the human resources, especially teachers who lacked the relevant infrastructure to deliver services online. International Virtual Exchanges (IVEs) are a phenomenon that is here to stay, according to Weaver et al. (2024), who opine that digital internationalization witnessed during the pandemic period has carved itself a permanent niche in the global knowledge economy.

2.11.5 H_5: Funding significantly affects the Globalization of higher education in Hungarian HEIs.

Hazelkorn (2015) explains that higher education institutions are competing to deliver world-class education to students globally. According to Carnoy (2000), funding opportunities determine the success of globalisation in higher education. Souto-Otero et al. (2019) discovered that funding opportunities from Erasmus+ have led to improved global employability among the beneficiaries, promoting globalisation in 9 out of 10 beneficiaries. Mitchell (2012) associates Erasmus opportunities with intercultural competence development among the beneficiaries, while Childress (2009) discovered that limited funding was a major obstacle hindering globalization. Csaszar et al. (2023) and Stamenkovska et al. (2022) argue that funding opportunities offered by the Stipendium Hungaricum program have a significant impact on the macro-environment, promoting globalisation through economic development and the achievement of geopolitical objectives.

2.11.6 H_6 Perceived Risks mediates the relationship between Internationalization Strategies and Globalisation in Hungarian HEIs after the Covid-19 Pandemic.

Scholarly works investigating the mediating role of perceived globalization risks are limited. Hénard et al. (2012), for instance, find no correlation between anti-globalization beliefs and internationalisation strategies implemented by universities. According to De Wit & Altbach (2021), there is no clear link indicating that anti-globalisation sentiments have diminished global student mobility and IPs among HEIs. According to Knight (2013), perceived globalisation consequences have no effect on internationalisation and Globalisation among higher education institutions. Similarly, Van der Wende (2021) and Lee & Stensaker (2021) argue that perceived globalization risks have never discouraged the implementation of internationalization and globalisation in higher education. The following hypotheses were developed to address research questions from the perspective international students.

2.12 Research Hypothesis

i. $H_0$1: Study Abroad Programs do not contribute to Globalization in Hungarian HEIs after the COVID-19 pandemic period.

ii. H_2: International Research Collaborations contribute positively and significantly to Globalization at selected universities after the COVID-19 pandemic.

iii. $H_0$3: International Partnerships do not play any role in Globalization in Hungarian HEIs after the COVID-19 pandemic.

iv. H_4: There is a positive and significant contribution of Artificial Intelligence to Globalization in Hungarian HEIs after the COVID-19 pandemic.

v. H_5: Funding significantly affects the Globalization of higher education in Hungarian HEIs.

vi. H_6 Perceived Risks mediates the relationship between Internationalization Strategies and Globalization in Hungarian HEIs after the COVID-19 Pandemic.

Figure 13. The *Conceptual Framework*

INDEPENEDENT VARIABLES

DEPENDENT VARIABLE

Internationalization Strategies

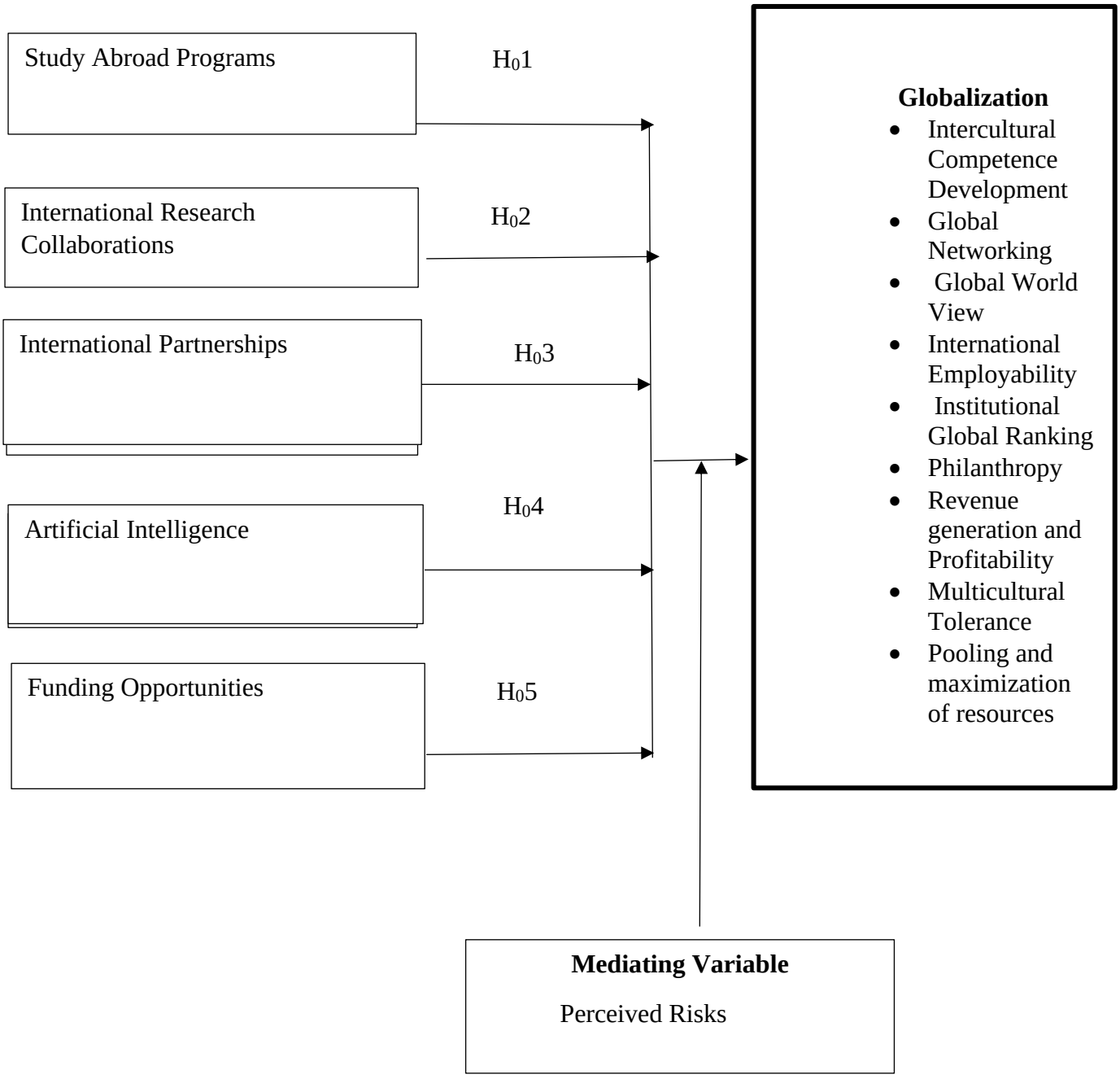


Figure 13 shows the relationship between internationalization Strategies and Globalization.

3 RESEARCH METHODOLOGY

This chapter introduces the research methodology that was used for this quantitative investigation on internationalization Strategies and Globalization in Hungarian HEIs after the COVID-19 pandemic. This approach further provided a deeper examination of the mediating

effect of Perceived Globalization Risks on GHHEIs. Guided by Pragmatist epistemology, this study investigates international students' experiences, ideas, perceptions, and opinions about Globalization in Hungarian HEIs while living and studying in Hungary. This chapter also discusses the quantitative research design used, population and sample, ethical considerations, validity and reliability, and the operationalization of study variables.

3.1 Research Paradigm

Paradigm was founded by three American thinkers, Charles Sanders Peirce (1839-1914), William James (1842-1910), and John Dewey (1859-1952), by combining the naturalistic, Darwinian perspectives about human beings with the hope of rescuing philosophy from the grip of metaphysical utopianism. Pragmatism, as originally conceived, is based on the 'pragmatic Maxim' which seeks to clarify meanings through hypothesis testing in any given situation. According to the Stanford Encyclopaedia of Philosophy, pragmatist epistemology seeks to restore common sense by rejecting flawed philosophical heritage and beliefs that distort the truth (Legg & Hookway, 2008).

This study uses Pragmatism because, according to John Dewey, who believed that knowledge must be experienced and that students' acquisition of knowledge comes from their interaction with the environment (Elgeddawy & Abouraia, 2024). This is facilitated by social interactions and communications where different perspectives, ideas, and experiences are shared. Pragmatism recognizes the value of individuals' opinions while living in each environment (Kaushik & Walsh,2019).

As a research paradigm, pragmatism allows for a variety of perspectives and approaches to solving research puzzles. This flexible window allows for examination of both the objective and subjective opinions of the respondents of a scholarly investigation. According to Foster (2024), Pragmatism allows researchers to position their research problems within their specific

contexts. The choice of pragmatism was informed by this study's research objectives and questions, for example, the lived experiences of the internationalization and globalization of the respondents while living and studying in Hungary. According to Liu (2022), pragmatism is appropriate in situations where researchers are investigating actual lived experiences and perceptions of the research subjects.

3.2 Research Design

The general objective of the study is to investigate the contribution of internationalization strategies to globalization at selected universities in Hungary after the COVID-19 pandemic. This quantitative study used a survey method to collect data from the respondents. This method was chosen because of the intention to test the theory logically and prove the research hypotheses. This method was also used because of the large sample size and because its foundation satisfies the principles of the empiricist and positivist ideologies as recommended by Bryman (2016). Quantitative methods have been recommended by many scholars. For example, Creswell (2002) explains that quantitative research describes the problem statement through the analysis of relationships between variables, answering the research questions, identifying the research challenges, and providing research direction. This method also allows researchers to develop precise, quantifiable, observable statements, research questions, and hypotheses. Furthermore, it provides the opportunity for researchers to collect data from their respondents, and perform statistical analysis to decipher patterns, compare groups, the relationships between variables, and provide an objective interpretation and conclusion (Ghanad,2023). Survey questionnaires were designed, distributed, and collected online using Google Forms.

This study used correlational, descriptive, and Inferential designs. A correlational design was used to check if there were statistically significant relationships between variables and to

confirm the direction of the correlation as advised by Ghanad (2023). A descriptive research design was used in the first part of the survey to describe the population in terms of gender, age, academic level, year of study, home region, institution, status of globalization, and the potential perceived risks of globalization. Inferential analysis was done to describe how the results affect the larger population. This study employed hybrid statistical analyses involving parametric and non-parametric tests The choice of Spearman's correlation was informed by the Test of normality results, which indicated that none of the variables followed a normal distribution (Field, 2018), and the need to achieve robustness against outliers during analysis as recommended by Kwak & Kim (2017).

The argument against the use of Parametric tests on ordinal variables is grounded in the classical theory of measurement scales, fronted by the renowned Psychologist Stanley S.S. Stevens in 1946. His definition and proposal of the different scales, such as nominal, interval, and ratio, have greatly guided statistical analyses, which are performed strictly according to the scale types. His proposal that permissible ordinal scales should be confined to monotonic transformations of the original measurements ruling out the use of parametric tests on ordinal data has been challenged by scholars who have published significant methodological articles.

While Likert scale data are often considered ordinal and thus requiring non-parametric tests, scholars recommend using linear regression for Likert-type scales to achieve robustness in data analysis. Scholars such as Norman (2010) and Norman & Eva (2018) concluded that ordinal data can be subjected to parametric tests such as linear regression to attain robust data analysis outcomes. This is true despite the violation of normal distribution assumptions commonly associated with Likert-scale type data. The use of means has, similarly, been recommended in parametric tests as they have been proven to generate similar results in both simulation and real-world studies (Gambarota & Altoè, 2024). According to Stanley (1996), Carifio & Perla, (2008), and Norman (2010), parametric tests based on interval-level data are robust to

deviations from normality, which is a phenomenon that has motivated scholars to recommend the summation of individual Likert scale items so that a mean can be determined to fix the ordinal nature of the data.

Researchers such as Carifio & Perla (2008) and Gambarota & Altoè, (2024) argue that Likert-type scales of five or more items can be summed or averaged to generate a scale that can work as an interval variable. This position leverages the scholarly observations that concluded that Likert-type scales of 5 or more items do not exhibit heavy skewness in distribution, hence generally acceptable as a continuous variable. Scholars such as Sullivan & Artino (2013) argue that parametric tests are sufficiently robust to produce largely unbiased outcomes, including in situations when statistical assumptions are violated to an extreme level. According to Harpe (2015), parametric tests on Likert-Scale type variables are often preferred because they are more powerful and easier to interpret, provided that the scale consists of at least 5 variables. These scholarly arguments are further supported by Mircioiu & Atkinson (2017), who, after conducting a direct comparison of parametric and non-parametric tests on their Likert data, found that both methods yielded similar results, where parametric tests provided deeper analysis and insights. Using Monte Carlo simulations, de Winter & Dodou (2010) showed that the t-test and the non-parametric Mann-Whitney U test exhibit similar power and yield the same conclusions in most Likert data cases analysed.

Linear regression is credited with handling complex models, which do not obey linearity. Despite theoretical shortcomings, Linear regression is credited for simplicity and interoperability, where the results, such as R-squared, adjusted R-squared, P- values and regression coefficient values, provide a clear, versatile and understandable presentation of research outcomes to the readers (Del Águila & Benítez-Parejo, 2011).The use of linear regression is justified due to the multi-item summative Likert-Scales used as the composite scores were treated as Interval variables.

3.3 Population and Sample

The target population for this study was 700 respondents. This population comprised international students and the alumni of Hungarian universities who were domiciled in Hungary during the post-COVID-19 years. The inclusion of the alumni was done after suggestions from the participants of the pilot study, who complained of being excluded and yet they had valuable experience of the post-covid status of globalization in Hungary.

The inclusion and exclusion criteria were as follows; must be international students or alumni from public Research universities in Hungary, the respondents must be on the list of universities identified by Tempus Public Foundation as meeting internationalization benchmarks, and that at least 20 percent of their student enrollment must comprise international students. Alumni were only included if they were studying in Hungarian HEIs during the covid period and that they were living in Hungary during the post-COVID 19 years. A random sampling technique was used to select the respondents from the target population. To ensure impartial selection and minimize sampling bias, a simple random sampling technique was employed using dynamic array functions in Microsoft Excel 365.First, the complete list of email addresses was arranged in a contiguous column range. To generate a random sample without replacement, the following formula was applied:=TAKE(SORTBY(A2:A*n*, RANDARRAY(ROWS(A2:A*n*))), *k*)This formula executed three sequential operations: (1) RANDARRAY generated a unique random value for each of the *n* rows; (2) SORTBY reordered the email addresses according to these random values, effectively shuffling the entire dataset; and (3) TAKE extracted the first *k* unique email addresses from the randomized list to create the sampling frame. This approach ensured that every email address in the target population had an equal probability of selection and that no duplicate selections occurred. The same procedure was replicated to randomly select contact numbers from respective social media groups, maintaining methodological consistency across all recruitment channels.

The survey questionnaire link, which included a QR code, was then emailed to every email address on the random list. The survey questionnaire was designed, distributed, and collected using Google Forms.

3.4 Instrumentation

The survey tool was adapted from the previous studies, which had tested and validated the Instruments. These include Multicultural Personality Questionnaire (Van der Zee & Van Oudenhoven, 2001; Ward & Kennedy,1999; Daly, 2002), Students exchange programs (Yao,2009; Alin, 2018), International Research Collaboration: Sweet, 2023; Stevens & Campbell,2006; Yao, 2009). IPs: (Yao,2009; Bedenlier & Zawacki-Richter, 2015; Paige, 2005) and use of ICT in the internationalization of higher education (Hajiyeva et al., 2023).

The survey questionnaire consisted of eight sections namely; (A) Demographic details,(B) The Benefits of Internationalization in Higher Education,(C) Contribution of SAPs to globalization in Higher Education,(D) Relationship between International Research Collaboration and Globalization in Higher Education, (E) Contribution of IPs to Globalization in Higher Education, (F) Contribution of AI to Globalization of Higher education (G) Relationship between Internationalization Strategies, Funding Opportunities and Globalization in Higher Education and, (H)Potential Risks of Internationalization and Globalization of Higher Education.

For the descriptive part of the study, demographic details included gender, age, academic level, year of study, home region, and the name of the institution where the participants were pursuing their studies. A provision for the Alumni was provided as the last choice, after a request by the alumni of Hungarian HEIs complained during the pilot study that they were being excluded, despite knowing the topic, and from the fact that they were working and residing in Hungary during this research period.

The descriptive part also included the status of globalization in participants' institutions. This question consisted of a sub-set of eight questions which included;(i) My institution currently has a dedicated office coordinating mobility of international students, faculty and international programs,(ii)My institution currently has access to diversified Sources of Faculty, Students and Revenue,(iii)My institution currently has enhanced multicultural co-existence and Intercultural Understanding,(iv)There is an elevated level of international awareness and deeper engagement with global issues, (v) My institution has a good global ranking in performance compared to other universities within the context of international good practice (vi) There is use of English Language in teaching, research and publications, and (vii) My institution runs overseas campuses. This question was measured using a Likert scale of five points where, To a great extent =5, To a large extent =4, Somewhat =3, Little =2, Not at all=1).

The internationalization variables included SAPs, IRCs, IPs, and AI. Each of the variables was measured on a five-point Likert scale. The SAPs scale included six questions namely;(i) Student Exchange programs promote intercultural competence development, (ii)facilitate international networking, (iii) helps students develop a global worldview, (iv) expand students' employability through resume improvement, (v) provide significant source of revenue to university through tuition and fees payment, (vi) help in contributing to the host country's economic development through off-campus spending and jobs created by their presence. I used a 1 to 5 Likert scale for this variable where, To a great extent =5, To a large extent =4, Somewhat =3, Little =2, Not at all=1).

On IRCs, the scale had seven questions as follows;(i) IRCs produce more innovative, comprehensive, and impactful research outcomes (ii) result in high-quality publications and ground-breaking findings (iii) opens up many research opportunities that are limited within local and national confines, (iv) enhance universities' access to unique datasets, specialized equipment, new knowledge, and distinct environments essential for certain research areas(v)

facilitate pooling of knowledge, expertise and resources to solve global challenges(vi)often lead to joint research grants and funding opportunities that benefit collaborating partners and (vii)boosts universities' image and ranking in the global community. To measure this variable, a Likert scale of 1 to 5 was used, where Strongly Agree=5, Agree=4, Undecided=3, Disagree=2, Strongly Disagree=1).

IPs scale had seven questions namely; (i) IPs allow students and staff to make friends worldwide and gain a global perspective of the world, (ii) IPs enhances institutional prestige position through academic global rankings, (iii) Through IPs, like-minded universities from around the world can find common ground, partner on projects, and work together toward discovery,(iv) By building complementary agreements that lean into the strengths of each institution, there are more opportunities to make an impact across disciplines and fields,(v) Through IPs, universities get a wider pool of industry connections, which can help students secure employment after graduation (vi) The number of international collaborative links is significantly and positively linked to innovation and the number of patents in the host country,(vii) IPs lead to improved research productivity and teaching capabilities of participating institutions. The Likert scale for this variable was 1 to 5, where Strongly Agree=5, Agree=4, Undecided=3, Disagree=2, Strongly Disagree=1)

Contribution of AI as a variable had a set of seven questions namely; (i)AI helps in selection and recruitment of international students and staff, (ii)AI has no role in language learning and cross-cultural communication,(iii) AI provides immersive and intercultural tools such as Chatbots and virtual reality simulations for developing intercultural competence (iv)AI-enabled translators such as DeepL and Google Translate help in multilingual translation and facilitate intercultural communication (v) AI provides virtual exchange platforms and helps in collaborative international learning (vi) AI helps in international networking, professional connections, and job search, e.g., LinkedIn, and (vii) AI tools such as robots help in moderating

multi-lingual debates. For this variable, the Likert scale was from 1 to 5, where Strongly Agree=5, Agree=4, Undecided=3, Disagree=2, Strongly Disagree=1)

This study also examined the relationship between internationalization strategies, Funding opportunities, and Globalization in Higher Hungarian education institutions. Funding was investigated to determine whether it was playing a mediating role. The questions used were: (i) An increase in education funding from external sources increases revenue for my institution. (ii)Availability of funding opportunities for student's exchange programs has no significant effect on the level of globalization in HEIs,(iii) IRCs effectiveness in globalization in higher education is significantly determined by the level of funding, (iv) IPs' contribution to globalization in higher education has no relationship with the availability of funding opportunities and (v) The contribution of AI to globalization in HEIs is significantly affected by the funding level (vi)Accessibility to International education opportunities is determined by available funding options and (vii) Too much focus on the recruitment of fee-paying international students to increase institutional funding poses a danger to globalization in Higher Education.

The last part of the research instrument sought to discover the potential risks of Globalization in Hungarian HEIs are perceived by the respondents. The following questions were used; (i)There is difficulty regulating locally the quality of foreign programs offered (ii)It causes excessive competition among HEIs, (iii) Pursuit of IPs/policies could be only for reasons of prestige, (iv) Internationalization leads to brain drain, (v)Over-reliance and over-use of English as a medium of instruction. The 5-point Likert scale used for this variable was interpreted to be interpreted as: To a great extent =5, To a large extent =4, Somewhat = 3, Little =2, Not at all. This question was meant to extract descriptive data for the study.

3.5 Ethical Considerations

The procedures for data collection began with written requests for permission to conduct research. Data collection commenced after the United Ethical Review Committee for Research in Psychology (EPKEB) evaluated the ethical aspects of the research and gave their approval, Reference number: 2025-035 on March 17, 2025. Further requests were made to the target institutions and respondents to allow the researcher to proceed with the survey. Before actual data collection, the researcher-initiated sensitization programs targeting respondents through their official social media groups, where the study was introduced, with research benefits discussed with respondents and their institutions, requesting cooperation through active participation in the study. The questionnaires were preceded by an introductory part outlining the importance of the study and soliciting support from the respondents through active participation. The introductory part also gave assurance to the respondents about the utmost confidentiality of their data, data storage and protection, and adherence to the intended use of their data.

3.6 Validity

Validity of a research instrument according to Bryman & Cramer (2004) refers to the extent to which it can accurately and truthfully measure the specific concepts it was designed to capture to ensure a sound and meaningful research outcome.

Shenton (2004) recommends a combination of strategies to be employed in ensuring trustworthiness in research projects. This study will therefore consider two types of validity: content validity and construct validity.

To ensure content validity, the questionnaire was double-checked, and verification was done. This was done through the circulation of the questionnaire among the course-mates who recommended that the long and winding questions be narrowed down into precise items to avoid confusion among the respondents during data collection. The questionnaire was thus

amended and recirculated. The questionnaire was ascertained by the team as valid. The questionnaire was also subjected to further scrutiny by the topic supervisor and her team and certified as valid. To further ensure validity, the adapted questionnaires were subjected to a pilot study. The pilot group consisted of international students from different universities in Hungary who were active on social media groups specifically created for multicultural and international socialization. According to Mugenda & Mugenda, (2003), a pilot test is an initial test used in verifying the validity of the instrument before actual research. The pretest sample that was used in this study is 3%. Because the target population for this study was 700 international students,40 responses were enough for the pilot test, as they were more than 21 (3% of 700) as recommended by scholars. A pilot test before research promotes clarity of research instruments, which helps to highlight similar interpretations of research questions among the respondents.

3.7 Reliability

Hair et al.,(2006) explain that the main purpose of reliability testing is to ascertain the credibility and trustworthiness of research data. Reliability is the uniformity of true results produced by the set of variables being measured after research.

Hair et al. (2006) identified two diagnostic measures that should be employed in determining internal consistency. These are: Inter-Item correlation (Correlation > 0.3), which measures the correlation among research items, and Cronbach's alpha (>0.7) to measure the consistency of the whole scale. According to Hair et al. (2006), reliability testing is determined by the level to which a set of measures represents a concept of interest, with discriminant reliability examining the level to which two similar concepts are conceptually distinct. To compute the coefficient of reliability in this study, SPSS Version 29 was used, where individual questions and items

were subjected to reliability tests. The following results were obtained, which confirmed met the Cronbach's alpha condition of reliability was met.

3.7.1 Pilot Test

Table 8.Reliability Statistics

Constructs	**Number of items**	**Cronbach's Alpha**	**Verdict**
Globalization in Hungarian HEIs	7	.851	Reliable
Study Abroad Programs	6	.894	Reliable
International Research Collaborations	7	.935	Reliable
International Partnerships	7	.943	Reliable
Artificial Intelligence	7	.780	Reliable
Funding Opportunities	7	.772	Reliable
Perceived Globalization Risks	5	.825	Reliable

The pilot test results in Table 7 show that all the variables were reliable (Cronbach >0.70), findings which validated the test instrument for data collection.

For further reliability assessment, I requested my dissertation supervisor to examine it with her team at the department. The questionnaire was certified as reliable and was sent to the Ethical Committee for approval and to give the green light for data collection.

3.8 Operationalization of Variables

To ensure construct validity, and optimize the theoretical assumptions of the study, the variables in the study were operationalized as follows; The descriptive variables: gender, home region and name of institution were categorized as nominal variables while age, academic level, and year of study were categorized as ordinal variables. For correlational and inferential statistics, Study Abroad Programs, International Research Collaborations, International Partnerships, Artificial Intelligence and funding opportunities were placed in the scale category on a Likert-Scale. The table showing the operationalization of the research variables has been included in the appendix.

4 FINDINGS

This chapter presents the findings derived from the quantitative survey conducted to address the research questions. The analysis encompasses several key components to ensure a comprehensive examination of the data. First, general sample statistics and sociodemographic characteristics of the participants are outlined to provide context regarding the study population. Subsequently, measures of central tendency, measures of dispersion and descriptive frequencies for the study variables are reported, offering an initial overview of data distribution and trends.

To assess relationships between variables, correlation analysis was performed, followed by tests of linearity and normality to verify the assumptions underlying parametric analyses. Cross-validation techniques were employed to ensure the robustness of the statistical models. Regression analysis was then conducted to examine predictive relationships, supplemented by inferential analyses to determine the significance of observed effects. Additionally, mediation analysis was carried out to explore potential indirect pathways among variables.

The chapter concludes with a summary of hypothesis testing, synthesizing the empirical evidence in relation to the study's theoretical framework and research objectives. Collectively, these analyses provide a rigorous foundation for interpreting the quantitative findings and their implications for the broader research inquiry.

4.1 Descriptive Statistics

Table 9.Sample Statistics of International Students in Hungarian HEIs.

		Gender	Age	Academic Level	Year of Study	Home Region
N	Valid	443	443	443	443	443
	Missing	0	0	0	0	0

Table 9 shows that all responses from the sample of 443 participants were analysed in this study.

Table 10.Sociodemographic Characteristics of Participants at Baseline

Baseline characteristic	n	%
Gender		
Female	194	43.8
Male	249	56.2
Age		
18-25	197	44.5
26-35	165	37.2
36-45	73	16.5
46-55	8	1.8
56-65	-	-
Academic Level		
Bachelors	169	38.1
Masters	114	25.7
Doctoral	154	34.8
Other Diploma	6	1.4
Year of Study		
Year 1	167	37.7
Year 2	133	30.0
Year 3	86	19.4
Year 4	35	7.9
Year 5	6	1.4
Year 6	4	0.9
Alumni	12	2.7
Home Region		
Sub-Saharan Africa	115	26.0
Northern Africa	32	7.2
South America	8	1.8
Central America	5	1.1
North America	1	0.2
Caribbean	7	1.6
Middle East	67	15.1
Asia	159	35.9
Oceania	1	0.2
Central Europe	13	2.9
Eastern Europe	30	6.8

Southern Europe	4	0.9
Western Europe	-	-
Northern Europe	1	0.2

Note. N = 443.

Table 10 shows that this study included 443 participants at baseline, with a slightly higher percentage of males (56.2%) than females (43.8%). Most participants were young, with 44.5% aged 18–25 and 37.2% aged 26–35, while older age groups (46–55 and 56–65) were minimally represented. Academic levels were distributed as follows: 38.1% held a bachelor's degree, 25.7% a master's degree, and 34.8% a doctoral degree, with only 1.4% having other diplomas. Most participants were in their early stage of career, with 37.7% in Year 1 and 30.0% in Year 2, while years 3 and higher, including the alumni were less common. Geographically, the largest groups came from Asia (35.9%) and Sub-Saharan Africa (26.0%), followed by the Middle East (15.1%). Other regions, including Northern Africa (7.2%), Europe (cumulatively 10.8%), and the Americas (cumulative 4.7%), had smaller representations, with some regions (e.g., Western Europe) having no participants. Oceania and Northern Europe each had only one participant. Overall, the sample portrays a predominantly of young, educated international students from Asia and Africa, with a balanced gender distribution.

Table 11.Descriptive Statistics for Variables

Statistics								
		Globalization in HHEIs	Study Abroad Programs	International Research Collaborations	International Partnerships	Artificial Intelligence	Funding Opportunities	Perceived Globalization Risks
N	Valid	443	443	443	443	443	443	443
	Missing	0	0	0	0	0	0	0
Median		4.0000	4.0000	4.0000	4.1429	3.7143	3.2857	3.0000
Mode		4.00	5.00	5.00	5.00	4.00	2.86	3.00
Minimum		1.00	1.00	1.00	1.00	1.00	1.29	1.00
Maximum		5.00	5.00	5.00	5.00	5.00	5.00	5.00
Percentiles	25	3.4286	3.1667	3.7143	3.7143	3.1429	2.7143	2.4000
	50	4.0000	4.0000	4.0000	4.1429	3.7143	3.2857	3.0000

	75	4.4286	4.5000	4.7143	4.8571	4.0000	3.7143	3.6000

Table 11 shows the descriptive statistics for the study variables.

The descriptive analysis of 443 respondents reveals that internationalization efforts in higher education are perceived more favourably than digital transformation and funding aspects. Specifically, International Partnerships (Median = 4.14) and International Research Collaborations (Median = 4.00) received the highest endorsements, with both variables exhibiting modes of 5.00 and 75th percentiles exceeding 4.71, indicating a strong consensus on their prevalence or positive impact. Similarly, Globalization in HHEIs and Study Abroad Programs both recorded medians of 4.00, reflecting generally high engagement levels. In contrast, Artificial Intelligence (Median = 3.71) and Funding Opportunities (Median = 3.29) demonstrate more moderate perceptions, with the latter showing a notably lower mode of 2.86, suggesting less favourable views on resource availability. Notably, Perceived Globalization Risks registered the lowest median (3.00) and a wider interquartile range (2.40–3.60), pointing to neutral-to-mixed sentiments regarding the potential drawbacks of globalization. These findings suggest that while international partnerships and collaborations are well-established and highly valued, perceptions of artificial intelligence integration, funding adequacy, and globalization risks remain more varied and less developed.

Table 12.Globalization in Hungarian HEIs

		Not at all	Little	Somewhat	To a large extent	To a great extent
1.	My institution currently has a dedicated office coordinating mobility of international students, faculty, and international programs.	10 2.3%	27 6.1%	53 12.0%	141 31.8%	212 47.9%
2.	My institution currently has access to diversified Sources of Faculty, Students, and Revenue.	8 1.8%	22 5.0%	78 17.6%	159 35.9%	176 39.7%
3.	My institution currently has enhanced multicultural co-existence and Intercultural Understanding.	11 2.5%	34 7.7%	93 21.0%	132 29.8%	173 39.1%
4.	There is an elevated level of international awareness and deeper engagement with global issues.	11 2.5%	47 10.6%	91 20.5%	155 35.0%	139 31.4%
5.	My institution has a good global ranking in performance compared to other universities within the	15 3.4%	34 7.7%	92 20.8%	156 35.2%	146 33.0%

	context of international good practice.					
6.	There is use of English Language in teaching, research, and publications.	10 2.3%	27 6.1%	41 9.3%	134 30.2%	231 52.1%
7.	My institution runs overseas campuses.	156 35.2%	56 12.6%	88 19.9%	75 16.9%	68 15.3%

Table 12 shows descriptive frequencies of Globalization in Hungarian HEIs.

A relatively higher percentage (79.7%) confirmed that their institution had a dedicated office handling internationalization and globalization issues, compared to those who were either not sure or those who indicated that there was none.75.6% agreed that their institution enjoys access to diversified sources of student and faculty, while 68.9% agreed that there was enhanced multicultural understanding and co-existence in their institution. Similarly, a significant percentage (66.4%) indicated that there was an elevated level of awareness and deeper engagement with global issues in their institution, while 68.2% indicated that they had a good global ranking. 82.3% of the respondents indicated that English language was a medium of instruction, research, and publications in their institutions. A relatively lower percentage (32.2%) disclosed that their institutions were operating overseas campuses.

Table 13.Study Abroad Programs

		Not at all	Little	Somewhat	To a large extent	To a great extent
1.	promote Intercultural competence development	10 2.3%	29 6.5%	112 25.3%	128 28.9%	164 37.0%
2.	facilitate international network building.	8 1.8%	24 5.4%	105 23.7%	134 30.2%	172 38.8%
3.	help students develop a broadened worldview.	8 1.8%	29 6.5%	87 19.6%	131 29.6%	188 42.4%
4.	expand students' employability through resume improvement.	20 4.5%	36 8.1%	115 26.0%	133 30.0%	139 31.4%
5.	provide a significant source of revenue to university through payment of tuition and fees.	16 3.6%	36 8.1%	142 32.1%	114 25.7%	135 30.5%
6.	help in contributing to the host country's economic development through off-campus spending and jobs created by their presence.	30 6.8%	35 7.9%	121 27.3%	129 29.1%	128 28.9%

Table 13 shows descriptive frequencies for Study Abroad Programs.

Findings in Table 13 show that (65.9%) respondents agreed that SAPs promote intercultural competence to a large and greater extent, while 69% agreed that it facilitates international networking, as 72% indicated that it helps students develop a global worldview. On improving students' employability in the job market, 61.4% strongly agreed that it enhances the resume. 56.5 % strongly agreed that SAPs are a significant source of HEIs' revenue, while 32.1% somewhat agreed. A significant percentage of respondents (58%) indicated that SAPs contributed to the host country's economic development, with 27% agreeing that it somewhat does.

Table 14.International Research Collaborations

		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1.	produce more innovative, comprehensive, and impactful research outcomes.	7 1.6%	15 3.4%	72 16.3%	194 43.8%	155 35.0%
2.	result in high-quality publications and ground-breaking findings.	8 1.8%	17 3.8%	79 17.8%	188 42.4%	151 34.1%
3.	opens up many global research opportunities that might be limited within local or national confines.	8 1.8%	21 4.7%	70 15.8%	183 41.3%	161 36.3%
4.	enhance universities' access to unique datasets, specialized equipment, new knowledge, and distinct environments essential for certain research areas.	5 1.1%	19 4.3%	68 15.3%	181 40.9%	170 38.4%
5.	facilitates global pooling of knowledge, expertise, and resources to solve global challenges.	9 2.0%	18 4.1%	70 15.8%	184 41.5%	162 36.6%
6.	often lead to joint research grants and funding opportunities that benefit collaborating partners.	7 1.6%	24 5.4%	93 21.0%	168 37.9%	151 34.1%
7.	boost the university's image and ranking in the global academic community.	11 2.5%	10 2.3%	69 15.6%	172 38.8%	181 40.9%

Table 14 shows the respondents' agreement levels on the contribution of IRCs to Globalization in Hungarian HEIs.

A significantly higher percentage (78.8%) indicates that IRCs lead to more comprehensive and impactful research output, further supported by 76.5% who agreed that it facilitates high-

quality publications with groundbreaking findings.77.6% strongly agree that IRCs open up global research opportunities, while 79.3% indicated that it enhance universities' access to unique datasets, specialized equipment, new knowledge, and distinct environments essential for certain research areas. A higher percentage of respondents (78.1%) also agreed that it facilitates global pooling of resources in problem solving, while 69.4% indicated that it enhances access to joint research grants and funding opportunities.79.7% further indicated that IRCs boost HEIs' global ranking and global image.

Table 15.International Partnerships

		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1.	IPs allow students and staff to make friends worldwide and gain a global perspective of the world.	8 1.8%	22 5.0%	45 10.2%	170 38.4%	198 44.7%
2.	IPs enhance institutional prestige position through academic global rankings.	9 2.0%	14 3.2%	69 15.6%	179 40.4%	172 38.8%
3.	Through IPs, like-minded universities from around the world can find common ground, partner on projects, and work together toward discovery.	6 1.4%	15 3.4%	67 15.1%	177 40.0%	178 40.2%
4.	By building complementary agreements that lean into the strengths of each institution, there are more opportunities to make an impact across disciplines and fields.	5 1.1%	16 3.6%	69 15.6%	190 42.9%	163 36.8%
5.	Through IPs, universities get a wider pool of industry connections, which can help students secure employment after graduation.	11 2.5%	19 4.3%	86 19.4%	157 35.4%	170 38.4%
6.	The number of international collaborative links is significantly and positively linked to innovation and the number of patents in the host country.	10 2.3%	11 2.5%	89 20.1%	184 41.5%	149 33.6%
7.	IPs lead to improved research productivity and teaching capabilities of participating institutions.	9 2.0%	14 3.2%	67 15.1%	172 38.8%	181 40.9%

Respondents in as shown in Table 15, gave their opinion on IPs.

A high percentage (82.4%) agreed that IPs help in building global friends and development of a global worldview, while 79.2% agreed that it promotes institutional prestige.80.2% believe that like-minded universities from around the world can find common ground, partner on projects, and work together toward discovery 79.7% agreed that IPs provide an opportunity for institutions to leverage each other's strengths, while 73.8% indicated that it facilitates the future employability of students. 75.1% agreed that IPs determine the level of innovation and number of patents (75.1%), while 79.9% indicated that it led to improved research productivity and teaching capabilities of participating institutions.

Table 16.Artificial Intelligence

		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1.	AI helps in the selection and recruitment of international students and staff.	32 7.2%	48 10.8%	150 33.9%	138 31.2%	75 16.9%
2.	AI has no role in language learning and cross-cultural communication.	59 13.3%	120 27.1%	110 24.8%	95 21.4%	59 13.3%
3.	AI provides immersive and intercultural tools such as Chatbots and virtual reality simulations for developing intercultural competence.	17 3.8%	28 6.3%	106 23.9%	195 44.0	97 21.9%
4.	AI-enabled translators such as DeepL and Google Translate help in multilingual translation and facilitate intercultural communication.	11 2.5%	22 5.0%	79 17.8%	183 41.3%	148 33.4%
5.	AI provides virtual exchange platforms and helps in collaborative international learning.	9 2.0%	29 6.5%	95 21.4%	181 40.9%	129 29.1%
6.	AI helps in international networking, professional connections, and job search, e.g., LinkedIn.	9 2.0%	30 6.8%	96 21.7%	184 41.5%	124 28.0%
7.	AI tools such as robots help in moderating multilingual debates.	17 3.8%	35 7.9%	138 31.2%	156 35.2%	97 21.9%

Table 16 shows the contribution of Artificial Intelligence to Globalization in Hungarian.

While 48.1% agreed that AI helps in the selection and recruitment of international students and staff, a significant percentage (33.9%) were undecided, and 18% disagreed 40.4% agreed that AI plays a role in language learning and cross-cultural communication, while 34.7% disagreed.

A relatively higher percentage (65.9%) agreed that AI facilitates intercultural Competence development, while 74.7% indicated that it facilitates intercultural communication 70% agreed that it provided a collaborative learning environment, while 69.5% believed that AI helps in international networking, professional connectivity, and job placement. In addition,57.1% agreed that AI is instrumental in moderating multilingual debates.

Table 17.Funding Opportunities

		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1.	An increase in education funding from external sources increases revenue for my institution.	14 3.2%	48 10.8%	135 30.5%	136 30.7%	110 24.8%
2.	Availability of funding for student's exchange programs has no significant effect on the success of globalization in higher education institutions.	107 24.2%	87 19.6%	77 17.4%	90 20.3%	82 18.5%
3.	International research collaborations effectiveness in globalization in higher education is significantly determined by the level of funding.	11 2.5%	28 6.3%	95 21.4%	188 42.4%	121 27.3%
4.	IPs' contribution to globalization in higher education has no relationship with the availability of funding opportunities.	68 15.3%	100 22.6%	105 23.7%	104 23.5%	66 14.9%
5.	The contribution of AI to globalization in HEIs is significantly affected by access to funding opportunities for technology-support infrastructure.	12 2.7%	48 10.8%	139 31.4%	156 35.2%	88 19.9%
6.	Accessibility to International education opportunities is determined by available funding options	74 16.7%	57 12.9%	158 35.7%	107 24.2%	47 10.6%
7.	Too much focus on the recruitment of fee-paying international students to increase institutional funding poses a danger to globalization in Higher Education	73 16.5%	72 16.3%	142 32.1%	103 23.3%	53 12.0%

Table 17 shows the contribution of Funding opportunities to Globalization in Hungarian HEIs.

While 55.5% of the respondents acknowledged that an increase in external funding led to a corresponding increase in their institution's revenue,30.5% were undecided 43.8% did not agree that the availability of funding for SAPs has no significant effect on the success of globalization in higher education institutions, compared to 38.8% who agreed. On whether funding significantly determines the effectiveness of IRCs,69.7% agreed, while 38.4% agreed that IPs' contribution to Globalization in higher education is not related to the availability of funding opportunities.37.9, however, disagreed with the statement. Findings further show that 55.1% of the respondents believe that the contribution of AI to globalization in HEIs is significantly affected by access to funding opportunities for technology-support infrastructure, with 31.4% being undecided 29.6% did not agree that accessibility to international education opportunities is determined by available funding options, compared to 34.8% who agreed. On the statement that too much focus on the recruitment of fee-paying international students to increase institutional funding poses a danger to globalization in Hungarian HEIs, almost a similar percentage represented those who disagreed (32.8%), those undecided (32.1%), and those who agreed (35.5%).

Table 18.Perceived Globalization Risks

	Not at all	Little	Somewhat	To a large extent	To a great extent
1. There is difficulty regulating locally the quality of foreign programs offered.	45 10.2%	68 15.3%	172 38.8%	110 24.8%	48 10.8%
2. It causes excessive competition among HEIs.	39 8.8%	57 12.9%	164 37.0%	128 28.9%	55 12.4%
3. Pursuit of IPs/policies could be only for reasons of prestige.	65 14.7%	92 20.8%	138 31.2%	110 24.8%	38 8.6%
4. Internationalization leads to brain drain.	99 22.3%	74 16.7%	133 30.0%	91 20.5%	46 10.4%
5. Over-reliance and over-use of English as a medium of instruction.	104 23.5%	63 14.2%	130 29.3%	90 20.3%	56 12.6%

The data presented in Table 18 illustrate the perceived global risks (PGRs) associated with globalization in Hungarian higher education institutions (HEIs).

A significant proportion of respondents (24.8%) largely agreed, while 10.8% agreed to a great extent, that globalization in Hungarian HEIs has led to challenges in locally regulating the quality of foreign academic programs. In contrast, 38.8% indicated that this risk occurs to some degree.

Furthermore, 41.3% of respondents perceived globalization as fostering excessive competition among Hungarian HEIs, with an additional 37% acknowledging this effect to some extent. Regarding institutional motivations, 33.4% of respondents agreed that the implementation of globalization policies in Hungarian HEIs may be driven primarily by prestige-seeking, whereas 14.7% expressed disagreement with this assertion. Concerning the potential for brain drain, 22.3% of respondents disagreed that globalization contributes to this phenomenon, while 20.5% primarily associated it and 10.4% to a great extent. Additionally, a notable proportion of respondents (20.3%) to a large extent and (12.6%) to a great extent, concurred that globalization in Hungarian HEIs results in an over-reliance and excessive use of English as the medium of instruction.

Table 19.The Spearman's correlation

Variable	*n*	1	2	3	4	5	6
1. Study Abroad Programs	443	—					
2 International Research Collaborations	443	.623**	—				
3. International Partnerships	443	.565**	.700**	—			
4. Artificial Intelligence	443	.410**	.399**	.432**	—		
5. Funding Opportunities	443	.239**	.216**	.177**	.396**	—	
6. Perceived Globalization Risks	443	.21	.41	.025	.268**	.578**	—

**. Correlation is significant at the 0.01 level (2-tailed). *n*=443

Table 19 displays Spearman's correlations of the study variables.

The Spearman's correlation analysis (N=443) in table 19 revealed strong positive relationships among Study Abroad Programs, International Research Collaborations (r=0.623), and International Partnerships (r=0.565), with the strongest link being between International Research Collaborations and Partnerships (r=0.700). Artificial Intelligence (AI) showed moderate correlations with these international activities (r=0.399–0.432) and with Funding Opportunities (r=0.396). Funding had weaker but significant ties to Study Abroad (r=0.239), Research Collaborations (r=0.216), and Partnerships (r=0.177). Notably, Perceived Globalization Risks were only significantly associated with AI (r=0.268) and Funding (r=0.578), suggesting that concerns about globalization are more tied to financial and technological factors than to international academic engagement. All correlations were significant at $p<0.01$.

Table 20.Test for Linearity

ANOVA Table: Test for Linearity

			Sum of Squares	df	Mean Square	F	Sig.
Globalization in Hungarian Higher Education Institutions * Study Abroad Programs	Between Groups	(Combined)	132.207	24	5.509	14.799	<.001
		Linearity	116.335	1	116.335	312.536	<.001
		Deviation from Linearity	15.872	23	.690	1.854	.010
	Within Groups		155.592	418.372			
	Total		287.798	442			
Globalization in Hungarian Higher Education Institutions * International Research Collaborations	Between Groups	(Combined)	115.746	26	4.452	10.764	<.001
		Linearity	99.027	1	99.027	239.435	<.001
		Deviation from Linearity	16.719	25	.669	1.617	.032
	Within Groups		172.052	416.414			
	Total		287.798	442			
Globalization in Hungarian Higher Education Institutions * International Partnerships	Between Groups	(Combined)	88.121	26	3.389	7.061	<.001
		Linearity	64.475	1	64.475	134.325	<.001
		Deviation from Linearity	23.646	25	.946	1.970	.004
	Within Groups		199.677	416.480			
	Total		287.798	442			
Globalization in Hungarian Higher Education Institutions * Artificial Intelligence	Between Groups	(Combined)	73.159	28	2.613	5.040	<.001
		Linearity	46.151	1	46.151	89.017	<.001
		Deviation from Linearity	27.008	27	1.000	1.929	.004
	Within Groups		214.639	414.518			
	Total		287.798	442			
Globalization in Hungarian Higher Education Institutions * Funding Opportunities	Between Groups	(Combined)	74.580	26	2.868	5.597	<.001
		Linearity	55.292	1	55.292	107.878	<.001
		Deviation from Linearity	19.289	25	.772	1.505	.058
	Within Groups		213.218	416.513			
	Total		287.798	442			

The ANOVA results in Table 20 indicate significant linear relationships between globalization in Hungarian higher education institutions and all five variables—study abroad programs, international research collaborations, international partnerships, artificial intelligence, and funding opportunities ($p < .001$ for linearity in each case).

While linear trends dominate, deviations from linearity are also significant ($p < .05$) for all variables except funding opportunities ($p = .058$), suggesting some nonlinear patterns. Study abroad programs exhibit the strongest linear association, whereas artificial intelligence shows the weakest but still significant linear trend. These findings suggest that while linear models effectively describe these relationships, incorporating nonlinear approaches may enhance

predictive accuracy, particularly for study abroad programs, international partnerships, and AI. Overall, globalization in Hungarian HEIs is closely linked to international engagement and emerging trends, with predominantly linear but occasionally more complex dynamics

Table 21.Tests of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Study Abroad Programs	.099	443	<.001	.940	443	<.001
International Research Collaborations	.134	443	<.001	.906	443	<.001
International Partnerships	.152	443	<.001	.894	443	<.001
Artificial Intelligence	.089	443	<.001	.961	443	<.001
Funding Opportunities	.070	443	<.001	.988	443	<.001
Globalization in Hungarian Higher Education Institutions	.092	443	<.001	.953	443	<.001

a. Lilliefors Significance Correction

Table 21 presents the results of normality tests (Kolmogorov-Smirnov and Shapiro-Wilk) for six variables related to globalization in Hungarian higher education.

Both tests indicate that none of the variables follow a normal distribution, as all p-values (Sig.) are less than 0.001. The Kolmogorov-Smirnov statistics range from 0.070 (Funding Opportunities) to 0.152 (International Partnerships), while the Shapiro-Wilk statistics range from 0.894 (International Partnerships) to 0.988 (Funding Opportunities). The low Shapiro-Wilk values and significant Kolmogorov-Smirnov results (df = 443 for all) confirm the non-normality of the data for all tested variables. The Lilliefors correction was applied to the Kolmogorov-Smirnov test.

Table 22.Cross Validation

Cross Validation: Correlations

		Globalization in Higher
Approximately 80% of the cases (SAMPLE)	Predicted	Education

0	Predicted	Pearson Correlation	1	.688**
		Sig. (2-tailed)		<.001
		N	82	82
	Globalization in Higher Education	Pearson Correlation	.688**	1
		Sig. (2-tailed)	<.001	
		N	82	82
1	Predicted	Pearson Correlation	1	.711**
		Sig. (2-tailed)		<.001
		N	361	361
	Globalization in Higher Education	Pearson Correlation	.711**	1
		Sig. (2-tailed)	<.001	
		N	361	361

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

Table 22 shows the Cross Validation Correlations between hold-out and training samples.

The results in Table 22 show that both cross-validation samples have a statistically significant ($p < .001$) and moderately strong positive correlations between the predicted and actual values (0.688** – 0.711**). The hold-out sample (N = 82) had a significant positive correlation (R = 0.688**, $p < .001$) with the training sample(N=361), also exhibiting a slightly stronger positive correlation (r =0.711**, $p < .001$).

4.2 Multiple Linear Regression Analysis

A single multiple linear regression model was chosen for this study because the research questions were addressed through regression analysis involving five independent variables and a single dependent variable.

The choice was also informed by data linearity, normality of residuals, and independence assumptions.

Linear Regression Equation

The following was the Equation of the multiple regression model used.

y = Globalization in Hungarian HEIs

β_0 = Constant

X_1 = SAPs

X_2 = IRCs

X_3 = IPs [a]

X_4 = AI [b]

X_5 = Funding Opportunities

$y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \varepsilon$

$y = 0.683 + 0.358 + 0.259 + 0.256$

Note.

a and *b are non-significant variables*

These non-significant variables (*a* = IPs and *b* = AI) have been excluded from the regression model equation to enhance model simplicity, prevent overfitting, and prevent biased estimates of the significant variables, including the potential for misinterpretation.

Table 23.Model Summary

Model Summary[b]

				Std.	Change Statistics					
Model	R	R Square	Adjusted R Square	Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.711[a]	.505	.499	.57106	.505	89.103	5	437	<.001	1.957

a. Predictors: (Constant), Funding Opportunities, International Partnerships, Artificial Intelligence, Study Abroad Programs, International Research Collaborations

b. Dependent Variable: Globalization in Hungarian Higher Education Institutions

The R value (0.711) in Table 23 indicates a strong, positive relationship between the predictors and the dependent variable. Model summary results show that a unit change in Funding Opportunities, International Partnerships, Artificial Intelligence, Study Abroad Programs, and International Research Collaboration explains a 50.5 % variance in Globalization in Higher Education. F change = 89.103(5,437). The Durbin Watson Value (1.957) suggests that the residuals are independent and that there was no autocorrelation.

Table 24.One-Way Analyses of Variance (ANOVA)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	145.287	5	29.057	89.103	<.001[b]

Residual	142.511	437	.326
Total	287.798	442	

a. Dependent Variable: Globalization in Hungarian Higher Education Institutions
b. Predictors: (Constant), Funding Opportunities, International Partnerships, Artificial Intelligence, Study Abroad Programs, International Research Collaborations

Table 24 summarizes ANOVA results.

Findings in Table 24 show that the overall model was statistically significant (F (5,437) = 87.103, p < 001). This indicates that Funding Opportunities, International Partnerships, Artificial Intelligence, Study Abroad Programs, and International Research Collaborations significantly explained the variation in Globalization in Hungarian HEIs.

Table 25.Table of Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.683	.169		4.042	<.001
	Study Abroad Programs	.358	.041	.399	8.659	<.001
	International Research Collaborations	.259	.054	.255	4.831	<.001
	International Partnerships	.000	.050	.000	.010	.992
	Artificial Intelligence	.002	.044	.002	.036	.971
	Funding Opportunities	.256	.042	.230	6.072	<.001

a. Dependent Variable: Globalization in Hungarian Higher Education Institutions

Results in Table 25 showing Coefficients indicate that SAPs, IRCs, and Funding Opportunities positively and significantly contribute to Globalization, while IPs and AI had no significant contribution to globalization in Hungarian HEIs after the COVID-19 Pandemic. The findings indicate that every unit increase in SAPs, International Research Collaboration, and Funding Opportunities contributes to a corresponding 35.8%,25.9%, and 25.6% increase in Globalization in Hungarian HEIs.

4.3 Mediation Analysis

Figure 14.Mediation Framework

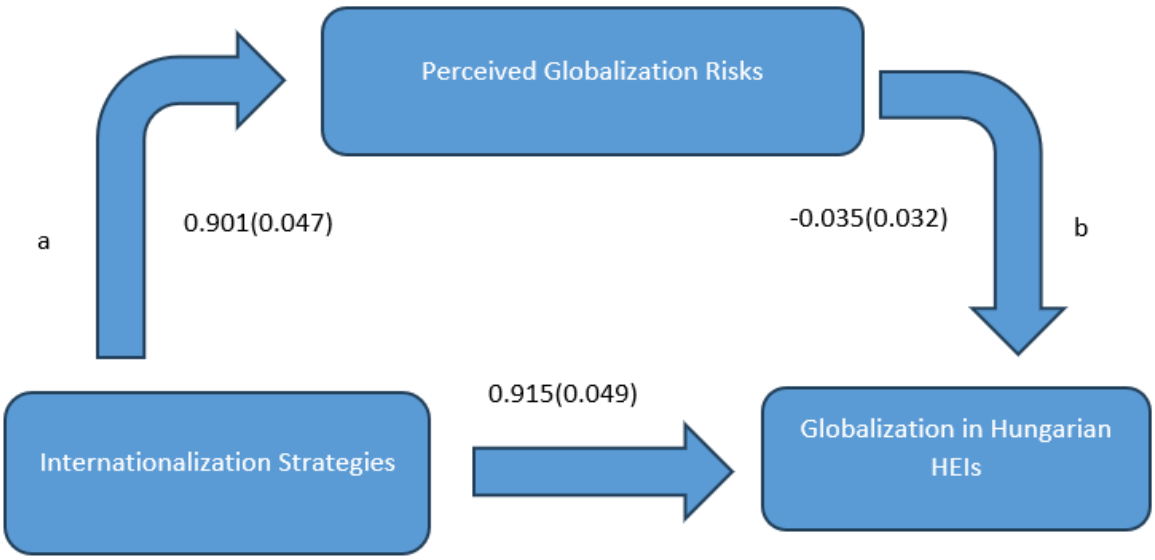


Figure 14 shows the framework for analysis of direct and indirect relationships among Internationalization Strategies, Perceived risks of globalization in higher education, and Globalization in Hungarian HEIs.

Table 26.Perceived Globalization Risks

Perceived Risks as dependent variable: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.821	.263		6.934	<.001
	Internationalization Strategies	.306	.068	.209	4.479	<.001

a. Dependent Variable: Perceived Risks of Globalization in Higher Education

Findings in Table 26 show a direct significant relationship (p<.001) between Internationalization Strategies and perceived risks of globalization in Hungarian HEIs.

Table 27.Globalization in Higher Education.

Globalization in HE as dependent variable: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.

1	(Constant)	.508	.181		2.805	.005
	Internationalization Strategies	.866	.046	.678	18.942	<.001
	Perceived Risks of Globalization in Higher Education	.001	.031	.001	.040	.968

a. Dependent Variable: Globalization in Higher Education

Table 27 show results of Globalization in HE as a dependent variable.

Results in Table 27 show that there is a direct significant effect of internationalization Strategies on Globalization in Hungarian HEIs(p<.001); however, there is no direct significant effect of perceived globalization risks on Globalization in Hungarian HEIs (p = 0.968>0.001).

Figure 15.Sobel Test

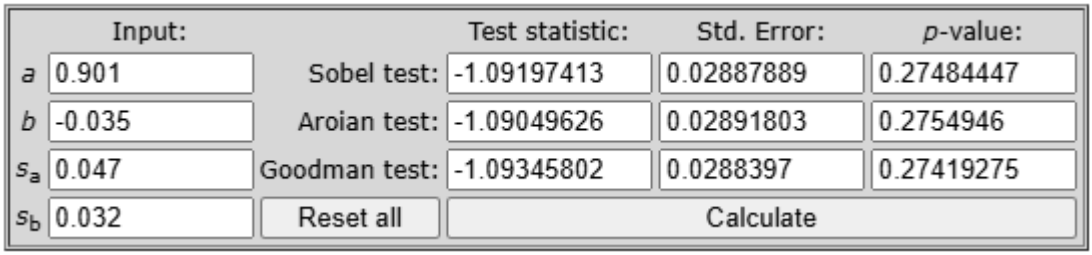


Figure 15 shows Sobel Mediation Test results.

Findings show that z = -1.092 with a standard error of 0.029 and a p = 0.275 >0.001; therefore, the indirect effect of perceived globalization risks is not significant. This means that the perceived risks of globalization in higher education have no significant mediating effect on Globalization in Hungarian HEIs.

4.4 Contribution of the Predictor Variables

Table 28.Hypotheses Testing Summary Table

Hypothesis	**Sig Value**	**Hypothesis Testing Results (95% Confidence Levels)**	**Interpretation**

$H_0$1: SAPs do not contribute to Globalization in Hungarian HEIs after the COVID-19 pandemic period.	<.001	<.001	Rejected
H_2: IRCs contribute positively and significantly to Globalization at selected universities after the COVID-19 pandemic.	<.001	<.001	Accepted
$H_0$3: IPs do not play any role in Globalization in Hungarian HEIs after the COVID-19 pandemic.	<.001	.992	Accepted
H_4: There is a positive and significant contribution of AI to Globalization in Hungarian HEIs after the COVID-19 pandemic.	<.001	.971	Rejected
H_5: Funding significantly affects the Globalization of higher education in Hungarian HEIs	<.001	<.001	Accepted
H_6: Perceived Risks mediate the relationship between Internationalization Strategies and Globalization in Hungarian HEIs after the Covid-19 Pandemic.	<.001	.275	Rejected

Table 28 provides a summary of results from the Hypotheses Tests.

Results show that $H_0$1, H_4 and H_6 were rejected while H_2, $H_0$3 and H_5 we accepted.

5 DISCUSSION

The purpose of this study was to investigate the contribution of Internationalization strategies to Globalization in Hungarian Higher Education Institutions from the perspective of International Students. This chapter discusses the key findings on the contribution of Study Abroad Programs, International Research Collaborations, International Partnerships, Artificial Intelligence, and funding opportunities to Globalization in Hungarian HEIs. This chapter also includes the findings on the mediating role of Perceived Globalization Risks. In this section, the implications of the research findings, limitations of this study, and recommendations are discussed, including recommendations for future research. This chapter addresses the following research questions.

5.1 Research Questions

i. To what extent have Study Abroad programs contributed to the Globalization of Hungarian Higher Education Institutions after the COVID-19pandemic?

ii. What is the relationship between Globalization and International Research Collaborations after the COVID-19 pandemic in Hungarian Higher Education Institutions?

iii. How do International Partnerships contribute to the Globalization of Hungarian Higher Education Institutions after the COVID-19 pandemic?

iv. What is the contribution of ICT to the Globalization of Hungarian Higher Education Institutions after the COVID-19 pandemic?

v. What is the contribution of funding opportunities to the Globalization of Hungarian Higher Education institutions?

vi. Do Perceived Globalization Risks mediate the relationship between internationalization strategies and Globalization in Hungarian Higher Education Institutions?

Globalization in HEIs was investigated from the basis of the existing status of key indicators in the study population and from the perspective of international students in HHEIs. These included the availability of a dedicated office coordinating the internationalization activities, access to diversified sources of faculty and students, the level of multicultural tolerance, understanding, and co-existence, the level of global awareness, and deeper engagement with global issues within the study sample and population. This dependent variable also included the levels of diversified revenue generation from international students, the global ranking, use of the English language in teaching, research, and publications, and whether the host institutions operated overseas campuses.

Among the five independent variables, only three significantly and positively contributed to Globalization in Hungarian HEIs as follows: Study Abroad Programs (β= 0.358, t = 8.659, p<.001), International Research Collaborations (β= 0.259, t = 4.831, p<.001), and funding opportunities (β= 0.256, t = 6.072, p<.001). International Partnerships (β= 0.000, t = 0.010, p = 0.992>.001) and Artificial Intelligence (β= 0.002, t = 0.036, p=0. 971>.001) were insignificant. The standardized Beta coefficients show that Study abroad programs (β= 0.358), had the highest contribution to Globalization in Hungarian HEIs, followed by International Research Collaborations (β= 0.259), and funding opportunities (β= 0.256), respectively. Further findings indicate that from the perspective of international students, Perceived Globalization Risks p = 0.275 >0.001 have no mediating relationship between Internationalization strategies and Globalization in Hungarian HEIs.

The following was the regression equation for predicting Globalization in Hungarian HEIs.

Globalization in Hungarian HEIs = 0.683 (Constant) + 0.358(SAPs) + 0.259(IRCs) + 0.256(FOs).

5.2 Study Abroad Programs

SAPs were examined for their tendency to promote intercultural competence development, international networking, and the development of a global worldview from the perspective of international students in Hungarian HEIs. This strategy is also a factor that affects the future employability of foreign students and can influence both the host country's HEIs and the country's economy. In this study, findings show that SAPs (β= 0.358, t = 8.659, p<.001) significantly and positively contributed to Globalization in Hungarian HEIs after the COVID-19 pandemic. In this model, a unit increase in SAPs contributed to 35.8% variance in Globalization in Hungarian HEIs. The null hypothesis ($H_0$1), stating that SAPs do not contribute to Globalization in Hungarian HEIs after the COVID-19 pandemic, was therefore rejected.

This finding that SAPs significantly contribute to Globalization in Higher education aligns with Daly & Barker (2005), who discovered that SAPs improve intercultural tolerance, understanding, and enhance self-awareness among international students. Daly & Barker (2005) further associated SAPs with the enhancement of international cooperation and networking. Nyamsuren et al. (2024) found that SAPs helped international students develop foreign language skills, multicultural skills, and knowledge, which helped them in future career success. The finding further aligns with Arslan (2019), who discovered in a case study of the European Erasmus program that SAPs have an impact on the individual students' lives by equipping them with global adaptation skills, foreign language professional proficiency, multicultural relations skills, and improvement of employability in the global labor markets. Similarly, scholars such as Arevalo et al. (2008), Bryła (2015), and Aydin (2012) linked SAPs to higher chances of employability domestically or globally among international students. According to a study by Mohajeri, Norris & Gillespie (2009), SAPs equipped 77% of international students participating in the program with career skills empowerment. This finding resonates with Paige et al.'s (2009) finding that SAPs are significantly instrumental in career development among international students.

During a study to investigate international students' intercultural sensitivity because of SAPs, Anderson et al. (2006) discovered that international students' participation in SAPs led to

attainment of higher levels of intercultural sensitivity (measured using Intercultural Development Inventory (IDI). SAPs also facilitated improved global worldview and responsible global citizenship (Fisher et al., 2023; Tarrant et al., 2014,2015).

Whatley et al. (2021) also discovered an improvement in global worldview among international students because of participation in SAPs, with the cognitive aspect being driven by travelling with faculty from domestic institutions and reflection activities being triggered by the intrapersonal aspect of global world perspective. The enhancement of global worldview, interconnectivity, and the acquisition of attributes of global responsibility are linked to SAPs. These are often manifested in study abroad beneficiaries participating in global volunteering and civic engagement (Jon et al., 2020; Zhang & Gibson, 2021).

5.3 International Research Collaborations

Findings from this study on IRCs (β= 0.259, t = 4.831, p<.001), from the perspective of international students in Hungarian HEIs, indicate that a unit change in this variable significantly and positively explains 25.9% variance in Globalization in Hungarian HEIs. Findings from previous studies, such as Hu et al. (2014), Aman (2016), and Guan et al. (2017), demonstrate that IRCs enhance the scientific productivity of quality and high-impact publications. This is achieved through co-authorships that can bring together scholars from across the globe.

According to Gök & Karaulova (2024), IRCs facilitate the flow of people, knowledge, and technology, which benefits HEIs and nations within the collaboration networks. The drivers for IRCs include solving global challenges through pooling of research resources and expertise, maximization of financial resources within the pool network, improvement of HEIs' global visibility improved citation impact and institutional global profile, the potential for development of global trust and understanding and the potential for quality research and benefits from economies of scale and sharing of research costs (DeLaquil et al.,2022).

A previous study by Fu and Li (2016), firms that collaborated with HEIs attained a higher index rank of product innovation (mean rank = 209.16), in contrast to those that did not collaborate (mean rank = 176.41). This is supported by the findings of Mayrose & Freilich (2015) and Larivière et al. (2015) who posit that greater scientific results and global productivity are contributed by IRCs.

Gui et al. (2019) explains that the globalization of science is the same as economic globalization and includes IRCs manifested in international co-authorships-patenting, citation networks, academic conferences, and research and development networks.

5.4 International Partnerships

This research findings show that IPs (β= 0.000, t = 0.010, p = 0.992>.001), from the perspective of international students, have no significant contribution to Globalization in Hungarian HEIs.

Most studies have in the past focused on the relationship between IPs and Internationalization in HEIs and have ignored the investigation of the relationship between IPs and Globalization in HEIs. The finding in this study showing no significant relationship between IPs and Globalization in HEIs can be attributed to the nature of higher education partnerships, which are traditionally based on non-profit mutual agreements, in operation within HEIs in the OECD region. According to Vincent-Lancrin (2009) in OECD (2009), *Higher education to 2030,* these types of partnerships are associated with student and faculty mobility across partner institutions and involve international programs backed by mutual recognition of the academic credits and certificates obtained (OECD,2009).

Research with similar findings is limited; however, Karvounaraki et al (2018) discovered that existing European funding models are not favorable for enhancing globalization in Higher education within the EU. According to their study findings, 66% of the respondents identified the lack of sustainability in the funding model, forcing partner institutions to bear the burden of having to apply yearly to different calls for funding. The study findings further identified complications arising from administrative barriers (59%) and legal hurdles (59%) that do not favor IPs. These include a lack of common accreditation standards, a lack of uniform academic calendar, and student visa challenges.

The findings on IPs in the current study reignite the arguments of Conrad (2016) & Marginson (2022), that globalization in HEI from the perspective of global convergence and integration is provisional and the forces holding these are loose and are subject to influence from both international and domestic actors. This amplifies the fact that globalization in HEI is unpredictable and is characterized by disconnects and constant changes. According to David (2011), Globalization in HEIs is characterized by systemic and structural inequalities among IPs and has neither improved individual nor national prosperity of the partner members.

The insignificant impact of IPs can also be associated with Cultural and Linguistic hegemony that Globalization brings to the Hungarian HEIs platform. According to Marginson (2022), Globalization champions and epitomizes the primary adoption of Anglo-American language, Science, and cultural heritage, and stigmatizes other cultures, languages, and ways of life. This suppresses the non-anglophone nations, including non-conformist European Countries such as Hungary, a predominantly Hungarian-speaking country with 98% users (Medgyes & Miklósy,

2000), which do not consider the English language and culture as superior. This conflict between Westernization and Europeanization is reflected in the behavior of IPs and the resulting globalization outcome. According to Unterhalter & Carpentier (2010), IPs are often the major reinforcers of global inequalities because they are engulfed in the Western agenda.

Leng (2015) in a study on IPs between Cambodian HEIs and those in the USA, Japan, South Korea, and France discovered a low mutuality between Cambodian universities and their South Korean partners. This view resonates with that of Mwangi (2017), IPs between the minority (the Anglo-American) world and the rest of the world countries are complicated by inequalities in resource distribution, diverse organizational structures, and practices.

The non-significant contribution of IPs is also linked to the fact that the majority of IPs in Hungarian HEIs are transactional and not transformational, in the case of controlled westernization (Karady & Nagy,2018), and are based on the exchange of resources and ideologies without the intent of institutional change or buy-in. This stems from the cautious position of the Hungarian state against domination by Anglo-American transformational partnerships that dictate that most of the world should build capacity and learn and learn from them and not vice versa (Nakabugo et al.,2010).

5.5 Funding Opportunities

Results from this study show that funding opportunities (β= 0.256, t = 6.072, p<.001), according to international students in Hungarian HEIs, significantly and positively contribute to Globalization in Hungarian HEIs. A unit increase translates into a 25.6% variance in Globalization in Hungarian HEIs.

This finding aligns with Carnoy (2000), who argues that globalization in HEIs is financially driven. According to Souto-Otero et al. (2019), on *the Erasmus+ Higher Education Impact Study*, more than 4 million students benefited from the mobility program between 2014 and 2020, with 64% of international students reporting enhanced visibility and employability in the job markets. Findings also show that Erasmus+ funding promoted globalization in 9 out of 10 beneficiary HEIs, through funding of mobility programs with non-EU HEIs. 76 % of former Erasmus+ students also reported that they were able to access enhanced benefits of internationalization at their home institutions. This was reflected in more than 90% of international students who reported an improvement in their foreign language competence, intercultural communication, adaptability, acquiring a better global worldview, and

multicultural tolerance. According to Mitchell (2012), the Erasmus+ program is instrumental in the development of intercultural awareness, appreciation of cultural identity, and other people's diverse cultural backgrounds.

According to Souto-Otero et al. (2019), the funding of Erasmus+ led to improved global employability, with 40% of international student beneficiaries securing jobs abroad, resulting in significantly lower unemployment rates compared to those who did not study abroad. Childress (2009) discovered that limited funding was a major obstacle hindering the implementation of internationalization plans in HEIs.

While investigating the contribution of Scholarships in a globalized world, Akhtar et al. (2024) pointed out that scholarships play a significant role in promoting global collaborations and cultural exchange. Their study concluded that scholarships encourage access to education for all, hence contributing to equality. The Fulbright scholarship, for example, has positively and significantly impacted globalization in HEIs by facilitating international knowledge exchange and diplomacy, global networking relationships, and international collaborations among stakeholders. Other scholars who investigated the contribution of funding discovered a significant role that scholarships play in promoting cultural exchange. These include Beine et al. (2014) and Mazzarol et al. (2016)

SH scholarship program, offered by TPF, a key initiative from the Hungarian Government, is a diplomacy strategy for the development of human resource capital and the attainment of Hungarian internationalization and Globalization goals (Tong,2021). Csaszar et al. (2023) argue that the SH program has a significant impact on the macro-environment, promoting globalization through economic development and the achievement of geopolitical objectives. According to Stamenkovska et al. (2022), the SH program has significantly contributed to the internationalization and globalization in Hungary by bringing international students and exposing them to the Hungarian language and culture for integrative and instrumental roles.

According to Kupriyanova, & Ferencz (2022), TPF 65% of the Doctoral students studying in Hungary received grants or Scholarships from the Hungarian Government, through the SH program, while more than 40% received funding from their sending countries, thus justifying the significant role of funding on Globalization in Hungarian HEIs.

5.6 Artificial Intelligence

Findings on the contribution of AI (β= 0.002, t = 0.036, p= .971>.001) show that it had no significant impact on globalization in Hungarian HEIs. This finding is supported by Selwyn's (2019) argument that AI adoption in higher education is asymmetrically biased against poor nations, hence widening the globalization disparities among nations (Rikap,2023), manifested in oligopolistic wealth distribution.

A previous study on US HEIs' leadership opinion about the adoption of AI in their institutions, Rudolph et al. (2024), discovered that the stakeholders were slow and lacked proactive strategies for adopting AI use. An informal survey by Dotan et al. (2024) shows that 63.9% of faculty members never use AI in their daily activities, while only 6.9% of administrative staff reported using it in their administrative work.

A study sponsored by Turnitin conducted on a sample of 1600 students,1000 faculty and staff in over 600 institutions indicates that more than 75% of faculty members do not use AI regularly compared to over 50% of the students who use it. The report also discovered that the process was slow but gradual as the institutions took their time implementing it (Dotan et al., 2024; Coffey,2023).

The reservations by HEIs to adopt the use of AI can be explained by the perceived risks, such as the tendency to be excessively reliant on AI tech giants for education service delivery in technological colonialism (Rudolph et al.,2024; Abdalla & Abdalla, 2021; Jacobides et al.,2021), fear of loss of privacy and covert surveillance (Thiel,2019; Crawford,2021) and the rapid development of AI which has outpaced existing regulatory and policy frameworks (European Parliament,2023; Park,2023)

5.7 Perceived Globalization Risks

Perceived Globalization risks (p = 0.275 >0.001) have no significant mediating relationship between internationalization strategies and Globalization in Hungarian HEIs.

Related empirical studies that used perceived globalization risks as a mediating variable are hardly available. However, the finding from this study aligns with the European context of Globalization, despite perceived threats from nationalistic social media campaigns, has continued to grow. Hénard et al. (2012), for instance, find no correlation between anti-globalization beliefs and internationalization strategies implemented by universities. According to De Wit & Altbach (2021), there is no clear link indicating that anti-globalization sentiments have diminished global student mobility and IPs among HEIs.

Knight (2013) similarly points out that perceived consequences and myths of internationalization and globalization, such as cultural homogenization and brain drain, do not prevent HEIs from implementing internationalization. According to Van der Wende (2021), there is no significant negative change in the levels at which Europeans identify themselves with the EU, with survey findings indicating a growth since 2015. In the survey, 71% of the respondents felt proud of being European citizens, with the most positive feedback involving the free mobility to study, work, or live anywhere within the EU. In Hungary, Immigration is considered a huge threat to the EU (Van der Wende,2021).

According to Lee & Stensaker (2021), Globalization in HEIs continues to adapt rather than shun internationalization due to anti-globalization threats in their environments. Cantwell & Lee (2010), and Lee & Rice (2007) identified cultural intolerance and racism as a feature that characterizes the globalization process. In their findings, international students were able to adjust to these host culture challenges, which eventually enabled them to attain intercultural competence. Kosmützky & Putty (2016) argued that policies motivated by nationalism, such as tightening visa requirements, had an insignificant impact on internationalization and globalization. Similarly, A study by Zhao et al. (2022) discovered that Chinese universities continued to make strategic adjustments and coping mechanisms at the height of anti-globalization pressures. These included strengthening international alliances and cooperations, virtual exchange programs, and implementing globalization models such as 'dual circulation' that made China a favourite destination for international students. Brandenburg & De Wit (2011) further agree that globalization in HEIs continues to grow in terms of student mobility and the opening of overseas campuses, despite the claims that threats to globalization may negatively impact the gains.

5.8 Hypothetical Explanation

Findings reveal the independent variables; Study Abroad Programs, International Research Collaborations and Funding opportunities play a significant and positive influence on Globalization in Hungarian HEIs, as perceived by the respondents(Study Abroad Programs (β= 0.358, t = 8.659, p<.001), International Research Collaborations (β= 0.259, t = 4.831, p<.001), and funding opportunities (β= 0.256, t = 6.072, p<.001). The possible reason is the dedicated investments by the Hungarian Government Through the Tempus Public foundation which has partnered with more than 100 countries to pursue internationalization and Globalization through higher education. This can also be linked to investments by other

stakeholders such as the European Union's Erasmus + which facilitate Study abroad programs, research collaborations, international internships, Joint study programs in more than 30 countries globally. Programs available include International Credit Mobility Program (ICM) facilitating non-European international students to study in Europe, Erasmus Joint Masters for international mobility between European Universities and the Erasmus +mobility initiative that facilitate international students' studies in Erasmus+ partner institutions. The Significant role that these variables play can also be explained by the effort that Hungarian Research Public universities put in promoting multicultural diversity in their institutions.

The non-significant International Partnerships (β= 0.000, t = 0.010, p = 0.992>.001) and Artificial Intelligence (β= 0.002, t = 0.036, p= .971>.001).The outcome on International Partnerships can be explained by poor balance that has continued to characterize the higher education space, where the on one side, the receiving partners are mostly the developed countries compared to the third world and developing countries who have perpetually occupied the position of being the sending partners. This has portrayed international partnerships as a burden of globalization to the receiving partners. Reservation towards IPs can also be attributed to transactional nature of partnerships which value economic resource maximization rather than idealist socio-cultural transformations.

The non-significant role of AI on Globalization can be explained by the extreme caution that higher education institutions globally have towards rapid adoption due to the fear of loss of data and information privacy, the fear of covert surveillance, the fear of erosion of academic ethics and over-reliance on techonology which may lead to natural thinking redundancy and eventual human colonization by Technology.

5.9 Implications for Theory and Research

Idealism, Instrumentalism, the Uppsala Model, and the Business Network Internationalization Process Model guided this study. The findings from the contribution of the SAPs, IRCs, and the role of funding support the position of the four theories.

Idealism explains the universalism of knowledge across geographical borders, the promotion of global citizenship, adherence to globally accepted norms and ethical standards, promotion of intercultural diplomacy, and emphasis on international collaborations over Competition. From the idealist perspective, which emphasizes the role of ideas, values, and norms in shaping

global interactions, the findings from this study confirm that the current globalization status in Hungarian HEIs is a product of the implementation of the three significant strategies.

Idealism gives a normative framework that explains Globalization in Hungarian HEIs from the perspective of shared knowledge, ethical standards, and global values. While Idealism overlooks the aspects of economics of globalization, the theory of Instrumentalism in this study helps explain this perspective. Instrumentalism captures the pragmatic aspects of Hungarian HEIs, which are globalizing to attain economic and strategic interests. From this perspective, Hungarian HEIs operate as market-oriented entities, competing in the international markets to attract international students and faculty. The goals are to generate and maximize revenue, human resource development, and geopolitical positioning through global rankings, in the global rankings and prestige wars. This theory also explains the commercialization of research and development products through patents, technology transfer, and industry partnerships. In the Geopolitical sphere, TPF, through SH Scholarships, helps the Hungarian government strengthen global ties with other nations.

The Uppsala model in this study explains how Hungarian HEIs are gradually adopting globalization through commitment to SAPs, IRCs, and prioritization of a variety of funding opportunities that support internationalization. This model explains the bridging of the psychic distance in Hungarian HEIs through intercultural competence development, foreign language proficiency development, intercultural tolerance and peaceful coexistence, and the acquisition of world-class education. This theory integrates with Idealism and instrumentalism to explain the gradual process of globalization in HIEs. Uppsala proves that the adoption of Technology in the Globalization of Hungarian HEIs is not rapid and instant. This is seen from the insignificant role that AI plays in the globalization of Hungarian HEIs. The Descriptive details of the AI role in globalization in this study show its adoption, though with a non-significant impact.

5.10 Practical Implications

Idealism champions the betterment of society by emphasizing the adoption of positive values, ethics, norms, and knowledge. Findings from this study indicate that the implementation of internationalization strategies fosters humanistic, ethical, and egalitarian principles packaged in globalization. Idealist-led funding initiatives such as Erasmus+ play a key role in facilitating SAPs and IRCs. In the rising era of nationalism in Hungary, HEIs and other education stakeholders should develop measures to safeguard the Idealist globalization initiatives.

Because of the conflict between the idealist and Instrumentalist positions, HEIs can develop a hybrid model that can enable and sustain globalization in higher education.

Uppsala highlights the importance of gradual market entrance, a critical step towards sustainable Globalization in Hungarian HEIs, as universities have time to learn the global market dynamics and be able to adjust and cope with the evolving nature of Globalization in Higher Education. This study recommends to higher education stakeholders a sequential approach to the adoption of Globalization rather than the aggressive approach.

Higher education stakeholders in the position of policy formulation and implementation should adopt the Uppsala model to help small or newly established education institutions implement internationalization and globalization programs. Higher education managers should adopt Uppsala's risk-averse approach, for instance, through prioritization of low-risk markets when opening new campuses abroad.

From the Business Network Internationalization Process Model that emphasizes internationalization through building and strengthening network relationships, Globalization in Hungarian HEIs is thriving through the implementation of internationalization strategies. Hungarian HEIs are network actors who are positioning themselves globally through SAPs, IRCs, and the prioritization of funding for internationalization programs. This theory integrates well with idealism, instrumentalism, and Uppsala in a network relationship to strengthen Globalization in Hungarian HEIs and provide a holistic understanding of how HEIs expand globally.

The integration of the Business Network Model (BNIPM) and Uppsala provides a complementary benefit to Globalization in HEIs, for example, during the early stage of globalization, universities can begin with small but incremental student IRCs, then evolve into BNIPM at the later growth stage by rapidly upscaling international collaborations in network-based expansion. BNIPM promotes trust and reciprocity, which complements Idealist's focus on equitable collaborations, both advancing ethical network building. BNIPM also works with instrumentalism in promoting strategic, goal-driven networks towards attaining globalization goals in Hungarian HEIs.

The four theories explain how the implementation of Internationalization strategies, which formed the independent variables in this study, in a gradual (Uppsala), networked (BNIPM), ethical (Idealism), and strategic (Instrumentalism) approach can lead to the strengthening of global university alliances and attainment of globalization.

5.11Limitations and Challenges

5.11.1 Methodology

While quantitative research is credited with empirical evidence that captures hard facts, this study would have received a qualitative account for the quantitative facts if a qualitative study had been included as a complementary methodology. For example, the qualitative account of the behaviour of independent variables in contributing to Globalization in Hungarian HEIs. This limitation forms a gap that can be addressed by future researchers.

5.11.2 Target Population

This study was limited to International Students, therefore lacking the perspectives of other stakeholders such as local students, the faculty and university administrators. This is a crucial avenue for future research

5.11.3 Variables

Because of the expansive nature of internationalisation and Globalization topic and internationalization strategies, only the six institutional-level strategies were investigated. Future studies can conceptualise new studies based on other variables such as organizational level strategies.

5.11.4 Approvals and Permissions

Before embarking on data collection, I had to seek approval from the United Ethical Review Committee for Research in Psychology (EPKEB), a process that took an extra month. Getting permission from institutions proved challenging, as the emails sent were often not replied to, prompting the researcher to write follow-up emails and constant reminders.

5.11.5 Time and Cost Implications

Data collection initially scheduled to start in November 2024, coincided with the chilling Winter season in Hungary which hampered movement to the field to coordinate data collection. As a result of the unfavourable weather conditions, data was rescheduled to begin in early February 2025.

5.11.6 Respondent Recruitment Challenges

The process of recruiting the respondents for this research proved challenging despite the seemingly obvious availability of international students in designated social media groups. Because participation in the research was voluntary, many participants, despite their

willingness to fill out the questionnaires, acknowledged procrastination as their major challenge, a genuine reason that contributed to the slow response speed.

5.12 Recommendations for Future Research

Due to the existence of a variety of theories explaining *what* is happening in globalization in HEIs, this study proposes a new hybrid model that can balance the gradual (Uppsala), networked (BNIPM), ethical (idealism), and strategic (Instrumentalist) approaches to explain *what, why, when* and *how* globalization in HEIs is happening. This Synergistic Model will account for a phased and risk-managed globalization (Uppsala), ethical, inclusive globalization (Idealism), strategic and Return On Investment -driven globalization (Instrumentalism), and Rapid globalization scaling (BNIPM), and will empower future researchers with multi-faceted paradigms for studying internationalization and Globalization in HEIs. The proposed model will be called The Networked Value Accretion Model (NVAM) of globalization in Higher education and will be based on the following key mechanisms; *Trust & Commitment* (from Business Network Internationalization Process Model) for instance to explain how higher education institutions survive global challenges such as pandemics and geopolitical wars because of networks build on trust and commitment, *Liability of Outsidership* (Uppsala and BNIPM) to explain instances such as new entrants failing not because of lack of resources but because they are unknown in HE networks, *Value Accretion*(Instrumentalism) to explain for instance, how over time, International Partnerships and International research collaborations originally formed for instrumental reasons (e.g., recruiting fee paying international students) accrue idealistic value (e.g., joint curriculum on climate justice) and *Reverse Instrumentalism* where Idealistic goals (e.g., gender equality research) become instrumental for attracting donor funding or ranking points. Drawing on the proposed Networked Value Accretion Model (NVAM), Globalization in higher education will be defined as the *network-driven, value-layering* process through which universities pursue both ideals and self-interest, transforming routine international transactions into meaningful transnational commitments over time, while Internationalization in Higher Education is the deliberate, network-driven strategy ,balancing idealistic commitments with institutional self-interest over time that transforms local educational status quos into globally resonant dimensions, thereby enacting globalization as a value-accretive, emergent process.

5.13 Conclusion

The perceived Significant contribution of AI and IPs to Globalization in Hungarian HEIs, is rejected in this study. Most previous studies used ICT as an umbrella term while investigating globalization in higher education. The findings on AI expose an existing technological opportunity in Hungary, which HEIs can leverage to achieve higher levels of globalization. IPs are yet to be exploited from the Instrumentalist approach. HEIs in Hungary and worldwide should develop a hybrid model that can facilitate the attainment of both the Idealist and Instrumental goals.

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7 APPENDICES