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Cogent Education

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/oaed20

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To cite this article: Hien Thi Thu Le, Cuong Le Minh, Trung Tran, Thanh Thi Nghiem, Hung Thanh Nguyen, Minh Duc La & Trang Ngoc Nguyen (2024) Internationalization of higher education in Asia: a bibliometric analysis based on Scopus database from 2003 to 2022, Cogent Education, 11:1, 2322892, DOI: 10.1080/2331186X.2024.2322892

To link to this article: https://doi.org/10.1080/2331186X.2024.2322892

Published online: 11 Mar 2024.

COGENT EDUCATION
2024, VOL. 11, NO. 1, 2322892
https://doi.org/10.1080/2331186X.2024.2322892

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Internationalization of higher education in Asia: a bibliometric analysis based on Scopus database from 2003 to 2022*

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ABSTRACT

Internationalization of higher education (IoHE) is a globally recognized issue, encompassing Asian countries, aimed at enhancing the quality of higher education. This article presents research insights into IoHE in Asia over the past 20 years. The findings reveal that a total of 416 works related to this topic have been published in the Scopus database, involving 850 authors from various countries across the globe. A total of 414 organizations, including universities and research institutes, have contributed to this research, and 228 journals have published articles on this research topic. The research results of the author team have contributed to the development of higher education in Asia in the direction of internationalization.

ARTICLE HISTORY
Received 6 April 2023
Revised 13 February 2024
Accepted 20 February 2024

KEYWORDS
Internationalization of higher education; Asia; bibliometrics; Scopus; Biblioshiny; VOSviewer

REVIEWING EDITOR
Anatoly Oleksiyenko, The Education University of Hong Kong Faculty of Education and Human Development, Hong Kong

SUBJECTS
Education Policy & Politics; Higher Education; International & Comparative Education; Education-Social Sciences

Introduction

Internationalization of higher education (IoHE) is an inevitable trend in the development process of higher education in the world. It can be said that IoHE is an integral part of the sustainable development of contemporary higher education, which stems from the requirements of the labour market for the workforce with internationally standardised knowledge and skills; as well as adaptability to a multicultural working environment (Hung & Yen, 2022). It is the IoHE that has officially set a number of universal international objectives of higher institutions such as organizing exchange programs between different cultures, developing cross-cultural competencies, international and global perspectives and strengthening the capacities of constructing and innovating knowledge to support work and personal life (Jokila, 2015). IoHE aims for the sustainable development of higher education so as to provide high quality human resources for the country (Li & Xue, 2022).

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*This article can contribute in providing useful information as a basis for further research on issues related to the internationalization of higher education in the Asian region. Further research directions may include analysing the quality of the content of publications, evaluating internationalization policies and strategies in countries, or qualitative research on issues in the internationalization process.

IoHE has broken down the conventional process of higher education management which has ruled over the past four decades, causing direct impact on teaching, research and services at higher institutions in many countries (Gao et al., 2016). It is a continuous process occurring and evolving at higher education institutions, which can possibly be considered as a characteristic feature of their organization, associated with all of their activities and services. IoHE is vital not only to improving higher education quality of HE institutions but also to promoting motivations for education development of the whole society all over the world (H. D. Wit, 2017).

Internationalization refers to the process of integrating an international perspective into various aspects of higher education, including curriculum, research, student exchange programs and collaborations with foreign institutions. There are several key reasons why internationalization is crucial in the Asian context (Alsharari, 2018), including:

1. It promotes cultural diversity and understanding among students and faculty members. By exposing students to different cultures, languages and perspectives, internationalization nurtures global citizens who can effectively engage and collaborate in an increasingly interconnected world.
2. Internationalization enhances the quality of education. It allows students to access a broader range of academic resources, such as international faculty expertise, research collaborations and access to global knowledge networks. This exposure to diverse educational experiences fosters innovation, critical thinking and cross-cultural competencies.
3. Internationalization helps develop a globally competitive workforce. In today's globalized economy, employers seek graduates who possess not only strong academic knowledge but also intercultural communication skills, adaptability, and a global mindset. International experiences gained through study abroad programs or international collaborations can significantly enhance graduates' employability and career prospects.
4. Internationalization contributes to research excellence and innovation. Collaborative research projects involving scholars from different countries can lead to groundbreaking discoveries, cross-disciplinary insights and mutually beneficial partnerships. These collaborations also address global challenges by bringing together diverse perspectives and expertise.
5. Internationalization strengthens the reputation and ranking of Asian higher education institutions.

By actively participating in international academic networks, hosting international conferences and attracting top international students and faculty, institutions can enhance their global visibility and reputation, thereby attracting more resources and opportunities (Ardakani et al., 2011). In this regard, it can be observed that IoHE plays a significant role in the current Asian context, It facilitates cultural understanding, enhances the quality of education, develops the workforce's capabilities to meet globalization demands, promotes scientific research and strengthens the reputation of higher education institutions. Implementing IoHE in Asia is not only essential for universities and students but also contributes to the development of the Asian region (Ng, 2012).

The Scopus database stores research publications on various scientific topics (Scopus, n.d.-b), including a database specifically focused on the internationalization of education in Asia. By analysing the bibliographic records within the Scopus database, valuable information can be extracted regarding collaboration networks and research interests of scholars in the field of higher education internationalization in Asia. This analysis also enables the formulation of concepts, definitions and an understanding of the current state of higher education internationalization in Asia (Chellappandi & Vijayakumar, 2018). This research aims to provide a bibliometric review of the scientific publications on IoHE in Asia from 2003 to October 2022 in the Scopus database. The research study focuses on IoHE in Asia regarding: (1) publication information including authors, citations, journals with the most publications; (2) current research trends in IoHE in Asia: characteristics, keywords, emerging keywords in the trends; (3) scientists' collaboration network: the development of the research direction over time. Based on the research results, the researchers propose conclusions and recommendations related to IoHE research trends in the world as well as in Asia.

The Scopus database comprises publications on the context, current situation and internationalization solutions in higher education in Asia. Through the analysis of these databases, information about the

IoHE in Asia can be collected, allowing for a comprehensive view of the internationalization landscape of higher education in Asia. This, in turn, enables the formulation of comments and recommendations regarding the IoHE in Asia in comparison to the global context, facilitating the development of internationalization efforts in higher education in Asia to meet global educational development demands.

Literature review

IoHE

In the context of the Fourth Industrial Revolution, the rapid advancement of science and technology has dramatically changed humans' knowledge as well as the world's labour market (Daim & Faili, 2019), which entails the ever-increasing (Aigbavboa & Thwala, 2020). Under the great impact of globalization, education in general and particularly higher education institutions are required to reach beyond their countries' borderlines to seek new knowledge, ideas, technologies and even training fields to fulfil the demands of the labour market in the very context of the Fourth Industrial Revolution (Bruhn, 2021). Globalization has strengthened the competition in international education, student exchanges and international education rankings in order to meet the demands of stakeholders in offering appealing education quality to attract learners all over the world, creating sufficient human resources for the world' labour market (Edwards, 2022).

The concept of internationalization has been widely mentioned in higher education since the early 1980s (Jokila, 2015). IoHE generally stemmed from the organizational and structural challenges facing a nation's tertiary education in the context of globalization and internationalization, in which the country is inevitably exposed to international relations within the free market (Liu et al., 2015). At the macro-level, the international programs at higher education institutions fulfil economic and political purposes as the student mobility facilitates the national economic development by preparing students for overseas careers in foreign countries regionally and globally, strengthening global competitiveness in the world's economy (Nastase, 2020). Thus, in the time of globalization, IoHE has been pinpointed as a key strategy of HE institutions regarding international integration or cross-cultural issues in their teaching, management and services (Muñoz, 2022).

In the increasingly rapid globalization of the world, IoHE has become one of the top concerns among policy makers as economic efficiency, under the pressure of globalization, is significantly influenced by ever-growing knowledge flow, intellectual workers and cross-border students (Jones, 2013). IoHE has given top priority in the discussion agenda of national leaders as well as HE institutions worldwide to seek 'internationalization' for their educational organizations and to create the connection between them involving students and teachers collaboration and exchanges, eventually promoting HE quality all over the world (Hawawini, 2011).

From another perspective, the non-stop development of the world entails an inevitable and severe crisis of forced displacement due to uncontrollable factors. A report from the UN Refugee Agency (UNHCR) shows that every two seconds, a person is forcibly displaced worldwide. A forcibly displaced scientist or university/higher education student generally has to endure the disruption to their education; and as a result, attends other institutions in their receiving countries, making considerable contributions to the host countries' HE. Eventually, the internationalization of these institutions would simultaneously happen thanks to these forced migrants (Ergin et al., 2019). Migration and brain drain are not problems of any individual region (such as America or Europe) but globally, even without the cause of forced displacement, as scholars and students worldwide have been in the search for renowned universities and training programs to fulfil their personal demands for working and studying (Gaybnazarova, 2021). A number of Asian universities have addressed the 'brain drain' problem by pursuing the strategy of 'reversed brain drain', i.e. increasingly recruiting migrants working overseas for education programs in their home countries. For example, China, Hong Kong and Singapore attract the overseas Chinese intellectual elite by offering more rewarding benefits. Singapore aims for comprehensive internationalization of their local universities by attracting high quality international students and researchers from China, Australia, India and the UK (Luke et al., 2010).

Among various definitions of IoHE, it can be referred to '*a process of integrating international/cross-cultural dimensions into an educational institution's teaching, research and services functions*'. This viewpoint inclines towards the introduction of international dimensions to the structure and operation of a training program within a university, in terms of students, curriculum, teachers' teaching and research activities. The ultimate objective is, instead of the internationalization itself, to integrate the university into the worldwide education and knowledge network; thereby highlighting its potentials as an integral component of the world's knowledge and education 'ecology' and as a contributor to the cause of providing eligible labour forces to fulfil the demands of the countries worldwide (Alsharari, 2018).

Another definition of IoHE states that '*IoHE at the level of nation, discipline and institution is the process of integrating an international, cross-cultural or global dimension into the objective, functions or provision of higher education*' (Hudzik, 2011), which covers the concept of IoHE almost comprehensively with focus on the integration of international elements into HE objectives and functions. In 2014, Hudzik proposed a more well-rounded and appropriate definition of IoHE as '*comprehensive internationalization*' which aims for commitment and intentional actions with institutionalization, to widely introduce and integrate the content of internationalization and globalization into the training process at universities. Also, the updated definition put forward the continuous comparison between HE institutions worldwide regarding their teaching, research and service missions. It is possible to describe Hudzik's updated definition as outcome-oriented with the internationalization integration into value characteristics and core missions of the HE institutions. It can be interpreted that 'comprehensive internationlization' is necessary, yet necessarily accepted by the leader, administrator, lecturer, student and scholar of the university (Hudzik, 2014).

It can be seen that internationalization has recently been one of the breakthrough and critical strategies for HE with definite future potentials. IoHE has direct impacts on teaching, research and education service provision in every country worldwide. However, it is essential to acquire profound insights into the definition and principles of IoHE to achieve success in the undertaking process (Mittelmeier & Yang, 2022).

Bibliometric review of the publications in the database

Bibliometrics or scientometrics, as a branch of statistics, aims to analyse past publications in the database to examine and evaluate the quality of scientific publications in different scientific domains to identify the new research channels (Chellappandi & Vijayakumar, 2018). In the fields of Bibliometrics and scientometrics, the idea of science mapping based on bibliographic information has attracted great attention from researchers over the past decades with a variety of visual representation to demonstrate the relationships between authors, documents, journal or keywords, etc., which are generally created based on citations, co-citations or bibliographic data or keyword co-occurrence in documents (Van Eck et al., 2010).

Reviewing the research findings from past publications is essential to pinpoint the gap in the literature; thereby promoting a specific research trend that are of research interests (Waltnam & Noyons, 2018). There are three bibliometric methods with past papers, namely (1) qualitative structured literature review; (2) quantitative analysis method and (3) science mapping—based on quantitative bibliometric analysis with increasing usage for mapping of structure and development in various scientific disciplines and areas (Zupic & Čater, 2015).

The introduction and development of bibliometrics support researchers in systematically analysing related publications and collecting useful information about research trends and collaboration between scientists' worldwide (Bales et al., 2020). Bibliometric analysis is a research technique that uses quantitative analysis and statistics to represent the model of distribution of scientific works on a certain topic within a specific time span. It can help researchers to keep track of publications and also provide valuable insights for the academic community such as identifying relevant researchers, organizations or references on a research topic in order to analyse the relationships and collaborations in the research area (Martí-Parreño et al., 2016).

Bibliometrics has become an essential instrument to analyses and evaluate scientists' performance, partnerships between HE institutions, influence of state-owned scientific funds on national research and development activities as well as education outcomes, together with plentiful other applications (Moral-Muñoz et al., 2020). Bibliometric visual representation can be obtained with a number of techniques (Van Eck et al., 2010). The bibliometric procedure in a scientific area includes five main steps (Pham-Duc et al., 2022):

1. Identifying research design
2. Collecting data
3. Analysing data
4. Visualizing data
5. Justifying results

To successfully undertake bibliometric analyses, it is critical for prepare the most appropriate data to the scope of the research area. Publishing data is generally extracted from the world's publishing houses' databases such as PubMed, EMbase, SpringerLink, Web of Science (WoS), Scopus, Google Scholar, Microsoft Academic and Dimensions. Bibliometric review can be supported with science mapping visualizing the relationships between different factors (authors, organization, countries, etc.; Moral-Muñoz et al., 2020). In bibliometric research, the researcher generally focuses on the issues of documents, keywords, authors or journals, etc., including (1) What are the main research topics or areas in a scientific domain? (2) How to connect these topics or areas? (3) How to demonstrate the development of a scientific domain over time? (Waltman et al., 2010).

The most suitable softwares for bibliometric analysis research to create science mapping are Bibexcel, Biblioshiny, BiblioMaps, CiteSpace, CitNetExplorer, SciMAT, Sci^2 Too, VOSviewer, etc. (Moral-Muñoz et al., 2020).

Bibliometric review offers scientists an overall panorama of scientific research in a specific domain with a variety of scientific data in any time frame of 5, 10 or 20 years, depending on the researcher's preferences (Bales et al., 2020).

Materials and methods

The study conducted a bibliometric analysis on two major databases, Scopus and WoS, revealing that publications on the IoHE in Asia were indexed in both databases. However, all publications related to this topic indexed in WoS were also present in the Scopus database. Hence, the research chose to analyse the Scopus database to ensure comprehensive coverage of all publications on the IoHE in Asia (Scopus, n.d.-a). The data on IoHE in Asia was search and retrieved from the database in October 2022 with the following command:

```
(internationalization AND "higher
education" ) AND asia AND PUBYEAR > 2002 AND PUBYEAR < 2023 AND
 (LIMIT-TO ( LANGUAGE , "English" ) ) AND ( LIMIT-
TO ( EXACTKEYWORD , "Internationalization" ) OR LIMIT-
TO ( EXACTKEYWORD , "Asia" ) OR LIMIT-
TO ( EXACTKEYWORD , "Internationalization Of Higher Education" ) )
```

The bibliometric analysis included five steps as follows:

1. *Raw data collection*: The data retrieved from Scopus database using the command above included 625 publications (books, chapters, journal articles, conference presentations) published on the journals from 2003 until October 2022.
2. *Data pre-processing and refinement*: To refine the collection of 625 identified documents, it is necessary to exclude the irrelevant documents included in the search results due to their relevant keywords (one or more), for example, internationalization, education, Asia or repeated findings, misspellings, keywords with too general meanings. This stage was undertaken meticulously and thoroughly by reading manually each and every document to exclude the irrelevant ones from the

retrieved results with the highest quality and refinement, yielding the greatest reliability for the research.

3. *Data extraction:* Following the data refinement stage, the collection of 416 research works on IoHE in Asia was finalised with relevant information including authors' names, title of the research works, publishing houses (or publishing journals), publishing countries, citation indexes, etc.
4. *Data visualization*: This study uses VOSViewer software (free access on the website: www.vosviewer.com) and Biblioshiny (free installation with the package 'bibliometrix' in RStudio software) to visualise the collected data through bibliometric analyses and visual representations of the publications based on a range of bibliometric indexes such as reference linkages, co-occurrences and co-citations.
5. *Result justification:* Interpreting and analysing the findings through tables and diagrams created with VOSviewer and Biblioshiny softwares.

Results and discussion

Overview of publications on IoHE in Asia

The overview of the publication database on IoHE in Asia is shown in Table 1 and Figure 1.

As shown in Table 1 and Figure 1, a total of 416 documents related to IoHE in Asia were published from 228 Scopus-indexed sources. In the time span from 2003 to 2022, original articles accounted for 84.6% with 352 items (as shown in Table 1), book chapters and books 7.2% with 28 chapters and 2 books, reviews 3.1% with 13 items, conference papers 3.6% with 15 items. In particular, there was one retracted document which failed to meet the journal's publishing requirements. In the 416 publications, there were 1022 authors in total, including 187 authors single handedly publishing their works (accounting for 18.3%) and 140 single-authored documents (33.6%).

By the end of the period in question, the average citation per document of the analysed publications was 18.76. The average co-authors per document was 2.26. The general statistics underlines a limited number of authors and publications on IoHE in Asia despite the large quantity of publications as well the 40 year research history on this topic in the world, especially in Europe and America (Mittelmeier & Yang, 2022). The numbers of conferences, books and book chapters on the very topic were alarmingly small. The findings are in line with the current context of HE in Asia, which is believed to fall behind Europe and America (Jampaklay et al., 2022) with much restricted integration into the world's HE network (Ghazarian, 2011).

Table 1. Data overview.

Timespan	2003:2022
Sources (Journals, Books, etc.)	228
Documents	416
Annual Growth Rate %	18.21
Document Average Age	5.49
Average citations per doc	18.76
References	21076
DOCUMENT CONTENTS	
Keywords Plus (ID)	397
Author's Keywords (DE)	1196
AUTHORS	
Authors	850
Authors of single-authored docs	127
AUTHORS COLLABORATION	
Single-authored docs	140
Co-Authors per Doc	2.26
International co-authorships %	21.88
DOCUMENT TYPES	
Article	352
Book	2
Book chapter	28
Conference paper	15
Editorial	1
Retracted	1
Review	13

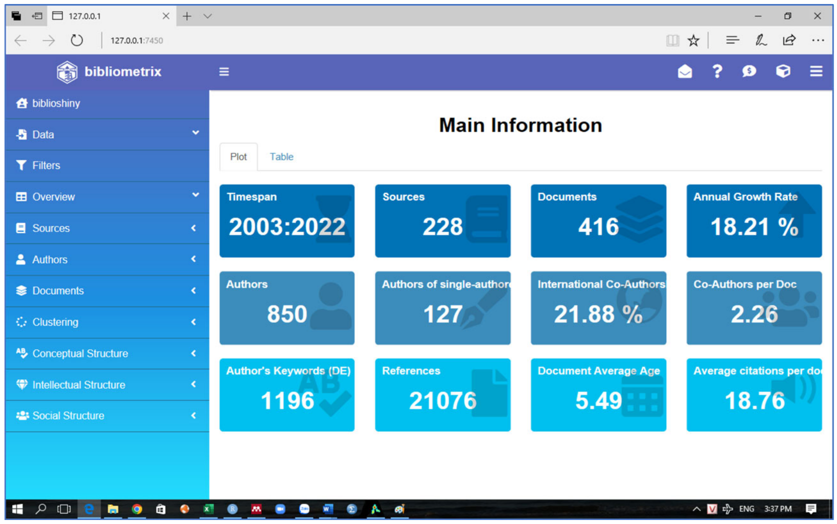

Figure 1. Key figures of the data collection on IoHE in Asia. Source: Analysis results obtained with Biblioshiny software.

Table 2. List of 46 countries with publications on IoHE in Asia.

No.	Country	Number of publications	Number of citations	Citation rate	Ranking	Country	Number of publications	Number of citations	Citation rate
1	US	67	1907	32	24	South Africa	6	52	3
2	China	52	477	23	25	Spain	6	66	4
3	UK	44	1097	20	26	Vietnam	6	21	3
4	Australia	39	709	14	27	Belgium	5	35	3
5	Hong Kong	36	513	13	28	Denmark	5	17	2
6	Japan	34	636	12	29	Iran	5	15	0
7	Canada	26	1615	15	30	Israel	5	83	1
8	Taiwan	22	299	9	31	Indonesia	4	3	1
9	Malaysia	15	185	4	32	Colombia	3	18	0
10	South Korea	15	487	7	33	Italy	3	15	2
11	India	10	17	2	34	Norway	3	17	3
12	Thailand	10	57	5	35	Philippines	3	9	1
13	Finland	9	70	5	36	Poland	3	9	2
14	Netherlands	9	141	3	37	Saudi Arabia	3	61	2
15	Russian Federation	9	38	5	38	Sweden	3	20	1
16	Singapore	8	184	2	39	Austria	2	3	2
17	France	7	28	4	40	Brazil	2	1	0
18	Germany	7	29	4	41	Brunei Darussalam	2	8	2
19	Kazakhstan	7	49	3	42	Chile	2	6	0
20	New Zealand	7	162	5	43	Egypt	2	1	2
21	Turkey	7	54	0	44	Pakistan	2	5	1
22	Mexico	6	19	3	45	Qatar	2	1	1
23	Portugal	6	121	4	46	United Arab Emirates	2	32	1

Source: Analysis results obtained with VOSviewer software.

Countries' contributions to research on IoHE in Asia

The results from VOSviewer software show that there were 46 countries (or territories) having published research works on IoHE in Asia (as shown in Table 2). The most prolific country in this area is the US with 67 documents (accounting for 16.1% of all the surveyed publications), which also received the highest number of citations (1907 citations). These figures highlight the US's status as the world's top country in the field of HE with their special attention to HE in their own nation as well as in Asia. This finding resonates with the results in Wit, J. W. M. (2001) (D. Wit, 2001). Subsequently, China stood at the second position with 52 documents (accounting for 12.5%) and 477 citations, making China the top country in Asia in the field of IoHE. The Chinese government gives top priority to promoting internationalization in HE to reach for a Chinese world-class education. This result was also asserted in a number of previous research studies on China (Huang, 2003; Li & Eryong, 2021; Sombatsompop et al., 2011; Zhou et al., 2022). Yet, the most obvious constraint lies in the limited number of citations and attraction of

Table 3. Journals and publishing houses with the greatest publications on IoHE in Asia.

No.	Sources	Articles
1.	Journal of Studies in International Education	48
2.	Higher Education	31
3.	Higher Education Policy	11
4.	Studies in Higher Education	11
5.	Asia Pacific Journal of Education	10
6.	Sustainability (Switzerland)	7
7.	International Journal of Comparative Education and Development	6
8.	Asia Pacific Education Review	5
9.	European Journal of Higher Education	5
10.	Frontiers of Education in China	5
11.	Higher Education in Asia	5
12.	Journal of Research in International Education	5
13.	International Education Studies	4
14.	Asian Education and Development Studies	3
15.	Discourse	3
16.	Education in The Asia-Pacific Region	3
17.	Higher Education Research and Development	3
18.	International Journal of Educational Development	3
19.	International Journal of Educational Management	3
20.	Journal of Asian Public Policy	3
21.	Journal of International Students	3
22.	Journal of Teaching in International Business	3
23.	Nurse Education Today	3
24.	On the Horizon	3
25.	Research in Comparative and International Education	3
26.	Turkish Online Journal of Educational Technology	3

Source: Analysis results obtained with Biblioshiny software.

Chinese publications among the international research community. The third most prolific country was the UK with 44 publications (10.5%) and the second largest number of citations, only after the US, at 1097. These figures demonstrate the country's developed international education and extensive interest to IoHE (only preceded by the US) not only locally within their country but also in Asia (Muñoz, 2022), (Bahtilla et al., 2022). In the top 10 countries with the most publications on IoHE in Asia, apart from the top 3 mentioned above, there were 1 country in the Pacific (Australia) and 5 Asian countries namely, Hong Kong, Japan, Taiwan, Malaysia and South Korea. They are well-known for their advanced and modern HE together with large numbers of international training programs and international students (Ota, 2018).

Transnational research collaboration network between scientists on IoHE in Asia is demonstrated in Table 3. The country is represented with a node and the size of the node is proportional to the number of publications while the thickness of the link between the nodes represents the collaboration level between the countries. As seen from Figure 2, the US, China and the UK claim the largest research collaboration networks on the topic. The most prolific countries are classified into nine groups with different colour codes. The first three groups including the US (coded with brown colour), China (pink colour) and the UK (blue colour) maintained strong cooperation with several different countries; while the fourth group coded with purple colour represents Hong Kong's collaboration with other countries. Australia and Hong Kong together constitute the fifth group coded with light yellow colour while the sixth group (in red) involves Taiwan, Germany together with some other countries. Similarly, the seventh group (in green), eighth group (in turquoise) and ninth group (in orange) are composed of the collaboration between other European, South African and Asian countries.

Contributions of organizations in research on IoHE in Asia

There were 414 organizations with contributions to research on IoHE in Asia, mainly from America, Europe and Asia. Top five organizations with the greatest contributions to IoHE research are presented in Figure 3. In the first place is the University of Hong Kong with 27 publications throughout the 20 year period (making up 6.5% of all the publications). All the four remaining organizations had under 10 publications. These five leading organizations published 60 documents in total, accounting for 14.5% of the overall number, which can be considered a minor proportion. It can be seen that research on IoHE in

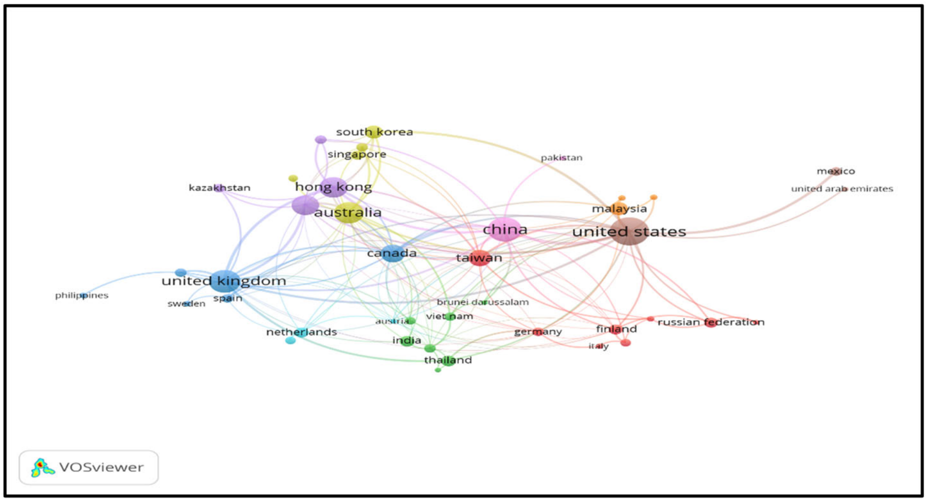

Figure 2. Visual representation of the countries' publications and collaborations. Source: Analysis results obtained with VOSviewer software.

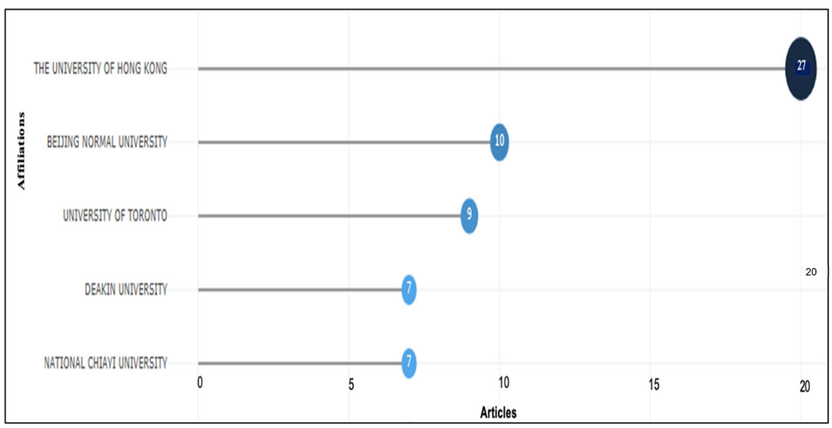

Figure 3. Top five organizations with the greatest contributions to research on IoHE in Asia. Source: Analysis results obtained with Biblioshiny software.

Asia was conducted by various countries and organizations, which implies the growing interest in post-secondary education in Asia from HE community all over the world (Knight & De Wit, 2018). The results indicate that higher education in Asia has developed and shown significant interest in the internationalization of education. However, research on this issue predominantly belongs to developed countries in the Americas, Europe and Australia, rather than being intrinsic to Asian countries' concerns. This is an existing problem that has led to a slower pace of IoHE in Asia compared to other continents.

Contributions of journals and publishing houses in publications on IoHE in Asia

The results show that there were overall 228 journals and publishers publishing documents related to IoHE in Asia, in which each of the 26 most significant contributors managed to publish more than three publications. Particularly, there were five major contributors with more than 10 publications; and the Journal of Studies in International Education is highlighted as the top journal in the area with by far the greatest number of 48 publications, accounting for 11.5% (as shown in Table 3)

Thus, the issue of IoHE has concerned not only universities and researchers but also publishing organizations regarding the introduction of IoHE to their readers including students, teachers, educational managers and researchers for the cause of HE development in the context of globalization.

Table 4. List of 15 most prolific authors on IoHE in Asia.

No.	Author	Institution	Number of publications	Number of citations
1.	Hugo Horta	The University of Hong Kong	7	127
2.	Jisun Jung	The University of Hong Kong	7	86
3.	Akiyoshi Yonezawa	University of Tohoku, Japan	7	97
4.	Jane Knight	University of Toronto	4	1287
5.	Jack T. Lee	University of Edinburgh, UK	4	92
6.	Jian Li	Indiana University Bloomington	4	26
7.	Miri Yemini	Tel Aviv University, Israel	4	81
8.	Roger Y. Chao Jr.	City University of Hong Kong, Hong Kong	3	26
9.	K.-C. Ho	National University of Singapore	3	73
10.	Hyondong Kim	Dongguk University, US	3	33
11.	Phan Le Ha	University of Hawaiʻi at Mānoa, US	3	77
12.	Barbara Sporn	Wirtschaftsuniversität Wien, Austria	3	96
13.	Ka Ho Mok	Lingnan University	3	188
14.	Anatoly Oleksiyenko	The Education University of Hong Kong	3	68
15.	Ly Thi Tran	Deakin University, Australia	3	64

Source: Analysis results obtained with VOSviewer software.

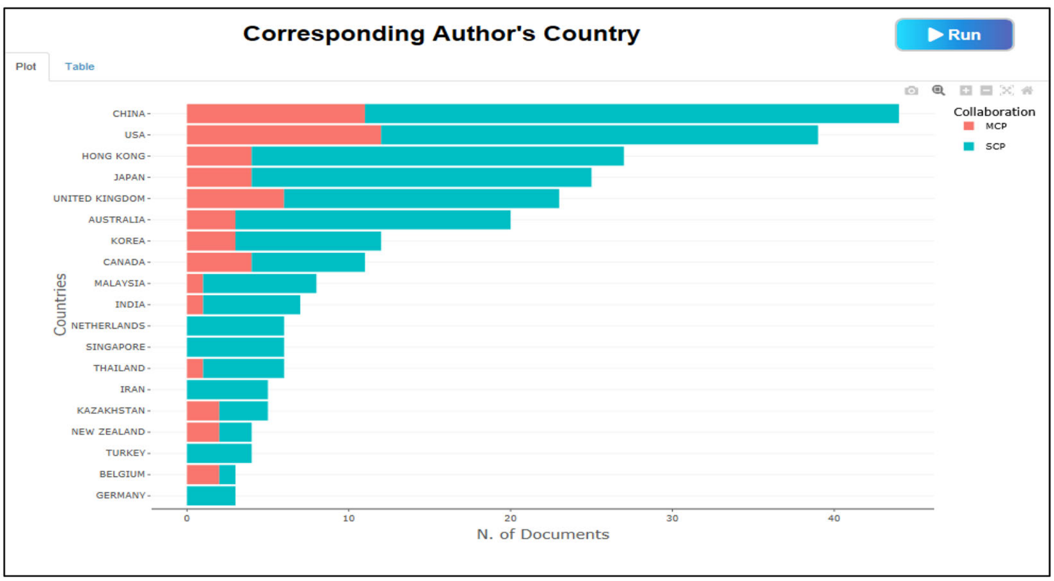

Figure 4. Corresponding authors' country. Source: Analysis results obtained with Biblioshiny software.

Authors' contributions to literature on IoHE in Asia

Table 4 shows the list of 15 authors with more than two publications on IoHE in Asia. The top three authors include Hugo Horta (University of Tohoku, Japan), Jisun Jung and Akiyoshi Yonezawa (The University of Hong Kong), each of whom published seven publications, with quite limited numbers of citations at 86–127. Meanwhile, Jane Knight (University of Toronto) topped the list of citations with the outstanding 1287 citations for her four publications, putting her in the second most prolific groups of authors. The remaining authors published three to four works with no more than 100 citations. It is noteworthy that 13 out 15 authors in this list are Asian (86.7%), although some of them are currently working in other continents such as Phan Le Ha (University of Hawaiʻi at Mānoa, US), Hyondong Kim (Dongguk University, US) and Ly Thi Tran (Deakin University, Australia).

In the 33 co-authors, there were numerous corresponding authors. Figure 4 presents the top five corresponding authors' countries, which involve China in the first place, followed by the US, Hong Kong, Japan and the UK.

Keyword occurrence analysis in the selected publications

The analysis of 416 publications with VOSviewer and Biblioshiny softwares resulted in a collection of 1488 most common keywords including internationalization, higher education, training program, human,

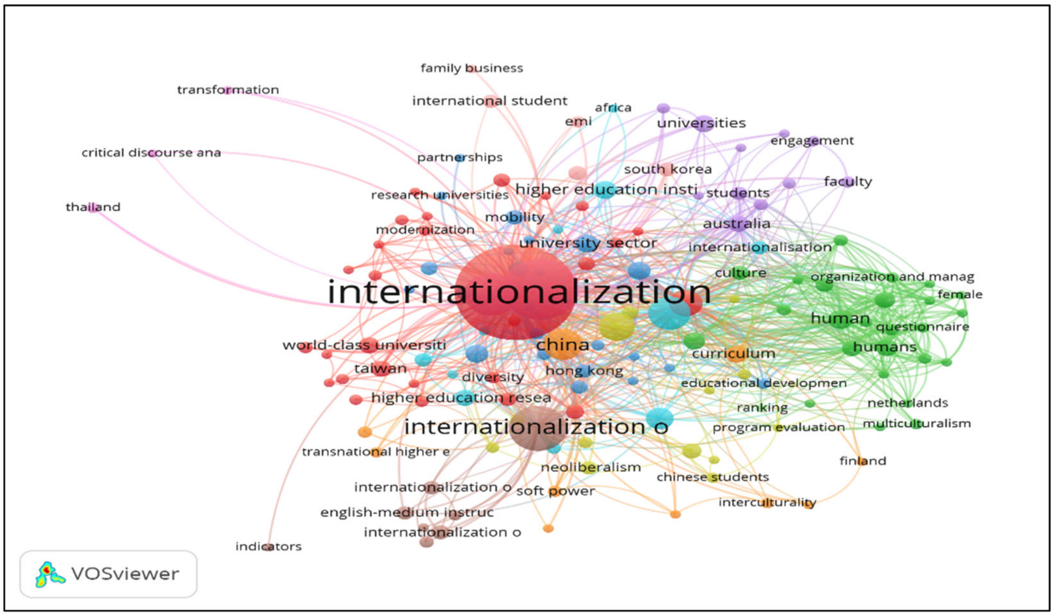

Figure 5. Visual representation of the most common keywords in the publications on IoHE in Asia. Source: Analysis results obtained with VOSviewer software.

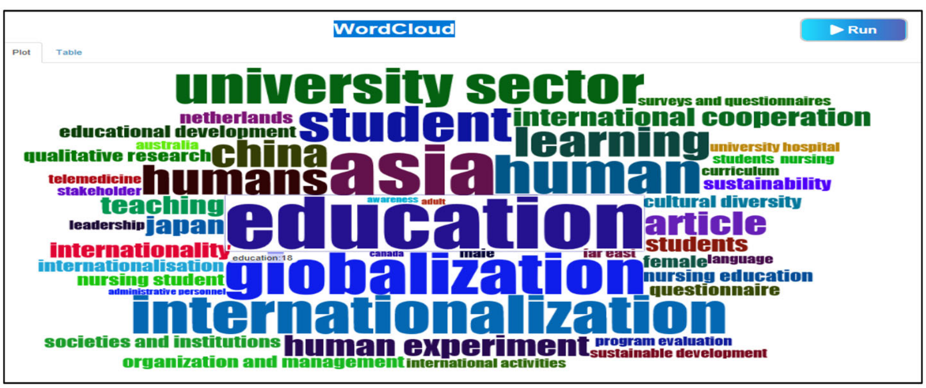

Figure 6. Keyword wordcloud. Source: Analysis results obtained with Biblioshiny software.

university sectors, international, students, Asia. Each node represents one keyword and the thickness of the link between the nodes (as shown in Figure 5) represents the strength of connection between the keywords, which is determined by their co-occurrence frequencies in the 416 publications.

The wordcloud consists of the most common keywords in the publications on IoHE in Asia identified with the support of Biblioshiny software and shown in Figure 6. In this figure, there are also some other common keywords such as international cooperation, education development, sustainable development and education objectives.

Conclusion

Bibliometric analysis of scientific literature on the IoHE in Asia within the Scopus database over 20 years (2003–2022) reveals that IoHE in Asia has garnered the attention of researchers worldwide, with an increasing number of research articles on this topic emerging. Articles published in reputable journals and sources have received a relatively high number of citations. The most influential countries in this research direction are the US, China and the UK. Over the 20-year period (2003–2022), there have been 416 works published in the Scopus database involving 850 authors from different countries around the world, including 127 independent researchers on this topic. A total of 414 organizations, including universities and research institutes, have contributed to this research, and 228 journals have published on this subject. The results indicate that the IoHE in Asia has gained global attention. It seems that there is a heated debate about this topic between researchers in the field, especially when the papers analysed have been effectively implemented in policy on internationalization of education in many countries, which might predict that the impact of these papers will continue to rise. The research results also highlight the constant interest paid by Asia researchers to IoHE in Asia, while the US, China and the UK are the three biggest names in the research area of IoHE in Asia with special attention to IoHE in their own country, region, as well as worldwide. Given the rapid development of science and technology and cross-cultural and international communication, it is positive that the process of IoHE in Asia is getting stronger and stronger. In the future, IoHE will be given top priority in the development strategy of HE institutions in Asia and all over the world.

Furthermore, there are also some noteworthy limitations of this research that should be clarified. First, the papers analysed in this research are limited in Scopus database only, which means that they are all in English, and papers in other languages, which might also be a useful resource for research, are excluded. Second, even though we tried our best to get rid of unrelated papers during the research process, our control method might not be completely optimized, and there might be some irrelevant papers got involved. Finally, some related data such as author names, institutions, as well as their years of research experience could not be found in Scopus database, which might cause an inconvenience in the usage of this research's results.

We hope the findings offered by this research would be valuable materials for future research conducted in the field of IoHE in Asian countries. Specifically, the results demonstrated would give researchers useful information about research trends in recent years and suitable and popular keywords appearing in papers with high frequency, as well as a basic vision about how research in this field is being conducted in other countries outside Asia, which can be the important data for other relevant and potential research directions.

Disclosure statement

No potential conflict of interest was reported by the authors.

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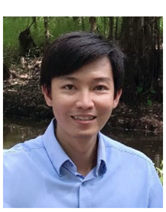

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31st JANUARY 2025

SOURCE: PERPUSTAKAAN UTM

Internationalization strategies for non-Western higher educational institutions: a systematic literature review and conceptual framework

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Received 20 May 2023
Revised 12 January 2024
21 February 2024
8 March 2024
Accepted 14 March 2024

Abstract

Purpose – Internationalization has been a paramount objective for higher education institutions (HEIs) for decades. However, the landscape of education underwent significant transformation due to the COVID-19 pandemic, leading to altered contexts, challenges and opportunities for HEI internationalization. This paper aims to critically evaluate the dimensions of internationalization strategies in HEIs and the opportunities within each dimension. Adopting a reflexive approach, the study focused on non-Western HEIs, recognizing the diverse approaches to internationalization within higher education contexts.

Design/methodology/approach – Using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology, this paper covered 74 articles published in Web of Science database from January 2019 to December 2023.

Findings – The study organized dimensions related to internationalization strategies in non-Western HEIs, offering a comprehensive framework comprising six dimensions: students, programs, faculty, research, international ventures and other sources; and nine internationalization facilitators: international partnerships, funding, government education, international policies, technology, internationalization culture, diversity and inclusion, staff competence and attitude, student/faculty engagement, intercultural experience and satisfaction, English as a medium of instruction (EMI), and knowledge transfer mechanisms. Furthermore, the study delineated strategies within each dimension and highlighted prevalent performance indicators utilized by HEIs.

Originality/value – The study's primary contribution is a conceptual framework designed to assist HEI directors and academics. This framework delves into dimensions, strategies and indicators of internationalization particularly relevant in the post-pandemic era.

Keywords Internationalization, Higher educational institutions, Non-Western HEIs

Paper type Literature review

1. Introduction

For decades, internationalization has been a significant objective for higher educational institutions (HEIs), driven by globalization and the need to adapt to transnational challenges (de Wit, 2019). Required competencies nowadays encompass "multicultural and global education, education for international understanding, peace education and transnational studies" (de Wit, 2002, p. 103). Recent research highlighted the need for educational programs to adapt to meet the evolving demands of students and the business world. Datar *et al.* (2011) identified eight "unmet needs in management education" in their empirical research on MBA programs in Europe and the USA. The study emphasized the importance of a global perspective, prioritizing cross-cultural skills and diversity understanding over traditional analytical skills or technical knowledge for effective leadership in diverse business environments. Accreditation and ranking requirements, crucial for educational standards, underscore the significance of internationalization (McAleer *et al.*, 2019; Alsharari, 2018; Komotar, 2019). HEIs recognize the need to adapt and help students to acquire a global mindset and provide international exposure, urging the internationalization of curricula and

International Journal of Educational Management
Vol. 38 No. 4, 2024
pp. 1079-1099

0951-354X
DOI 10.1108/IJEM-05-2023-0243

learning environments. Scholars advocate for a "global higher education (HE) regime" to meet these demands (Zapp and Ramirez, 2019).

COVID-19 pandemic forced HEIs to pivot to online learning as the primary means of educational delivery, reshaping the context, challenges and opportunities for educational institutions worldwide (Whittle *et al.*, 2020). The pandemic represented a "new disruptive force that shaped the way internationalization and international mobility are implemented in the sector and provided new avenues for research" (Mittelmeier and Yang, 2022, p. 88). Amid the pandemic, HEIs' internationalization strategies and the challenges faced by international students in online courses were studied (Bahtilla *et al.*, 2022; Echeverría-King and Lafont-Castillo, 2020; Cordova *et al.*, 2021). Yet, to the authors' knowledge, there has not been a comprehensive analysis of the changes and opportunities for HEIs to internationalize future activities based on the global experience gained during the pandemic.

This study examined the dimensions of HEIs internationalization strategies, particularly the changes and opportunities arising post-COVID-19. It sought to answer these research questions: What dimensions characterize HEIs' internationalization strategies? What opportunities exist for internationalization in non-Western HEIs across these dimensions? The study covered the non-Western context due to the varied approaches to internationalization in HE across cultural contexts, which affect faculty engagement differently (Akar *et al.*, 2020; Rana *et al.*, 2021). Following Copper's taxonomy of literature reviews (Copper, 1988), this paper developed a comprehensive model integrating dimensions of HEIs' internationalization strategies. This paper, believed to be the first on this subject, is expected to serve as an input for creating new internationalization strategies for HEIs.

The subsequent sections of the article are structured as follows: Section two includes relevant concepts concerning HEI's internationalization strategies. Section three delineates the methodology used for the literature review, while section four shows the findings. The concluding section presents the discussion.

2. HEI's internationalization strategies

Previous literature offered varied definitions of HEIs internationalization, employing terms such as *international education*, *international studies*, *internationalism*, *transnational education*, *globalization*, *multicultural education* and *intercultural education*. Some authors do not differentiate between internationalization and globalization. Knight (2003) affirmed that these terms are different: "Globalization is presented as a process that affects internationalization, and internationalization is the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education" (Knight, 2003, p. 2). Knight (2004) defined internationalization encompassing multiple aspects: a continuous process, relationships among countries, relationships among diverse cultures within countries, communities and institutions, global reach, and integration into policies and programs. This definition underscored the significance of intercultural experiences in preparing students for engagement in an increasingly globalized world. Hawanini (2011) and Altbach (2015) defined HEI internationalization as the integration of "institutions and key stakeholders, including students, faculty and administrative staff into a rapidly changing world" (p. 5) and "the specific policies and initiatives of countries and individual academic institutions or systems to address global trends" (p. 6).

HEIs internationalization entails integration into the external education market and implies a cultural change. The concept of an "international HEI" encompasses rhetorical commitments to internationalization in promotional materials, international agreements, international accreditations and global branding efforts. Internationalization is a comprehensive process that enriches the institutional mission by integrating intercultural perspectives into student learning experiences. This fosters the development of skills and competencies, preparing students to become professionals and catalysts for change in a globalized world. Some authors argued that significant inequalities exist within internationalization processes, predominantly characterized by mobility from developing to Western countries in a unidirectional flow (Altbach and Knight, 2007). This suggests that internationalization means *westernization* (Liu, 2021; Tight, 2022; Marginson, 2023).

HEIs' internationalization rationales encompass academic (academic autonomy, collaborative learning, exchange), social/cultural (global massification of HE), political (changing political climate), economic (global knowledge and research economy, driven by technology and science) and branding factors (competition, reputation, rankings, excellence) (Alexiadou and Ronnberg, 2022; de Wit, 2019). Guerra *et al.* (2023) examined HEIs in Brazil and identified rationales for internationalization are academic (enhancing academic quality and research, fostering partnerships), institutional (faculty development), social/cultural (knowledge exchange), economic (global preparedness and employability). Furthermore, Stier (2004) outlined three rationales for HE internationalization: *pedagogical* (preparing students for global participation), *idealistic* (perceiving international education as a tool for social mobility, competitiveness and employability) and *instrumental and competitive* (regarding international education as a means for economic growth and profit maximization for HEIs). Altbach (2015) noted that the instrumental approach prevails in Western universities. Knight (2004) categorized the rationales into two main groups: national-level, involving human resource development, strategic alliances, trade facilitation, nation-building and social and structural advancement; and institutional-level, encompassing profile enhancement, students and staff development, revenue generation, strategic alliances, research and knowledge production.

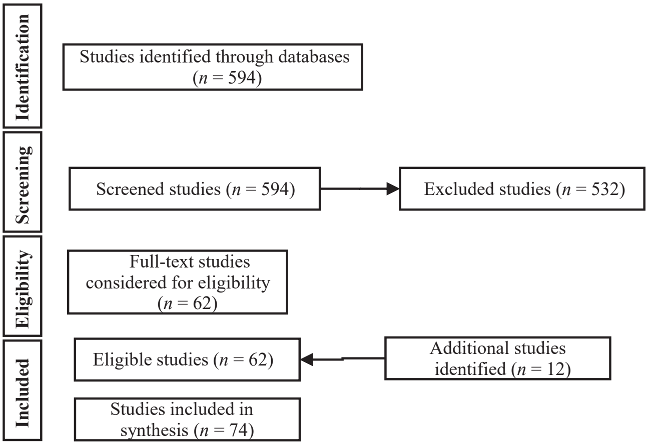
Moreover, recent studies proposed HE internationalization as part of the social responsibility agenda, emphasizing its "contribution to society and the global common good by strategically implementing their global social responsibility through internationalization" (Jones *et al.*, 2021, p. 330). Smaliakou (2019) conceptually analyzed the philosophical aspects of internationalization in HE from three perspectives: as part of globalization, as a response to development challenges, and as a phenomenon preceding global transformations.

3. Methodology

This literature review proceeded in three phases. First, criteria for paper selection and classification were established. Second, the papers were analyzed using the analyze results tool by Web of Science (WoS) core collection, using fields of research, journal, years, authors and citations. Third, the papers were classified and a comprehensive framework of HEIs internationalization strategies was proposed. Thematic analysis, involving pattern recognition, guided the classification process drawing from a complete reading of the selected literature (Fereday and Muir-Cochrane, 2006).

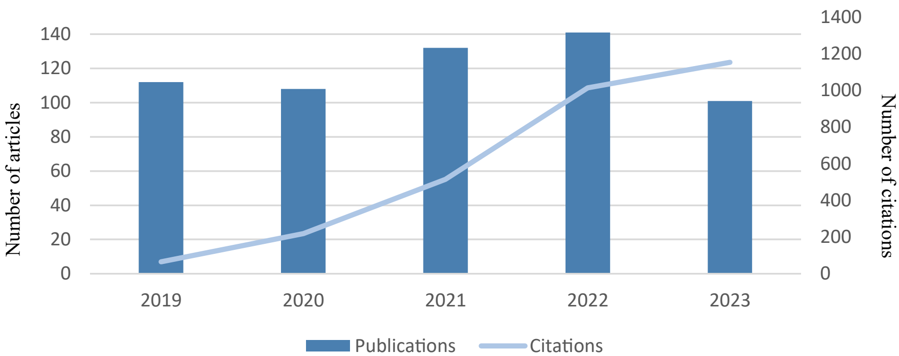
The protocol involved a search conducted in the WoS database in December 2023. In the first phase, the terms "internationalization" or "internationalisation" or "international" or "intercultural" and "higher education" were used in the titles. The search was restricted to research papers, excluding conference proceedings, book chapters and essays, aligning with common practices using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method (Estevao and Costa, 2020). The initial search yielded 910 research papers. In the second phase, papers were refined to include only those authored in English, Spanish and Portuguese, resulting in 877 research papers. Finally, the search was further narrowed to include papers published from January 2019 to December 2023, aligning with the research focus on post-pandemic internationalization strategies. A total of 594 articles were identified. From this review, 62 papers addressing the research question were selected for content analysis. Twelve seminal articles deemed crucial for the literature review were identified from the references of these papers. The additional articles included correspond mainly to seminal articles that we consider important for the literature review. Figure 1 shows the flowchart of the literature screening process (PRISMA, 2020).

Figure 2 illustrates the trend of the 594 papers and their citations, reflecting a growing interest in the topic. *The Journal of Studies in International Education* published 31 papers on the topic, and the *Higher Education Journal* published 30 papers, constituting over 10.3% of the total. The countries with the highest publication rates were China (92), England (75), USA (93), Australia (66) and Brazil (40). In terms of citations, the 594 papers had 2,986 citations, averaging 5.03 citations per paper (Figure 2). The 62 selected papers had 489 citations, averaging 7.9 citations per paper (Figure 3). The most cited authors were Galloway *et al.* (2019) (65 citations), de Wit and Altbach (2021) (47 citations), and Zapp and Ramirez (43 citations). Finally, six papers were from *Journal of Studies in International Education*, three from *Sustainability* and the remaining journals have had two or fewer papers. Language-wise, 56 were in English, three in Spanish and three in Portuguese.



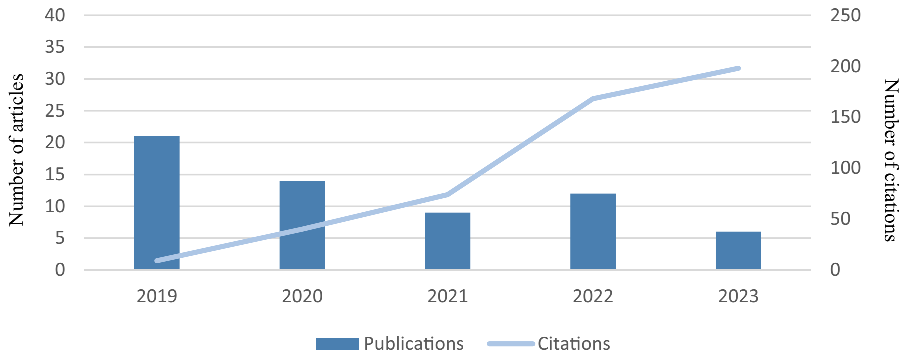
Source(s): Adapted from PRISMA (2020)

Figure 1.
PRISMA flowchart of the screening process



Source(s): Authors' own creation/work

Figure 2.
Trends in publications on HE internationalization (2019–2023)

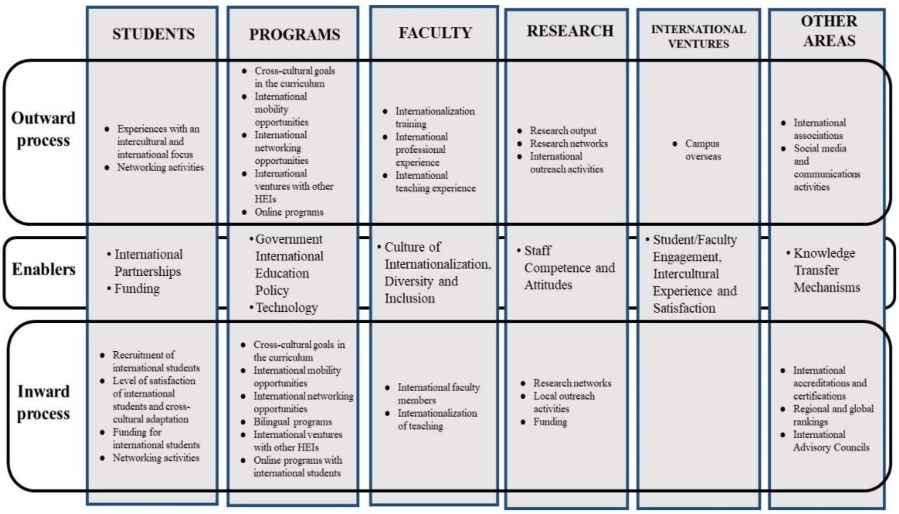


Source(s): Authors' own creation/work

Figure 3. Selected publications on HE internationalization (2019–2023)

4. Literature review analysis

Thematic analysis was employed to categorize the selected literature into dimensions of HEIs' internationalization, including students, programs, faculty, research, international ventures and other sources of internationalization. Based on previous literature (Hawanini, 2011), strategies were further categorized as *inward* (internalizing internationalization within the university) and *outward* (expanding the university's presence globally). Additionally, the model incorporates nine enablers of internationalization: international partnerships; funding; government international education policy; technology; culture of internationalization, diversity and inclusion; staff competencies and attitudinal approaches; student/faculty engagement, intercultural experiences and satisfaction; English as a medium of instruction (EMI) and knowledge transfer mechanisms. The dimensions and enablers come from the inductive analysis of the literature review. Figure 4 depicts the proposed conceptual framework for the internationalization dimensions of HEIs.



Source(s): Authors' own creation/work

Figure 4. Conceptual framework for HEI internationalization

4.1 Internationalization modes

Various modes elucidate HEIs' internationalization activities. Knight (2003) suggested two groups of strategies. The first encompassed academic aspects and initiatives regarding teaching, research and ancillary services (student mobility, curriculum changes and institutional agreements for faculty exchange and joint research). The second group pertained to the institutionalization of internationalization initiatives, programs and technological services within organizations. Knight (2004, 2008) also proposed the models of "internationalization at home" and "internationalization abroad". The first involves integrating foreign students and professors into campus life and activities, fostering international understanding and intercultural skills for a globalized world. The second entails activities outside the university campus, such as intercultural exchange programs, international student trips, international branch campuses and faculty internationalization activities. Hawanini (2011) proposed the import-export model, which suggests an internationalization stage (import process) and a global role stage (export process). In the internationalization stage, HEIs "import" activities to attract foreign students and faculty, incorporating international content into the curriculum. In the global role stage, HEIs "export" international activities by sending students abroad, encouraging faculty to teach and research overseas, and establishing international campuses. Engwall and Kipping (2013) introduced a model wherein HEIs use two dimensions of internationalization: student origin (domestic/foreign) and location (home/host). This resulted in four different mechanisms of internationalization: importing ideas, outsourcing, insourcing and foreign direct investment. Importing ideas involves adopting models from other contexts for home students. Outsourcing entails sending students and faculty to foreign institutions (e.g. exchange programs, professors abroad, academic conferences, etc.). Insourcing means "bringing" international students and faculty to the home country. "Foreign direct investment" refers to investing in foreign students outside the home country, representing the highest level of internationalization and the highest investment risk.

Recent approaches introduced the "comprehensive internationalization," which involves HEIs' intentional efforts to integrate global content and perspectives into their teaching, research and service missions (Hudzik, 2015). Other studies proposed "complete internationalization", emphasizing the commitment to integrate the international dimension into HEIs, through policies, plans, programs and strategies (p. 508) (Chyrva *et al.*, 2021). More recent approaches advocate for a "glonacal" approach to development, considering development at "local, national and global" levels (Chankseliani, 2022). International accreditation agencies assess HEIs internationalization using indicators such as policies, curriculum, research, faculty, students, exchanges, alumni, staff and institutional networks (Global Focus, 2023). Additionally, studies examined internationalization modes based on HEIs' developmental stages. Brandenburg *et al.* (2020), cited by Woicolesco *et al.* (2022) proposed five stages: individual academic pursuits; intention to educate global citizens; integrating internationalization into student learning; assessing outcomes and adopting a global approach.

In summary, the previous literature shows different conceptualizations of the internationalization of HEIs that have evolved over time. The proposed framework integrates the concepts of "comprehensive internationalization" (Hudzik, 2015) and "complete internationalization" (Chyrva *et al.*, 2021), emphasizing the integration of internationalization into HEIs' mission, values and functions. It also draws on Knight (2004, 2008) and Hawanini (2011) to define internationalization dimensions and strategies, distinguishing between inward and outward strategies.

4.2 Dimension 1: students' internationalization

Student mobility is the most prominent aspect of HEIs' internationalization (Myhovych, 2019), which includes recruiting international students ensuring their satisfaction and intercultural adaptation, providing funding, facilitating international experiences and organizing networking activities (Table 1).

Various activities promote intercultural and international experiences through an *outward* strategy to internationalizing students. For example, study trips (involving courses at partner schools, business visits and cultural immersion), short-term "doing business" programs, exchange programs with international partner schools, and projects addressing current challenges or opportunities at international sites for sponsoring organizations.

Recruiting international students is a key *inward* strategy for fostering diverse learning experiences. The rise in foreign student enrollment poses significant competition among HEIs and underscores the importance of institutional prestige (Ayala-Bolaños and Valencia-Cruzaty, 2019; Veerasamy and Durst, 2021; Abdulai *et al.*, 2021). Factors influencing students' decisions include the institution's environment, country attractiveness, political stability, safety, image and living conditions abroad (Gokturk *et al.*, 2018). Hung and Yen (2022) emphasized the need for HEIs to understand "cultural diversity and students' perspectives" to effectively recruit international students, particularly considering factors such as financing and institutional image. Key factors for attracting international students are program duration, financial support and satisfaction levels. To optimize student recruitment, HEIs shall strive to import students for one or two-year academic programs or exchange students for short-term courses or programs. Financial aid, such as scholarships funded by institutions or governments, plays a vital role in attracting students. For instance, the Chinese government offers 10,000 full scholarships annually to countries along "the Belt and Road" to increase international student numbers (Larbi *et al.*, 2020). Ensuring the satisfaction of previous international students is crucial for recruiting new ones. HEIs must facilitate cultural adaptation for international students (Shafaei and Razak, 2016), while encouraging engagement among students, professors and staff to promote cross-cultural diversity.

Internationalization broadens students' perspectives by exposing them to global values and diverse ways of thinking, fostering self-discovery. Research in Brazil indicated that exchange students contributed to an informal solidarity network within universities, emphasizing cultural and intellectual exchange (Cardoso and Ribeiro, 2019). However, internationalization efforts may incur significant costs and may not always align with students' local contexts, potentially leading to superficial experiences akin to tourism. In some cases, international programs may isolate local students due to cultural differences rather than fostering global integration.

Strategies	Indicators
Recruitment of international students	• Number of international students • Number of nationalities • Length of stay
Satisfaction level and cross-cultural adaptation	• Customer journey
Funding	• Scholarship policies • Number of scholarships for low-income international students
Experiences with an intercultural and international focus	• Number of students traveling abroad • Number of courses taught by foreign professors • Number of projects experiences with international students
Networking	• International networking between international and national students

Source(s): Author's own creation/work

Table 1. Strategies and indicators of students' internationalization

The COVID-19 pandemic has prompted HEIs to implement *virtual student mobility* as an alternative to traditional academic mobility, aiming to foster intercultural competencies without physical displacement (Woicolesco *et al.*, 2022). Defined by UNESCO-IESALC (2022) as "a form of mobility using communication technologies", it encompasses academic, cultural and experimental exchanges and collaborations" (p. 1). *Virtual Student Mobility* encompasses academic (full courses or programs), experimental (internships), cultural (projects/activities) and emergency (temporary changes) opportunities. Challenges include ensuring education quality amidst infrastructure limitations, Internet access, language barriers and inconsistencies across institutions (UNESCO-IESALC, 2022).

4.3 Dimension 2: internationalization of academic programs

The internationalization of academic programs encompasses curriculum internationalization (intercultural goals), international mobility, international networking, bilingual programs, collaborations with foreign HEIs and online programs (Table 2).

Internationalizing the curriculum "to have graduates with global citizenship skills is a common strategic goal in HE" (Kirk *et al.*, 2018, p. 989). It involves integrating international, intercultural and global dimensions into the curriculum content, teaching methods, extracurricular activities, learning outcomes and overall student's learning experience (Leask, 2015). Knight and de Wit (1995) affirmed that international curricula "aim to prepare students for professional and social engagement in multicultural contexts" (Knight and de Wit, 1995, p. 14).

Strategies	Indicators
Cross-cultural goals in the curriculum	International • Contents • Focus • Values in the course design • Learning outcomes • Materials and educational resources
International mobility	• Degree mobility: completion of one or more degrees abroad • Credit mobility: engagement in a short-term study abroad, and subsequently transfer earned credits to their home degree • Certificate mobility: brief stays abroad for enhancing specific skills without pursuing degrees or credits
International networking	Number of • Collaborative online international programs • International consulting projects • Global marathons/competitions (students from several countries solve a proposed challenge) • Virtual dual immersion program/meetandtalk activities • International virtual networking • International conferences
Bilingual programs	• English programs
Collaboration with foreign HEIs	• International branch campuses • Joint and dual degree programs • Second academic degree abroad • Franchise agreements • Twinning programs • Distance learning programs with local stays • Study centers
Online programs	• Distance learning programs with international students

Source(s): Author's own creation/work

Table 2.
Strategies and indicators of internationalization of programs

Renfors (2021) linked curriculum internationalization to integrating "international and intercultural course content in collaboration with other HEIs, fostering students' ability to work in diverse contexts and addressing cultural differences in teaching and learning styles through effective and appropriate communication" (pp. 8-9). This process required a systematic development approach with defined international learning objectives to achieve high-quality learning outcomes.

Internationalization of programs encompasses mobility and networking opportunities, with HEIs offering several activities in this regard. Abduh *et al.* (2021) categorized these as national and multicultural engagement activities. National activities consist of formal, semi-formal and project-based multicultural engagement activities, while international activities encompass short, medium and long-term international multicultural engagement activities abroad (p. 3296). de Wit and Altbach (2021) affirmed that international student mobility encompasses degree mobility (full-degree programs abroad), credit mobility (short-term study abroad with credit transfer) and certificate mobility (shorter stays abroad to enhance specific skills, particularly in executive education programs). Bilingual programs are crucial in non-English speaking countries, particularly in business schools where English content is essential due to its status as the international language of business (Galloway *et al.*, 2019).

International ventures with other HEIs encompass distance programs, twinning programs, articulation agreements, international branch campuses, franchise agreements, i.e. when foreign HEIs allow local ones to offer their programs (Ayala-Bolaños and Valencia-Cruzaty, 2019), joint or dual degrees/certificates, and study abroad opportunities integrated into academic programs.

HEIs aiming for global recognition often develop online education programs to attract foreign students, supplementing overseas campuses. However, while physical campuses promote global roles, online programs face challenges in internationalization. The COVID-19 pandemic prompted the adoption of new strategies such as the Virtual Programs Mobility. The main challenges are program identification and transferability, and the Bologna Process in Europe, which includes the European Credit Transfer System (ECTS) and the student-centered approach.

4.4 Dimension 3: faculty internationalization

Faculty members are pivotal agents of HEIs' internationalization (Romani-Dias and Carneiro, 2020), requiring "internationalization competencies" across teaching, research and academic management (Cortina-Pérez and Medina, 2019). HEIs internationalization level is often reflected in the number of foreign professors. However, other critical factors include the faculty's global academic degrees, professional experience, teaching in various HEIs worldwide, intercultural skills and involvement in international research networks and funding. Strategies for faculty internationalization include the recruitment of foreign professors, their involvement in teaching, global training, professional and academic experiences abroad, and international research experience (Table 3).

In line with the outward strategy, HEIs aim to enhance faculty internationalization by recruiting professors with global experience and facilitating ongoing development through training, professional engagements, teaching roles as visiting professors, and research activities, such as collaborations, grants and conference participation.

Inward strategies focus on attracting professors from different countries, which poses a complex challenge for HEIs as it involves relocation. The decision to hire them depends not only on the academic institution's quality and job offers, but also on the living conditions in the host country for the professors and their families. Part-time foreign professors contribute to HEIs' internationalization, albeit to a lesser extent than full-time professors do. HEIs employ various strategies with other institutions to develop joint academic programs, leverage international strengths, invite international visiting professors to teach, give lectures or extracurricular

Table 3.
Strategies and indicators of faculty internationalization

Strategies	Indicators
International faculty members	Number of • Foreign faculty • Nationalities • International visiting professors and number of nationalities
Internationalization of teaching	Number of • Courses taught by foreign faculty • Foreign professors who were members of the doctoral dissertation committee • Doctoral dissertations advised by foreign professors
Internationalization training	Number of • Faculty with foreign academic degrees • International training courses attended by the faculty • Post-doctoral stays in foreign universities • Professors who give lectures in foreign languages
International professional experience	Number of • International professional experience of faculty members • Affiliations with global academic associations • Professors who participate in the board of international organizations
International teaching experience	Number of • Faculty members' international academic experience • Professors teaching in partner schools/teaching abroad/exchange programs • Professors who can teach in English and multicultural environments
International research experience	• See internationalization of research

Source(s): Author's own creation/work

seminars. Challenges to internationalizing face-to-face faculty include reluctance to move abroad and the high cost of hiring foreign faculty. Language proficiency poses a significant challenge for both local and foreign professors (Chmelikova and Hurajova, 2019). Romani-Dias and Carneiro (2020) found that faculty pursues internationalization to have international job opportunities, gain social recognition and greater autonomy, and enhance security. Nevertheless, the study noted deterrents such as temporary, financial, psychological and physical costs that discourage faculty from actively seeking internationalization.

Faculty internationalization also includes national professors' international experience across four dimensions: training, teaching, professional experience and research. Romani-Dias *et al.* (2019) noted that faculty characteristics, such as international academic exposure, participation in global cooperation networks, co-authorship in international research and publication in international journals, positively influence HEIs' internationalization efforts.

The COVID-19 pandemic catalyzed the proliferation of e-learning, addressing challenges in faculty engagement through virtual faculty mobility. Remote connectivity facilitated hiring professors without relocation, enhancing their participation in HEI activities. This shift allowed professors to teach online at other universities, engage in international contexts and attend academic conferences virtually. While some internationalization activities remain unchanged, the surge in online education and remote work minimizes travel expenses and fosters growth opportunities.

4.5 Dimension 4: internationalization of research

The internationalization dimensions of HEIs concerning research comprise five strategies: output, network, local outreach activities, international outreach activities and funding (Table 4).

Strategies	Indicators
Research output	Publications • International impact, global and regional interest • Foreign co-authors • Joint international research projects
Research networks	• International research networks between professors and other international institutions
International outreach activities	• International academic conferences attended • Faculty editors of academic journals
Local outreach activities	• International conferences conducted locally
Research funding	• International grants and research funding

Source(s): Author's own creation/work

Table 4. Strategies and indicators for research internationalization

Based on the outward strategy, research output serves as the primary indicator, encompassing high-impact publications, global interest and collaborations with foreign co-authors. Networks are internationalized through collaborations and partnerships with foreign academics and HEIs (Fu *et al.*, 2022). Outreach activities involve faculty participation in conferences and journals. Based on the inward strategy, the fourth group encompasses hosting conferences "importing" international speakers, while the fifth strategy involves diverse funding sources enhance research capacity.

The massification of remote activities facilitates internationalization, including establishing research networks, organizing virtual conferences and promoting virtual dissemination activities. Although it may be complex to generate interaction among researchers virtually, remote activities reduce travel costs and broaden access to international professional activities. Technology has also transformed academic conferences, allowing virtual and in-person participation, thus enhancing opportunities for academic exchange (Virtual Research Mobility).

4.6 Dimension 5: international ventures

Establishing international branch campuses is crucial to expand HEIs' global presence and attract students from foreign locations. This strategy involves exporting academic programs and deploying faculty from various countries (Yu, 2022). However, establishing branch campuses is risky according to Beecher and Streitwieser (2019). Challenges include maintaining quality standards remotely and navigating legal barriers that may impede the establishment of academic programs abroad.

4.7 Dimension 6: other areas of internationalization

Other areas of internationalization include local and international accreditations, rankings, associations and advisory boards (Table 5).

Strategies	Indicators
International accreditations and certifications	Number of accreditations
Regional and global rankings	Rank positions
International advisory councils	Member of consulting international boards
International associations	Number of international associations memberships
Social media and communications activities	Impact on social media

Source(s): Author's own creation/work

Table 5. Strategies and indicators of other areas of internationalization

Local and international accreditation, certification and rankings are fundamental aspects of internationalization strategies, reflecting adherence to international education quality standards. The inward-outward model of internationalization can benefit from "importing" international experts, who can serve on academic or professional boards to provide an international perspective. Membership in international academic organizations and participation in international boards of directors can enhance the school's global knowledge and connections. Communication channels targeting multicultural segments, such as multilingual websites or social media, are crucial for highly internationalized HEIs. These aspects remain unaffected by the digital transformation of education, but future accreditation, certification and ranking criteria may incorporate virtual program elements, prompting a reevaluation of internationalization standards.

4.8 Facilitators for internationalization strategies

4.8.1 International partnerships. Implementing internationalization strategies in HEIs requires international partnerships to expand joint programs, research and outreach activities. Strengthening existing initiatives and fostering new collaborations are essential (Ndaipa *et al.*, 2022). Academic reputation plays a pivotal role in initiating partnerships, with institutions often taking the lead. Puncreobutr *et al.* (2020) classified collaboration models among international HEIs in Thailand into three types based on benefits: provider-recipient, joint benefits and joint contributions to society.

4.8.2 Funding. Funding internationalization poses a major challenge for universities. Some institutions view it as a supplementary revenue stream, financing it through income generated from international activities like fees from international students and government loans (Jooste and Hagenmeier, 2022). Conversely, certain countries, such as Brazil, China and the EU rely on public funds to support internationalization efforts, thereby sourcing funding externally (Woicolesco *et al.*, 2022; Larbi *et al.*, 2020; González-Bonilla *et al.*, 2021). Public funding for international scholarships has a positive impact on academic programs (de Mattos *et al.*, 2020). Alternatively, institutions may choose to finance internationalization efforts from their own budgets, particularly those seeking to enhance their global standing to attract more students and revenue to meet international accreditation standards.

4.8.3 Government education international policies. Government support programs play a pivotal role in facilitating HEIs internationalization, recognizing it as a crucial long-term developmental strategy. Fan *et al.* (2022) analyzed internationalization support policies across Brazil, Russia, India, China and South Africa, revealing sustained national commitment to funding various internationalization initiatives. These include incentives for publishing in international journals, recruiting foreign faculty and staff, and funding long-term mobility periods. The study highlighted the impact of international education policies on national and global educational development in these countries.

4.8.4 Technology. Technology is a driving force of internationalization, offering innovative avenues for global engagement. These include virtual exchange programs, enabling students from diverse backgrounds to collaborate on academic projects through virtual platforms. Distance academic mobility provides access to educational services via online platforms. Collaborative international research projects involve professors from different universities collaborating through online tools. Virtual participation of international speakers enriches the classroom experience, while massive open online courses (MOOCs) offer free asynchronous courses and collaborative online international learning (COIL) fosters intercultural competencies in virtual classrooms without requiring travel (Global Focus, 2023, Chyrva *et al.*, 2021).

The integration of technology into international education is referred to as virtualization of internationalization (Bruhn-Zass, 2022), distance internationalization (Mittelmeier and Yang, 2022), e-internationalization or transnational education (Kobzhev *et al.*, 2020). Kobzhev *et al.* (2020) stated that "transnational education includes various HE programs, training courses and online projects where students reside in one country while the institution is located in another" (p. 3). Bruhn-Zass (2022) affirmed that virtual internationalization involves incorporating technology into the global aspects of HE functions and objectives. Mittelmeier and Yang (2022) argued that distance internationalization means conducting virtual educational activities across institutional, student, faculty and staff boundaries to broaden access to internationalization benefits.

4.8.5 Culture of internationalization, diversity and inclusion. Several studies emphasized the importance of embedding internationalization throughout all aspects of HEIs. Bulut-Sahin *et al.* (2023) asserted that internationalization in HEIs "must be in the deoxyribonucleic acid (DNA) of academics, not an add-on." (p. 11). Another fundamental aspect of sustainable internationalization strategies involves fostering a culture that embraces the cultural diversity resulting from internationalization. The adjustment of international students and faculty members may vary, particularly those belonging to minority groups facing racism, nationalism and other forms of discrimination (Mwangi *et al.*, 2019; Jiang, 2020). Therefore, fostering a culture of diversity and inclusion is imperative for effectively implementing internationalization strategies in HEIs.

4.8.6 Staff competence and attitude. International office professionals (IPs) are the main stakeholders in executing internationalization strategies. Research underscores the institutional and professional constraints faced by IPs, emphasizing that their function should transcend mere administrative roles, avoiding being relegated to mere facilitators of travel or scholarship distribution (Bulut-Sahin *et al.*, 2023, p. 11). González-Bonilla *et al.* (2021) analyzed the staff specifically engaged in internationalization processes across 85 European universities, including student exchanges coordinators and the international relations office staff. The study highlighted the indispensable role of human resources in driving internationalization efforts, with staff dedication, experience and motivation identified as key facilitators (González-Bonilla *et al.*, 2021, p. 59).

4.8.7 Student/faculty engagement, intercultural experience and satisfaction. The sustainability of internationalization strategies hinges on the efforts to enhance international student/faculty's experience and engagement. Studies emphasized the importance of going beyond offering international programs and investing in activities to ensure student satisfaction and faculty integration (Poort *et al.*, 2019; Wilkins and Neri, 2019). Low levels of satisfaction and engagement among international students and faculty can lead to feelings of isolation and hinder their performance (Idris *et al.*, 2019).

The challenges in catering to the diverse needs of international students and faculty are extensive. Wekullo (2019) stressed the importance of understanding their expectations. It is necessary to engage several stakeholders, including international and guest professors, students, academic authorities, staff and the community. Swanson and Swanson (2019) highlighted the cultural competence among faculty to avoid miscommunication and dissatisfaction. Moreover, international students/faculty must actively participate and seek meaningful interactions to enhance their engagement (Wekullo, 2019). Previous literature explored the experiences of international students in HEIs and identified critical factors for improving their learning experience (Saunders and Fisher, 2020).

4.8.8 English as a medium of instruction (EMI). Several studies highlighted the importance of non-English-speaking HEIs adopting EMI for internationalization purposes (Chmelikova and Hurajova, 2019; Gundsambuu, 2019a; Dearden, 2014). Dearden (2014) defined EMI as "a growing global phenomenon in education that uses English to teach academic subjects in countries where the native language is not English" (p. 2), and Coleman (2006) called it the *Englishization* of education. However, it is essential to understand that EMI serves as a means of internationalization; it is not the ultimate goal. Educators should understand that internationalizing the curriculum involves more than offering degree programs in English; it encompasses instructional language, materials, and program provision (Weimer *et al.*, 2019). Tejada-Sanchez and Molina-Naar (2020) concluded, "EMI implementation is inevitable within university internationalization efforts" (p. 339).

Internal and external factors drive HEIs to implement EMI (Gundsambuu, 2019a, b). Internally, this shift enhances students' English proficiency, fosters global citizenship, creates an international atmosphere and boosts university rankings. Externally, it improves student exchange programs and international partnerships. Offering English programs also attracts global talent and facilitates the formation of international networks (Graddol, 1997).

Despite its benefits, implementing EMI presents various challenges, including student dissatisfaction, limited English proficiency, external pressures, structural and cultural challenges, increased workload, and intercultural problems (Gundsambuu, 2019a). Dearden (2014) highlighted that, in many countries, educational infrastructure and English proficiency at the basic education level pose challenges to EMI implementation. Additionally, the increasing use of English proficiency tests for universities admission policies and the associated costs hinder internationalization (Rajendram *et al.*, 2019). Oglu *et al.* (2019) noted that the low level of foreign language proficiency among students is a barrier to participation in international projects. Furthermore, the compulsory adoption of EMI in some regions could provoke negative reactions from professors who perceive it as a threat to their own professional identity (Jon *et al.*, 2020).

4.8.9 Knowledge transfer mechanisms. Knowledge transfer within HEIs involves faculty, students and staff engaging in teaching, service, and research activities. Knowledge transfer resulting from internationalization is crucial because "students and faculty are not only recipients of knowledge but also the providers" (Luo, 2023, p. 10). Effective knowledge transfer mechanisms are vital for the sustainability of internationalization efforts, particularly concerning faculty and students. While specific mechanisms facilitating knowledge transfer through faculty internationalization are underexplored, existing literature suggests teamwork, faculty training and collaborative research. HEIs must establish their own mechanisms to transfer the knowledge brought by international faculty to national professors, students, academic authorities and staff (Djikhy and Moustaghfir, 2019).

5. Discussion

HEIs globally recognized the imperative of integrating internationalization into their mission, accompanied by specific indicators for student, program, faculty and research mobility. Historically, however, internationalization has focused primarily on facilitating student and faculty mobility from non-Western countries to Western countries, and it has been criticized for its unidirectional nature, labeled by some as the Westernization of internationalization (Liu, 2021; Tight, 2022; Marginson, 2023). Moreover, despite the academic and social objectives, there has been a prevailing focus on viewing internationalization primarily as a means to enhance profits and drive HEI economic growth (Altbach, 2015).

HEIs' internationalization efforts in non-Western countries encountered significant difficulties. These include the expenses associated with student mobility, the *Englishization* of education, limited international appeal of non-Western HEI locations, difficulties in obtaining visas to Western countries and financial constraints for students, faculty and institutions. Consequently, the prevailing mobility-centric approach often restricts study abroad opportunities to a privileged minority (Liu and Gao, 2022, p. 8). Kosaikanont (2020) highlighted that only 2.3% of global HE students participate in outbound mobility programs. de Wit *et al.* (2015) indicated that internationalization needed to shift towards a more inclusive and less elitist internationalization process that prioritizes quality education and research over mere economic motives. Global Focus (2023) highlighted that business schools can contribute significantly to global societal welfare through inclusive internationalization. This requires developing alternative internationalization mechanisms, including what Kosaikanont (2020) calls the "internationalization of the classroom" through "course content, objectives, expected learning outcomes, and maximized inbound student mobility". Assessment and reflection are crucial for equipping students with international, intercultural and global knowledge" (p. 127). Additionally, approaches, like the COIL, "have the potential to foster internationalization at home in a non-hegemonic format in the global South" (Hildeblando *et al.*, 2022).

HEIs should tailor their internationalization strategies based on their needs, avoiding a one-size-fits-all approach. Several scholars (Chyrva *et al.*, 2021) noted that HEIs' internationalization strategies focused only on isolated activities. A more comprehensive approach is needed to integrate a "global, regional, national and local" approach (de Wit *et al.*, 2015). Moreover, the effectiveness of internationalization efforts should be evaluated not just by the quantity of activities but also by their impact on developing students' competencies.

Frameworks play a significant role in guiding non-Western HEIs through internationalization. This study examined the dimensions of HEI internationalization strategies, focusing on the experience in non-Western contexts, and proposed a comprehensive framework consisting of six dimensions: students, programs, faculty, research, international companies and other sources. Based on previous literature, strategies were divided into *inward* (internationalizing the HEI) and outward (bringing the HEI to the world) (Hawanini, 2011).

The framework proposed nine facilitators of internationalization processes: First, international partners to expand internationalization activities. Second, the development of financing strategies for internationalization, through own or government resources. Third, governmental international education policies play a fundamental role in facilitating internationalization. Fourth, technology has emerged as a crucial facilitator. COVID-19 pandemic significantly accelerated the adoption of technology, greatly expanding the reach and accessibility of internationalization activities. Technology's global impact is profound as it transcends geographical and temporal boundaries (Kobzhev *et al.*, 2020). Technology fostered connections among academic communities, supporting the development of students' intercultural competencies, as well as collaborative work (Echeverría-King and Lafont-Castillo, 2020). New technology-mediated internationalization strategies helped overcoming barriers to internationalization activities, including the cost of student and faculty mobility, political and health-related visa constraints, and cultural and social challenges, thus offering opportunities for disadvantaged students (Gómez, 2020). However, it is important to note that while virtual mobility fosters students' inclusion in internationalization; it may not adequately promote the development of intercultural competencies (Gómez, 2020). Fifth, fostering a culture of internationalization, diversity and inclusion in the academic community is paramount. Sixth, staff competence and attitude is fundamental for ensuring a successful experience in all internationalization initiatives, as they play a direct role in strategy implementation. Seventh, sustainable internationalization strategies are based on achieving robust engagement among students and faculty, leading to heightened satisfaction with intercultural experiences. Eight, despite criticisms, EMI remains a significant facilitator in the internationalization process. Finally, to ensure that internationalization transfers knowledge to students, faculty and staff, explicit and clear mechanisms must be established for managing this knowledge within HEIs. It is imperative that the experiences and insights gained through mobility and interactions between national and foreign students, as well as faculty members, are not confined to individual experiences but are systematically transferred to the institution for broader impacts. Hiring international professors as full-time faculty members is important for transferring research capabilities to the rest of the faculty. However, without mechanisms for skill transfer, international faculty may work in isolation. To see the real benefits of internationalization, "it is more important to evaluate the impact than just the metrics of results" (Woicolesco *et al.*, 2022, p. 228).

In the future, significant changes are expected in internationalization patterns, especially in non-Western HEIs, alongside advancements in various technological modes of internationalization. Models based on *virtual student mobility*, *virtual faculty mobility*, *virtual research mobility*, *virtual programs mobility* and *virtual research mobility* are important opportunities for non-Western HEIs to foster a more inclusive and less elitist internationalization process. However, it is crucial to recognize that while technology plays a pivotal role, it alone does not democratize internationalization. Instead, technology should be integrated into HEIs to support their international teaching, research and service missions.

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Methodological and Practical Basis for the Formation of a Matrix of Attractiveness of Tourist Sites and Its Role in the Process of Implementing Educational Tourism in the Education System of Higher Education Students

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Abstract: The article develops a methodological and practical basis for assessing the attractiveness of regional tourist sites from the point of view of educational tourism. An assessment methodology was created, including groups of criteria and sub-criteria (6 and 53, respectively), selected based on expert evaluation; a matrix was formed, allowing us to calculate integral indicators step by step, which was tested on the example of 50 objects of five regions of Kazakhstan (Central, Northern, Southern, Western and Eastern). In addition, the article implements hierarchical cluster analysis on three blocks of parameters: the first—indicators characterizing the level of education development in the context of 17 regions and 3 cities of republican significance; the second—indicators reflecting the cultural development of the country's regions; the third—parameters showing the level of development of tourism activities in the regions of Kazakhstan, which allowed us to obtain three clusters that can be used to develop recommendations for the development of education in the regions of Kazakhstan. As a conceptual complementary component of the system of implementation of educational tourism, an audio guide "Tourist sites of Karaganda" was developed and uploaded on the izi.Travel platform.

Keywords: tourism economics; matrix of attractiveness of tourist sites; educational tourism; higher school; student-centered learning; tourism of Kazakhstan

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Citation: Mamrayeva, D.G.; Tashenova, L.V. Methodological and Practical Basis for the Formation of a Matrix of Attractiveness of Tourist Sites and Its Role in the Process of Implementing Educational Tourism in the Education System of Higher Education Students. *Sustainability* **2024**, *16*, 8868. https://doi.org/10.3390/su16208868

Received: 16 September 2024
Revised: 9 October 2024
Accepted: 11 October 2024
Published: 13 October 2024

1. Introduction

Modern transformations, caused by the impact of various kinds of factors, occurring in economic sectors, as well as in the educational environment, predetermined the development of student-centered learning, which is currently one of the effective approaches in the implementation of educational programs by higher education institutions.

It should also be noted that tourism-educational activity, characterized by the active involvement of students in the cognitive process, as a rule, outside the educational institution (in nature/on the territory of a tourist destination/near tourist and excursion objects), serves as an effective tool to activate cognitive processes and develop creative abilities and critical thinking, and also contributes to the effective formation of the pool of knowledge about the surrounding world.

In turn, educational tourism is a unique means, on the one hand, to develop and promote local history through the prism of field trips, where a special role is played by tourist objects, and on the other hand, to form a new educational environment, characterized by the possibility for students to acquire new knowledge and skills, directly or indirectly related to the main profession in the educational programs studied.

According to the analytical portal Grand View Research, the global educational tourism market is estimated at USD 365.9 billion in 2022; experts note that the expected average annual growth rate from 2023 to 2030 will be 13%.

The key factors influencing the countries and regions of the world according to surveys of their identification as world educational centers/places of attraction for educational tourists include increased demand for authentic regional educational products, growing interest in event events (including educational events), the formation of niche consumer groups (e.g., researchers, "digital nomads", etc.), as well as the desire on the part of potential customers to combine active learning with learning something. The US, UK, Canada, and Ireland are among the most favored destinations for education. Educational institutions in such countries tend to have higher academic standards and follow strict rules to maintain quality. For instance, according to the QS 2023 world ranking, 27 universities out of the top 100 are located in the US, with the PRC, India, South Korea, Canada, and Saudi Arabia accounting for about 63.6 percent of educational tourists to the US in 2020 [1].

According to the Skyquest platform, language programs, academic exchanges, and professional development courses are the most popular forms of educational tourism in the world. Generally, they are most in demand among undergraduate students, academics/researchers, and professionals seeking to enhance/improve their education, acquire new skills, and expand career opportunities. It is also important to note that the COVID-19 coronavirus pandemic has also contributed to a shift in educational travel preferences towards the domestic market, which for some consumers is preferable, given the new opportunities offered by the possibility of obtaining affordable education at home, as well as discovering local cultural, historical and natural attractions, and, as a consequence, expanding their horizons and popularizing regions as tourist destinations, with the potential to increase the number of visitors to the region [2].

The purpose of this scientific article is to develop the theoretical and methodological-practical bases for forming the matrix of attractiveness of tourist objects using the example of regions of Kazakhstan and to determine its role in implementing educational tourism in the system of education of higher school students.

The main tasks are defined as follows:

1. Conducting a cluster analysis, the purpose of which is to group the regions of the Republic of Kazakhstan in the context of parameters characterizing the development of educational tourism in the country;
2. Identification of criteria and sub-criteria for assessing the attractiveness of tourist facilities from the position of development and adaptation of the basic principles of educational tourism;
3. Definition of groups of objects in the context of the regions of the Republic of Kazakhstan, for which an expert assessment will be made in the framework of the selected criteria;
4. Defining the role of the matrix in the process of implementation of educational tourism in the educational environment within the framework of student-centered learning in Kazakhstan;
5. Development of the SMART audio guide "Tourist objects of Karaganda city" (preparation of the route thread, description of the objects of the show and tell, calculation of the length) and uploading it in three languages (Kazakh, Russian, and English) on the platform is.Travel for further free use by all educational institutions of the region.

The main research questions posed by this study are as follows:

1. What parameters characterizing the development of educational tourism can be used for cluster analysis and to influence the results of grouping the regions of Kazakhstan? (RQ1).
2. What criteria and sub-criteria can include the matrix of assessment of tourist objects of the region from the position of educational tourism development? (RQ2).
3. How can the obtained assessments presented in the matrix be used in the construction of route threads and the creation of SMART audio guides? (RQ3).

2. Literature Review

The literature review presented below deeply examines various aspects of educational tourism, emphasizing the importance of its integration into the academic environment, which is directly related to the purpose of the article, which is associated with the development of theoretical and methodological–practical foundations for the formation of a matrix of the attractiveness of tourist sites and the identification of its role for the development of educational tourism and its successful implementation in the system of higher education.

The review pays special attention to the issue of forming students' cognitive and social skills through participation in tourist activities, which is entirely consistent with the study's task of creating an effective system for assessing the tourist attractiveness of sites for the development of educational tourism and its subtypes. This is confirmed by various studies within the framework, which reflect that educational tourism contributes to student-centered learning and the development of intercultural communication necessary for implementing international student exchanges, as discussed in the article.

An essential part of the literature review is the discussion of the role of cluster analysis, which is used in the article to classify the regions of Kazakhstan by the level of development of educational tourism (in the context of 3 blocks of criteria and 59 sub-parameters)—this emphasizes the importance of a scientific approach to the development of a matrix of attractiveness of tourist sites. In addition, a unique role is given to the digital transformation of educational tourism and new technologies (development of online platforms and audio guides), which is closely related to one of the critical objectives of the article—the development of a SMART audio guide.

Separately, the issues of sustainable development and features of using GIS technologies to analyze tourist routes are considered, which can be helpful for further research, especially in assessing a region's/country's tourism resources.

The literature also emphasizes the importance of forming strategies for interaction between educational institutions and local communities. It notes the importance of a multi-criteria approach to assessing tourist sites. It is directly related to creating a matrix of tourist sites' attractiveness, considering various factors, and focusing on practical applications.

2.1. Features of Educational Tourism Development in the Conditions of Globalization, Digital Transformation of Educational Institutions, as Well as Within the Framework of Implementation of the Main Principles of Student-Centered Learning

Educational tourism at the present stage is characterized by the active involvement of students in the learning process, the development of cognitive abilities, the expansion of horizons, as well as the implementation of learning elements related to the preservation of the environment and the implementation of the principles of sustainable development of tourist territories and socialization [3].

The introduction of tourism activity components into the educational process emphasizes the relevance of experiential learning, the use of training, training seminars, summer schools, and the implementation of scientific and practical activities, thus contributing to the quality of learning and improving social interaction between students, which, in turn, acts as an essential factor of modern communication [4,5]. Through curricular approaches with elements of tourism education, unique educational experiences combining travel with educational content are being created everywhere [6]. In addition, switching to educational programs that combine a tourism and recreation component increases students' engagement with social sciences, making the learning process more integrated and holistic [7].

At the current stage of economic development, it is reasonable to say that educational tourism combines knowledge (and, due to its multidisciplinary nature, from different fields of science), behavioral characteristics of an individual, and scientific aspects that are crucial for the formation and development of soft skills in conducting research [8].

The role of academic exchanges increases every year; in this regard, the issues of researching motivational factors and determining the role of the university image in the migration educational processes become especially relevant [9–11].

Student exchange programs play an important role in promoting sustainable tourism development [12]; at the same time, higher education institutions provide significant support to local communities by implementing the principles of educational tourism, including through student-centered learning [13].

However, it is important to note that the COVID-19 coronavirus pandemic has had an impact on the education system, transforming it significantly, fueling the development of online learning, and the formation of a variety of educational digital ecosystems, platforms, and applications [14–17].

In addition, the pandemic exacerbated existing inequalities in education, particularly affecting low-income families, leading to problems in accessing educational resources [18]. This, in turn, has necessitated the development of effective regional and country strategies for crisis management in education, necessary to ensure the adaptation of educational institutions to the realities of the market, aimed at digitalization, personnel policy, and branding [19].

It is important to note that in the scientific literature, there is still no unified approach to the study of the level of attractiveness of tourist sites from the perspective of the development of educational tourism (especially from the standpoint of matrix evaluation). Therefore, the article presented in the scientific article has scientific novelty and practice-oriented characteristics.

For further successful implementation of educational tourism and its implementation in the system of higher school education, it is necessary to have an effective system of marketing and communications, distribution of resources, providing opportunities for optimal implementation of educational programs, as well as the development of a comprehensive methodology for assessing tourism resources that can be used for the formation and implementation of tourist routes and their inclusion in the educational process [20,21].

2.2. The Role of Universities in the Development of Educational Tourism

Universities are key players in the educational tourism market, contributing to the creation and commercialization of innovations, knowledge transfer, student entrepreneurship, service, and enterprise markets. They also contribute to international student exchanges and the popularization of tourism [11,22–24]. In addition, universities can contribute to environmental sustainability through science tourism by creating favorable attitudes towards nature, adjusting tourist behavior to some extent, and forming sustainable tourist destinations [25,26].

Higher education institutions foster relations between tourists and local communities and promote inclusiveness in higher [27].

The use of social networks by universities is also becoming one of the relevant factors in the development of educational tourism, as they act as the most important communication aspect of promotion and creation of a favorable image [28–30].

2.3. Digitalization and Smartification of Educational Tourism

In the conditions of the Fourth Industrial Revolution (Industry 4.0), digitalization and smartification of educational tourism are considered promising directions of development, as modern information and communication technologies represented by the Internet of Things, big data, blockchain, virtualization, etc., allow the development of new-format tourism products with active involvement and learning using interactive solutions [31,32].

It is important to highlight digital technologies' characteristics, such as flexibility, adaptability, and customization, to meet the needs of educational market participants. These characteristics contribute to their more effective use by university students and teachers [33–36].

At the same time, it is worth noting a pool of publications, among which are works [37,38] dedicated to integrating digital technologies with the main processes of professional training of future tourism professionals. Taken together, these studies highlight the potential of digitalization to improve the quality and relevance of educational tourism and the importance of digital literacy and competence of learners [39–42].

Also in the scientific literature in recent years, special attention has been paid to the development of educational itineraries and audio guides with their subsequent placement on a variety of platforms, including izi.Travel, YouTravel.Me, GetYourGuide, WeGoTrip, Travelry and others [43–45].

2.4. Specifics of Educational Tourism Potential Assessment: Main Approaches and Methods

A number of scientific publications have explored the potential of educational tourism. For example, Hale (2019) used GIS to analyze the environmental and social impacts of educational tourism programs implemented in universities, highlighting the need for sustainable travel behavior [46]. McGladdery (2017) proposed a new model of educational tourism, emphasizing its high potential for hybridization with other types of tourism and outlining its advantages [47].

Attaalla (2020) assessed the role of educational tourism in Egypt, identifying the need for joint academic programs with tourism companies [48]. Hussein (2022) developed a demand model for educational tourism by identifying per capita income, the price of the finished tourism product, the prices of competitor countries and the quality of services provided by universities as key factors [49].

It is also important to note that in many works, educational tourism is considered either as an independent component or as a part of the tourism and recreational potential when assessing it; however, there is still no unified scientific approach that can be fully used to carry out the assessment [50–55].

3. Methodology

The research conducted in the article was built on the solution of 3 key research questions, which allowed to achieve the main objective related to the development of theoretical and methodological–practical foundations of the formation of the matrix of the attractiveness of tourist objects on the example of the regions of Kazakhstan and determining its role in the process of implementation of educational tourism in the system of education of higher school students.

In this regard, the research methodology included 3 main stages:

1. Grouping the regions of the Republic of Kazakhstan by the level of educational tourism development based on hierarchical cluster analysis in the context of the selected statistical parameters;
2. Formation of the criterion base (allocation of groups of criteria and sub-criteria in each group) and the matrix of assessment of tourist objects of the region from the position of educational tourism development; their testing on the example of tourist objects in the context of the regions of the Republic of Kazakhstan, previously assessed based on statistical criteria;
3. Development of a SMART audio guide "Tourist objects of Karaganda city" as a conceptual complementary component of the system of implementation of educational tourism in the learning environment of higher school students.

3.1. Main Stages of Cluster Analysis of Regions from the Position of Educational Tourism Development

For cluster analysis within the framework of this research paper, all indicators were divided into 3 blocks: the first—indicators characterizing the level of education development in the context of 17 regions and 3 cities of republican significance of the Republic of Kazakhstan (10; CED_1-CED_10); the second—indicators reflecting the cultural development of the country's regions (46; CDC_1-CDC_46); the third—parameters showing the level of development of tourism activities in the regions of Kazakhstan (3; TDC_-TDC_3). In total, data on 59 parameters were obtained for the analysis (Appendix A). The choice of parameters was conditioned by the expert judgement of the team of specialists-researchers implementing the grant project AP14871422 "Development of the model of implementation of educational tourism in the system of education of higher school students: theory, methodology, practice", financed by the Committee of Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan.

It should also be noted that there are limitations associated with the lack of official data, fully and in detail characterizing the development of the tourism market in Kazakhstan; in this regard, only 3 indicators were selected for analysis: the number of accommodation facilities, the number of rooms in accommodation facilities and one-time capacity (beds) of accommodation facilities.

Further, standardized values were obtained, which formed the basis for conducting a hierarchical cluster analysis using Stata 18 software.

The following advantages determined the choice of hierarchical cluster analysis: it is a fairly flexible clustering method that provides ample opportunities for subsequent data visualization (using dendrogram construction), as well as adaptation to research tasks and data structures; flexibility in choosing similarity and unification metrics (in our case, this is the Euclidean distance); no need to restart the clustering process when changing the number of clusters; the ability to detect nested clusters, which can be useful if the clusters are divided into subgroups.

The final breakdown resulted in three clusters: the first one united 17 regions and 1 city of republican importance—Shymkent; the second one was represented by the city of Astana; and the third one by the city of Almaty.

3.2. Formation of Groups of Criteria and Sub-Criteria for Evaluation of Tourist Objects of the Regions, as well as a Matrix from the Position of Their Attractiveness for the Development of Educational Tourism

Groups of criteria by the expert group (consisting of members of the research team, representatives of tourism business, tourism specialists, and senior students of the Karaganda Buketov University, specialty "Tourism"); the period of expert evaluation was January-March 2024, the total number of experts who participated in the assessment was 37 people), and the educational component (Ed), infrastructural component (Infr), accessibility and safety (AvSec), communication and marketing component (CommMark), natural and cultural–historical component (NatCaH), component related to issues of sustainable development of territories (SustDev) were identified. Each group included 8, 7, 12, 7, 11, and 8 sub-criteria for evaluation. Next, a conceptual evaluation matrix (considering the highlighted evaluation criteria) was developed, presented in Figure 1.

It is important to note that this matrix is not limited to the number of potential tourism sites that can be included for evaluation, nor to the criteria, the list of which can be extended by the researcher at his/her discretion within the framework of the analysis. In our case, 6 criteria and 53 sub-criteria were identified and analyzed.

The mean scores obtained from all experts in the context of the selected sub-criterion (Subcrn) are denoted as L. It should also be noted that the weight of the main criteria (CrWeightn) for calculating the integral value for each region is also determined based on expert judgment. It should also be noted that TO stands for tourist attraction/tourist object, and R stands for the region where the assessment is made.

R	TO$_s$	Cr$_1$			Cr$_2$			Cr$_n$			IntValue$_r$
		Subcr$_{1.1}$	Subcr$_{1.2}$	Subcr$_{1.n}$	Subcr$_{2.1}$	Subcr$_{2.2}$	Subcr$_{2.n}$	Subcr$_{i.1}$	Subcr$_{i.2}$	Subcr$_{i.i}$	
R$_1$	TO$_{1.1}$	L	L	L	L	L	L	L	L	L	IntValue$_{r1}$
	TO$_{1.2}$	L	L	L	L	L	L	L	L	L	
	TO$_{1.i}$	L	L	L	L	L	L	L	L	L	
R$_2$	TO$_{2.1}$	L	L	L	L	L	L	L	L	L	IntValue$_{r2}$
	TO$_{2.2}$	L	L	L	L	L	L	L	L	L	
	TO$_{2.i}$	L	L	L	L	L	L	L	L	L	
Ri	TO$_{i.1}$	L	L	L	L	L	L	L	L	L	IntValue$_{ri}$
	TO$_{i.2}$	L	L	L	L	L	L	L	L	L	
	TO$_{i.i}$	L	L	L	L	L	L	L	L	L	
IntValue$_{overall}$=(IntValue$_{r1}$+IntValue$_{r2}$+IntValue$_{ri}$)/n											

Figure 1. Conceptual matrix of assessment of objects from the position of educational tourism development. Note—developed by the authors.

The overall integral indicator for the region ($IntValue_r$) is calculated by means of an arithmetic weighted average based on the average score obtained in the context of all groups of criteria (Crn)—Formulas (1)–(3):

$$IntValue_r = \frac{(Cr_1 * CrWeight_1 + Cr_2 * CrWeight_2 \ldots + Cr_i * CrWeight_i)}{n}, \quad (1)$$

$$Cr_1 = \frac{(Subcr_1 + Subcr_2 + \ldots Subcr_i)}{n}, \quad (2)$$

$$CrWeight_{sum} = 1, \quad (3)$$

where *n*—number of observations, *sum*—sum of all indicators of weighting of values under the main evaluation criteria, *i*—number of sub-criteria.

The final integral value is obtained by calculating the average indicator based on the calculations performed for all regions.

3.3. Development of SMART Audio Guide as a Conceptual Complementary Component of the System of Implementation of Educational Tourism in the Learning Environment of Higher Education Students

The main stages of audio guide creation included the following:

1. Defining the topics: relevant, interesting and useful for the educational process within the framework of implementation of the main provisions of the concept of student-centered learning, including those focused on taking into account the research interests of students;
2. Development of the excursion plan with the definition of the objects of demonstration and their distribution on the map (preliminary routing);
3. Defining the type of the route and calculating its length;
4. Formation of the description of each object in 3 languages: Kazakh, Russian, and English; the choice of these three languages is conditioned by the fact that students' education in the region's universities is conducted in 2 languages (Kazakh, Russian), and also there are specialties where training is conducted within the framework of polylingual education, i.e., in 3 languages (for example, the specialty "Tourism" (bachelor's degree) on the basis of the Karaganda Buketov University); therefore, for convenience and maximum coverage of listeners, development of language competences of students it was accepted;
5. Creation of an actual pool of photographic materials of the objects (by members of the research team using professional photographic equipment);

6. Recording audio tracks in 3 languages for each object;
7. Uploading the audio guide to the izi.Travel platform;
8. Preparation of QR codes for quick access to the audio guide;
9. Dissemination of information about the audio guide by publishing information in social networks, on the official website of the University, etc.

It is important to note that the translation of the material into Kazakh was carried out by members of the research team—native speakers, and into English—by teachers who teach students within the framework of multilingual training and have a certificate of language training—IELTS with a level not lower than B2.

4. Results

4.1. RQ1: What Parameters Characterizing the Development of Educational Tourism Can Be Used for Cluster Analysis, as Well as Influence the Results of Grouping the Regions of Kazakhstan?

Table 1 shows the stages of clustering of regions it reflects values such as steps, number of clusters, level of similarity, distance, clusters that emerged during the clustering process and new clusters obtained in the final step.

Table 1. Amalgamation steps.

Step	Number of Clusters	Similarity Level	Distance Level	Clusters Joined		New Cluster	Number of Observations in New Cluster
1	19	84.6003	3.6097	3	11	3	2
2	18	84.0194	3.7458	5	12	5	2
3	17	78.8109	4.9667	3	10	3	3
4	16	78.0722	5.1398	3	13	3	4
5	15	77.0363	5.3826	4	8	4	2
6	14	76.2691	5.5625	5	16	5	3
7	13	74.3014	6.0237	6	7	6	2
8	12	72.6454	6.4118	3	6	3	6
9	11	71.3441	6.7169	3	14	3	7
10	10	69.2052	7.2182	4	17	4	3
11	9	66.3804	7.8803	3	4	3	10
12	8	62.6563	8.7533	5	20	5	4
13	7	60.9275	9.1585	9	15	9	2
14	6	60.5736	9.2414	2	3	2	11
15	5	56.5326	10.1886	1	5	1	5
16	4	56.2840	10.2469	2	9	2	13
17	3	44.1492	13.0913	1	2	1	18
18	2	34.6271	15.3232	18	19	18	2
19	1	0.0000	23.4397	1	18	1	20

Note—obtained by the authors as part of the cluster analysis.

Further, Table 2 shows the final result of the division of regions into three clusters, where the first one combines 17 regions of Kazakhstan and 1 city of republican significance, and the next two are represented only by the cities of Almaty and Astana, respectively.

Table 2. Final partition.

№ of Cluster	Number of Observations	Within Cluster Sum of Squares	Average Distance from Centroid	Maximum Distance from Centroid
Cluster1	18	557.841	5.37772	8.50822
Cluster2	1	0.000	0.00000	0.00000
Cluster3	1	0.000	0.00000	0.00000

Note—obtained by the authors as part of the cluster analysis.

Table 3 shows the distances between the centroids of the three obtained clusters.

Table 3. Distances between cluster centroids.

Clusters	Cluster 1	Cluster 2	Cluster 3
Cluster1	0.0000	12.7070	21.2419
Cluster2	12.7070	0.0000	15.3232
Cluster3	21.2419	15.3232	0.0000

Note—obtained by the authors as part of the cluster analysis.

Table 3 shows the distances between the centroids of the three clusters identified in the hierarchical cluster analysis. It reflects how strongly the groups of objects within the clusters differ regarding the selected evaluation criteria: smaller values mean the clusters are closer. Larger values mean that they are more distant.

Figure 2 graphically displays the result of the final division of Kazakhstan regions into three clusters. The first one (blue color) unites 17 regions and one city of republican significance: Abay, Akmola, Aktobe, Almaty, Atyrau, West Kazakhstan, Zhambyl, Zhetisu, Karaganda, Kostanay, Kyzylorda, Mangistau, Pavlodar, North Kazakhstan, Turkestan, Ulytau, East Kazakhstan regions and the city of Shymkent; the second (red) is represented by the city of Astana, the third (green)—by the city of Almaty, characterizing the similarity of the regions included in each of them by the level of educational tourism development in the context of 59 selected criteria.

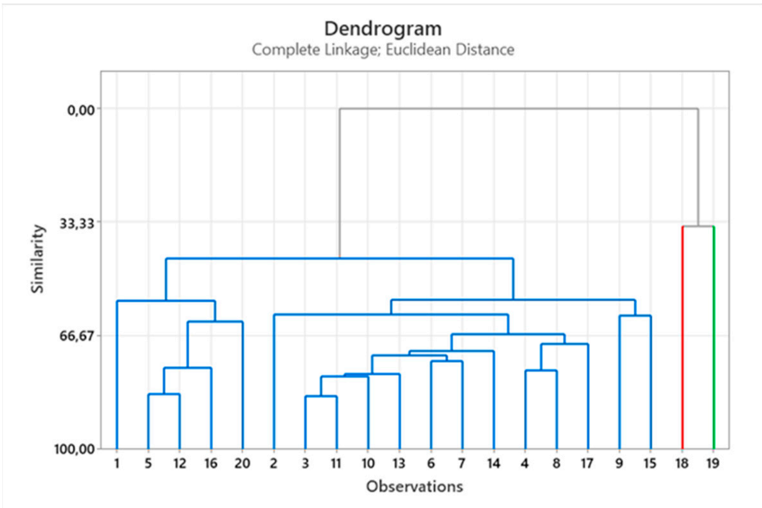

Figure 2. Dendrogram reflecting the results of cluster analysis of the regions of the Republic of Kazakhstan by the level of educational tourism development. Note—obtained by the authors based on the results of the cluster analysis.

Thus, the obtained division—three clusters—gives a clear idea of the similarity of the regions in terms of the 59 parameters identified by the authors, divided into three blocks. The results of this cluster analysis can be useful for the development of state and regional programs, where special emphasis should be placed on intensifying efforts to develop educational tourism, defining its role, as well as its implementation in the educational process of higher education, regardless of the type and type of educational programs and learning paths; however, such activities should be directly related to ensuring the quality of the educational process, as well as to the implementation of the basic principles of student-centered learning.

4.2. RQ2: What Criteria and Sub-Criteria Can the Matrix of Assessment of Tourist Objects of the Region from the Position of Educational Tourism Development Include?

The conclusions obtained in the framework of cluster analysis allow us to form a matrix (discussed in the "Methods" section), highlighting the necessary criteria and sub-criteria, and then apply it to carry out an assessment of tourist sites in the regions of Kazakhstan from the position of educational tourism development (Table 4).

Table 4. Criteria and sub-criteria of the matrix of assessment of tourist objects of the region from the position of educational tourism development.

Evaluation Criteria and Sub-Criteria
1. Educational component (Ed)
1.1. The degree of active involvement in the process of learning during the introduction and inspection of the tourism destination (Ed_1).
1.2. The possibility of broadening the horizon through familiarization with the history and design features of the tourist destination (Ed_2).
1.3. The possibility of adapting and implementing the knowledge acquired in the process of getting to know the tourist destination into the educational process, including the implementation of the principles of student-centered learning (Ed_3).
1.4. The degree of influence of the knowledge acquired/skills learned in the process of site inspection on the formation/development of soft skills (Ed_4).
1.5. The extent to which the process of engagement during the inspection and familiarization with the object influences the development of critical thinking (Ed_5).
1.6. Quality of educational programs (Ed_6).
1.7. Availability of educational programs in foreign languages oriented to the admission of foreign students (Ed_7).
1.8. Diversity of educational opportunities in the region/directly at the tourism destination, characterized by the variety of educational programs and courses offered in different areas in the region (Ed_8).
2. Infrastructure component (Infr)
2.1. The quantity and quality of service provided by accommodation facilities, including guest houses (Infr_1).
2.2. Quantity and quality of catering facilities, including aspects related to the observance of sanitary norms in food preparation (Infr_2).
2.3. Availability and adequacy of tourist information centers, tourism firms and tour companies (Infr_3).
2.4. Availability and quality of information and communication infrastructure (Internet access, computer labs, etc.) (Infr_4).
2.5. Availability and accessibility of educational institutions, including higher education institutions (Infr_5).
2.6. Availability and adequacy of the number of tourism firms engaged in the organization of educational tours within the framework of domestic tourism (Infr_6).
2.7. Availability and adequacy of the number of tourism firms organizing outbound educational tours (Infr_7).
3. Accessibility and security (AvSec)
3.1. The level of value for money of the services provided in the tourism region/destination (AvSec_1).
3.2. Level of transport infrastructure development (AvSec_2).
3.3. Proximity of major transport hubs to the tourism destination (AvSec_3).
3.4. Transport accessibility, including international connections (AvSec_4).
3.5. Availability and level of development of a barrier-free environment within access to the tourism destination (AvSec_5).
3.6. Availability of medical care, including compliance with sanitary and epidemiological standards and pandemic restrictions (AvSec_6).
3.7. Information accessibility of the facility: availability of specialized software products, applications, etc. for different consumer groups (AvSec_7).
3.8. Availability of navigation and signage for tourists at the site (AvSec_8).
3.9. Level of development of a barrier-free environment (AvSec_9).
3.10. Level of safety at the tourist site itself (AvSec_10).
3.11. Level of safety in public transport (AvSec_11).
3.12. Safety level in accommodation (AvSec_12).

Table 4. *Cont.*

Evaluation Criteria and Sub-Criteria
4. Communication and marketing component (CommMark)
4.1. Existence of targeted marketing strategies and campaigns to attract tourists to the region/to a specific tourist destination (CommMark_1). 4.2. Existence of a variety of media platforms aimed at creating information awareness of tourists about the site/s of the show and tell (CommMark_2). 4.3. Existence of an established link between tourism sites/destinations and educational institutions (CommMark_3). 4.4. The level of established online communication with tourists, including through social networks, blogs, tourist chat rooms, etc. (CommMark_4). (CommMark_4). 4.5. Availability of specialized marketing activities aimed at supporting local educational initiatives (CommMark_5). 4.6. The level of influence of social networks on the formation and development of educational communities and the exchange of knowledge on the region's tourist attractions or on a specific object of show and tell (CommMark_6). 4.7. The use of modern information and communication technologies to increase the tourist's involvement in the process of learning while getting acquainted with the objects of show and tell of the tourist area.
5. Natural and cultural–historical component (NatCaH)
5.1. Diversity of natural landscapes of the territory. 5.2. Presence of unique natural objects. 5.3. Presence of unique monuments of art and architecture. 5.4. Biological diversity of the tourist area where the site is located. 5.5. Frequency of events held in the tourism territory. 5.6. The presence and diversity of museums, galleries, exhibition halls, etc. 5.7. Opportunity to form unique educational tourism experiences through participation in cultural events, and to acquire skills through learning local crafts. 5.8. Opportunity for interactive teaching/learning at the tourism site/area. 5.9. Level of inclusiveness of cultural and historic tourism programs that have an educational component and can generate sustained tourism interest in the site/area. 5.10. Availability and variety of additional services. 5.11. Ability to implement the knowledge gained about natural and cultural-historical sites in the education system of higher education students.
6. Component related to sustainable territorial development issues (SustDev)
6.1. Implementation of educational programs on environmental sustainability of tourist territories/hotel tourist facilities. 6.2. The level of involvement of local communities in implementing educational tours at the tourist site. 6.3. Availability and implementation of tourism programs aimed at educating tourists/excursionists on the sustainable development of territories. 6.4. Availability of certification of accommodation facilities in the region from recognized organizations confirming compliance with sustainable development standards. 6.5. Frequency of educational events related to the sustainable development of tourist territories. 6.6. Level of social and economic inclusiveness. 6.7. Degree of interaction of local executive bodies and communities with the region's educational institutions on the sustainable development of tourist territories. 6.8. Intensity of information and communication technologies application to enhance the sustainability of tourism territories.

Note—compiled by the authors.

The considered matrix was tested on the example of a number of tourist sites (Table 5), which are of particular interest in terms of their potential for the development of educational tourism, in the context of five regions of the country: Central, Southern, Northern, Eastern and Western Kazakhstan.

Table 5. List of tourist sites in Central, South, North, East and West Kazakhstan, included in the assessment from the position of attractiveness and applicability for educational tourism development.

№	Tourist Sites and Their Brief Description
	Central Kazakhstan
1	**Karkaraly State National Nature Park**—organized in 1998; belongs to the second category of specially protected natural territories with the status of nature conservation and scientific institution of Republican significance. It has 5 relatively isolated mountain groups: Buguly, Shankoza, Matena, Airtau and Kent. The territory of the park is inhabited by the mountain sheep—argali, listed in the Red Book; there are also 46 species of mammals, 234 species of birds, 6 species of reptiles, 2 species of amphibians and 15 species of fish.
2	**The Spassk Memorial Complex** is a burial place for victims of political repressions during the years of totalitarianism, as well as prisoners of war and internees of the Second World War. It is a historical monument
3	**The Central Park of Culture and Recreation of Karaganda** is one of the largest parks in Kazakhstan; it hosts events, sports competitions, etc.; it is a popular recreation place for local residents and guests of the city.
4	**The Karlag Museum** is a museum commemorating the victims of political repression.
5	**Mausoleum of Zhoshy Khan (Djuchi Khan)** is an architectural monument of the 14th century; located 50 km from the city of Zhezkazgan on the bank of the Kengir River.
6	**Ereimentau ("small mountains")** is a mountain range interesting for the study of geology and natural landscapes by researchers and students. It is part of the ancient Timan-Altaic mountain system.
7	**Botanical Garden of Karaganda**—founded in 1940 to conduct research work on breeding and selection of promising plant species for arid regions.
8	**Balkhash Lake**—a semi-freshwater lake; one of the largest inland drainless reservoirs on Earth.
9	**Bektauata mountain massif**—located at an altitude of 600 to 1214 metres above sea level. Weathering processes destroyed granites, as a result of which, the mountains took the most unusual shapes, receiving the following names: "Mushroom", "Chest", "Turtle", "Three-toothed".
10	**Karaganda Zoo** is one of the oldest in Kazakhstan; it was founded in 1938; it contains more than 1000 animals, 70% of which are listed in the Red Book.
	South Kazakhstan
1	**The Mausoleum of Khoja Ahmed Yassawi in the city of Turkestan (formerly Yassy)**—built between 1389 and 1405 by order of Tamerlane. It was erected in honor of the great thinker and poet Ahmed Yassawi. The mausoleum, mosque, khanaka, administrative and economic premises are located on the territory of the complex. The mausoleum is a masterpiece of architecture and an outstanding monument of medieval architecture.
2	**The ancient city of Otrar (formerly Farab, named in honor of the great thinker, philosopher and mathematician Abu-Nasr Al-Farabi)** is one of the most ancient cities of Central Asia. In 1219 Otrar fell under the onslaught of Genghis Khan's army. It was the center of trade and the crossing of caravan routes. It is located 57 km from the city of Turkestan. It is an open-air archaeological museum and is protected by the state.
3	**"Kolsai Lakes" State National Nature Park**—includes a cascade of lakes: Upper, Mynzholki and Lower. They are characterized by clear fresh water; they are located in a gorge. The flora of the NPP includes more than 200 species of vertebrate animals and 700 species of plants, among which Kungai wattle, Adonis golden, Adonis Tianshan, orange jaundice, Shrenka spruce are included in the Red Book of Kazakhstan. Lake Kaindy is one of the natural wonders of Southern Kazakhstan, a member of the Kolsai group of lakes. Its uniqueness lies in the fact that the trunks of spruce trees rise right in the middle of the reservoir.
4	**The Charyn Canyon** is a landmark located 200 km from the city of Almaty. The canyon stretches for 154 km along the Charyn River. It is a natural monument made of sedimentary rocks, which are about 12 million years old.
5	**Aksu-Zhabagli State Nature Reserve**—the flora of which includes 1737 species; mammals are represented by 52 species. In 2015, it was included in the list of UNESCO World Heritage Sites in Kazakhstan as a biosphere reserve.
6	**The Medeu High Altitude Ice Rink** is the world's largest high-altitude complex (1700 m above sea level) designed for winter sports; it has the world's largest artificial ice field. It also hosts a variety of events, international song contests and sports competitions. It is a monument of town-planning and architecture of the Republican significance.
7	**Shymkent State Zoological Park**—contains more than 2800 animals, including 43 species listed in the Red Book of Kazakhstan; opened in 1980.
8	**Aisha-bibi Mausoleum** is an architectural monument of X–XII centuries. According to legend, Aisha-bibi was the beloved of Karakhan, who built a mausoleum in her honor.
9	**Mausoleum of Arystan-Baba**—a structure erected in honor of the religious figure of the 12th century—Arystan-Baba, who, according to historians, was also the teacher and spiritual adviser of Khoja Ahmed Yasawi. The mausoleum is an architectural monument.
10	**Tamgaly-Tas**—petroglyphs and ancient rock paintings located in a tract near the Ili River 120 km north of Almaty.

Table 5. *Cont.*

№	Tourist Sites and Their Brief Description
	North Kazakhstan
1	**Saryarka**—Steppes and lakes of Northern Kazakhstan. It is a UNESCO WORLD HERITAGE SITE; Korgalzhyn and Naurzum reserves are located here. It includes two groups of lakes with fresh and salt water, which support populations of globally threatened species, including Siberian Crane, Pink Flamingo, Gyrfalcon, White-tailed Eagle, Savka, Dalmatian Pelican and others.
2	**National-cultural complex "Ethnoaul"** is a tourist object created for EXPO-2017 in Kazakhstan with the purpose of acquainting visitors with the culture and life of the Kazakh people. It includes 30 yurts and various small architectural forms.
3	**Archaeological monument "Bekteniz"**—consists of 10 burial mounds of the Bronze Age. Bronze mirrors, women's jewellery and many others were found here.
4	**Lake Imantau**—located 90 km from the city of Kokshetau; it is notable for its beautiful nature, as it is adjoined by rocks, birch, coniferous, aspen forests, medicinal herbs; there is an island on the lake.
5	**The memorial complex of Karasai and Agyntai batyrs**—opened in 1999 and is dedicated to the development of the tradition of ancient Turkic stakes of kagans, as well as to the memory of great batyrs.
6	**Astrophysical Research Centre, Astrophysical Observatory**—is located based on Kozybayev University, equipped with projection equipment of Leariving Technologies, USA. This is one of the biggest telescopes in the country, allowing to solve modern scientific problems.
7	**"Botai" settlement** is an Eneolithic monument located on the bank of the Iman-Burluk River. 158 dwellings were found on the territory of the settlement during archaeological excavations under the direction of Professor V. Seibert.
8	**Museum complex "Abylai Khan's Residence"**—founded in 2007; a historical museum. It is also a monument of town-planning and architecture of republican importance. The museum complex is dedicated to the life and activity of Abylai Khan.
9	**State National Natural Park "Burabai"**—tourist and recreational resort of Kazakhstan, founded in 1910; there are 14 large and many small lakes; Burabai fauna includes about 300 species of vertebrates, flora—about 800 species of forest, meadow, saline plants.
10	**Botanical garden of Petropavlovsk** is one of the oldest in Kazakhstan; it includes a greenhouse, winter garden, squares, mini-dendrarium, pond for waterfowl, vivarium, zoological corner, aviaries with exotic species of birds, aquatic with exotic species of fish.
	West Kazakhstan
1	**Ustyurt Plateau**—the landscapes of the plateau have a unique beauty, as this area used to be under water and then transformed into an upland. It has sheer walls reaching up to 400 m in height in some places. In 2018, the Ustyurt mouflon (or Ustyurt ram), thought to be extinct, was discovered here.
2	**The underground mosque of Shopan-Ata** is one of the oldest monuments of architecture of X–XIX centuries, which has a necropolis and an underground mosque. Since 1982 it has been a monument of history and culture of republican significance. Here is the burial place of one of the disciples of Khoja Ahmed Yassaui—Shopan-Ata—a great Sufi philosopher and mystic.
3	**The underground mosque of Beket-Ata**—cut out in a rock massif; this object is a spiritual and historical relic of Kazakhstan, where Beket-Ata (Pir-Beket)—a famous religious figure, educator and batyr spent a certain period of time.
4	**The city of "Kyzyl-Kala"** is an archeological monument of X–XIII centuries, located in Mangistau district of Mangistau region. This city is a part of a large trade and crafts city that emerged on the caravan route of the northern branch of the Great Silk Road. In 2012, the site was included in the UNESCO World Heritage Tentative List.
5	**Ak-Zhaiyk Biosphere Reserve** is a natural complex of the Ural River delta. There are 292 bird species registered here, among which there are some rare species: dalmatian pelican, little cormorant, Egyptian heron, little white heron, yellow heron and many others. The theriofauna is represented by 48 species of mammals, which is more than 25% of the entire mammal fauna of Kazakhstan.
6	**Bozzhyra tract** is one of the largest sights of Mangistau; the tract appeared at the bottom of the ancient ocean of Tethys. It represents majestic light beige rocks.
7	**Kyzylkup tract** is a mountain made of colored marine sediments; the tract is 10 km long. One of the key sights is Bokty Mountain, depicted on the 1000 tenge note.
8	**House-museum of Y.I. Pugachev**—located in the city of Uralsk; dedicated to the memory of Yemelyan Pugachev. Since 1991 it has been a branch of the West Kazakhstan Regional Museum of History and Local Lore. Every year in spring the museum hosts a folklore and music festival "Larks".
9	**Historical complex "Bokey Ordasy"**—a historical and museum complex, where the objects of the era of reign of Zhangir Khan have been preserved.
10	**Valley of stone balls in Mangystau (Torysh)** is one of the visiting cards of Mangystau; here, on the territory of the valley, scattered more than a thousand stone balls (in diameter from 1 to 3 m), which have a natural geological origin.

Table 5. *Cont.*

№	Tourist Sites and Their Brief Description
	East Kazakhstan
1	**Rakhmanovskie Klyuchi**—therapeutic springs flowing into Rakhmanovskoe Lake. The springs were discovered in 1769. The water temperature is from +32 to +42 degrees Celsius. The highest mosque in the country is also located here.
2	**Katon-Karagai State National Natural Park**—was established in 2001 to preserve and restore the unique natural complexes of Southern Altai. Many tourist routes have been created and operate on its territory, among them: the scientific-cognitive trail "Rakhmanovskie Klyuchi", the excursion trail (route) "Altai Trails", the tourist and excursion route "Ozerny" and many others.
3	**East Kazakhstan regional architectural-ethnographic and natural-landscape museum-reserve**—consists of 3 key buildings—administrative building and directly 2 buildings of the museum-reserve, which, in turn, are also historical and architectural monuments. It is a unique natural, cultural and architectural object.
4	**The State Historical-Cultural and Literary-Memorial Reserve-Museum of Abai "Zhidebai-Borili"**—was founded in 1940, has 21 thousand exhibits, 16 thousand publications, includes a library, head museum, house-museum of Abai, house-museum of M. Auezov, house-museum of Sh. Abenov, house-museum of A. Naimanbayev and house-museum of K. Orazalin.
5	**Old Austrian road**—was built in 1914–1916; a historical monument of the East Kazakhstan region.
6	**Mount Belukha**—a mountain in East Kazakhstan, whose peaks are covered with snow and ice; the summit is a snow-white peak 4506 m high. It is very popular among mountaineers.
7	**Lake Alakol** is a bitter-salt lake in Kazakhstan, which is famous for its healing properties. Beach tourism is actively developing here.
8	**Berel barrows**—a complex of burial mounds dating back to the V–IV centuries BC. It consists of more than 100 burial mounds. The State Historical and Cultural Museum-Reserve "Berel" was established in 2008.
9	**Bukhtarma Reservoir** is a reservoir formed by a dam on the Irtysh River, the largest in Kazakhstan. It is a popular holiday destination for local and foreign tourists.
10	**Podbelkov Lake** is a unique natural object, famous for its high radon content, which got into the reservoir from an abandoned adit. It is located at an altitude of 1906.5 m above sea level.

Note—compiled by the authors as part of ongoing research.

Another important aspect of the assessment is that in the study the term "tourist destination" can be understood as a group of sites located in the same territory, as well as, in general, a tourist destination. In addition, educational institutions were not considered as individual objects, as the assessment was more quantitative in terms of sub-criterion 2.5 of parameter 2.

For the analysis, 10 objects of show and tell of Central, Southern, Northern, Western and Eastern Kazakhstan were selected each, which have the greatest impact on the formation of tourist interest.

Evaluation within the identified criteria and sub-criteria framework was carried out on a 10-point scale, where 1 is the minimum and 10 is the maximum score.

It is important to note that the experts determined the weight of each criterion:

a. Educational component (Ed)—0.25;
b. Infrastructural component (Infr)—0.2;
c. Accessibility and security (AvSec)—0.1;
d. Communication and marketing component (CommMark)—0.1;
e. Natural and cultural–historical component (NatCaH)—0.25;
f. Component related to sustainable development of territories (SustDev)—0.1.

Table 6 presents the results of calculating the integral indicators of the regions, as well as the calculated values regarding weighting in the context of the highlighted groups of assessment criteria.

Table 6. Results of assessment of tourist objects of Central, Southern, Northern, Western and Eastern Kazakhstan from the position of educational tourism development.

Tourist Object	Ed	Infr	AvSec	CommMark	NatCaH	SustDev	Average	Integral Indicator
				Central Kazakhstan				
1	7.9	5.7	5.9	6.9	6.8	4.6	**6.3**	**6.3**
2	7.6	5.7	6.2	5.9	6.7	4.6	**6.1**	
3	6.3	5.7	6.3	5.7	6.9	4.6	**5.9**	
4	8.5	5.7	7.1	6.3	7.1	4.6	**6.5**	
5	7.5	5.7	5.8	6.0	6.9	4.6	**6.1**	
6	6.5	5.7	5.4	4.7	6.7	4.6	**5.6**	
7	6.8	5.7	6.2	5.7	6.5	4.6	**5.9**	
8	7.3	5.7	5.8	6.3	6.5	4.6	**6.0**	
9	7.6	5.7	5.4	6.1	6.5	4.6	**6.0**	
10	6.4	5.7	6.5	6.0	6.8	4.6	**6.0**	
Average values by parameter groups	**7.2**	**5.7**	**6.1**	**6.0**	**6.7**	**4.6**	-	
				South Kazakhstan				
1	9.0	7.6	7.3	7.7	8.3	6.0	**7.6**	**7.53**
2	8.8	7.6	6.8	7.0	7.9	6.0	**7.3**	
3	8.0	7.6	6.1	7.3	7.8	6.0	**7.1**	
4	8.1	7.6	5.8	7.6	7.8	6.0	**7.2**	
5	8.1	7.6	6.1	6.7	8.0	6.0	**7.1**	
6	8.0	7.6	7.3	7.7	8.0	6.0	**7.4**	
7	7.1	7.6	6.8	6.7	8.0	6.0	**7.0**	
8	8.1	7.6	6.4	7.1	7.9	6.0	**7.2**	
9	8.3	7.6	6.3	7.1	8.0	6.0	**7.2**	
10	8.8	7.6	5.8	7.3	7.8	6.0	**7.2**	
Average values by parameter groups	**8.2**	**7.6**	**6.5**	**7.2**	**8.0**	**6.0**	-	
				North Kazakhstan				
1	6.5	6.6	5.9	6.0	6.7	4.9	**6.1**	**6.65**
2	7.0	6.6	7.5	5.7	6.9	4.9	**6.4**	
3	7.0	6.6	5.9	5.7	6.8	4.9	**6.1**	
4	6.8	6.6	6.1	5.1	6.7	4.9	**6.0**	
5	7.5	6.6	6.8	6.3	6.9	4.9	**6.5**	
6	7.4	6.6	7.2	6.9	7.0	4.9	**6.6**	
7	7.6	6.6	6.1	6.7	6.7	4.9	**6.4**	
8	8.5	6.6	7.3	7.0	7.0	4.9	**6.9**	
9	8.6	6.6	6.9	6.7	6.8	4.9	**6.8**	
10	7.0	6.6	6.9	6.3	6.7	4.9	**6.4**	
Average values by parameter groups	**7.4**	**6.6**	**6.7**	**6.2**	**6.8**	**4.9**	-	
				West Kazakhstan				
1	6.6	5.6	5.3	5.3	6.2	4.6	**5.6**	**6.04**
2	6.9	5.6	5.9	5.7	6.4	4.6	**5.8**	
3	7.1	5.6	5.9	5.7	6.4	4.6	**5.9**	
4	6.5	5.6	5.8	5.3	6.4	4.6	**5.7**	
5	6.1	5.6	5.9	5.3	6.4	4.6	**5.6**	
6	7.1	5.6	5.6	5.9	6.3	4.6	**5.8**	
7	6.9	5.6	5.5	5.4	6.3	4.6	**5.7**	
8	7.3	5.6	6.7	6.3	6.5	4.6	**6.1**	
9	7.4	5.6	6.6	6.3	6.3	4.6	**6.1**	
10	7.0	5.6	5.6	6.0	6.3	4.6	**5.8**	

Table 6. *Cont.*

Tourist Object	Ed	Infr	AvSec	CommMark	NatCaH	SustDev	Average	Integral Indicator
Average values by parameter groups	**6.9**	**5.6**	**5.9**	**5.7**	**6.3**	**4.6**	-	
				East Kazakhstan				
1	6.1	5.4	6.2	5.9	6.4	4.5	**5.7**	**5.94**
2	6.8	5.4	6.3	5.9	6.4	4.5	**5.9**	
3	6.1	5.4	6.4	5.7	6.5	4.5	**5.8**	
4	7.1	5.4	6.8	6.3	6.5	4.5	**6.1**	
5	6.0	5.4	5.2	4.9	6.3	4.5	**5.4**	
6	6.5	5.4	5.9	6.4	6.5	4.5	**5.9**	
7	6.4	5.4	5.8	6.9	6.3	4.5	**5.9**	
8	6.9	5.4	5.6	6.3	6.5	4.5	**5.9**	
9	6.3	5.4	5.7	6.1	6.3	4.5	**5.7**	
10	6.3	5.4	5.6	5.6	6.3	4.5	**5.6**	
Average values by parameter groups	**6.4**	**5.4**	**6.0**	**6.0**	**6.4**	**4.5**	-	

According to the results obtained, the final integral scores were distributed as follows: South Kazakhstan—7.53; North Kazakhstan—6.65; Central Kazakhstan—6.3; West Kazakhstan—6.04; East Kazakhstan—5.94. It is important to highlight the TOP-3 objects in the context of all regions that scored the highest (Table 7).

It is essential to note that the difference of 1–2 points may indicate slight differences in the attractiveness of the objects; this may be due, for example, to minor characteristics that do not critically affect the overall perception of the tourist object/tourist destination; in turn, the difference of 3–4 points may indicate more noticeable differences, including, for example, different levels of development of transport infrastructure, the presence of additional related services, etc., which make one object more attractive to tourists; finally, differences between objects of 5 or more points may mean that one object significantly surpasses the other in the primary evaluation criteria, and this object should perhaps be recommended first.

Understanding the difference in the points obtained because of the assessment can help tourists make more informed decisions when choosing objects to visit; at the same time, for key participants in the tourism market, this can signal the need to improve the quality of services or infrastructure.

In general, each point represents a certain set of characteristics; the value may vary depending on the context: for example, for some tourists, the provision of sanitary conditions at the facility is more important, while for others, the presence of entertainment infrastructure and facilities is more important. This makes each point significant depending on the target audience's preferences.

Table 7. Tourist objects of Central, Southern, Northern, Western and Eastern Kazakhstan, which scored the highest number of expert points in terms of their attractiveness for the development of educational tourism.

№	Tourist Attraction	Rank	Number of Points Received
	Central Kazakhstan		
1	Karlag Museum	1	6.5
2	Karkaraly State National Nature Park	2	6.3
3	Spassk memorial complex	3	6.1

Table 7. *Cont.*

№	Tourist Attraction	Rank	Number of Points Received
	South Kazakhstan		
1	Mausoleum of Khoja Ahmed Yasawi in the city of Turkestan (formerly Yassy)	1	7.6
2	Medeu high-mountain skating rink	2	7.4
3	The ancient city of Otrar (formerly Farab, named in honor of the great thinker, philosopher and mathematician Abu-Nasr Al-Farabi)	3	7.3
	North Kazakhstan		
1	"Abylai Khan Residence" Museum Complex	1	6.9
2	State National Natural Park "Burabai"	2	6.8
3	Astrophysical Research Centre, Astrophysical Observatory	3	6.6
	West Kazakhstan		
1	House-museum of Y.I. Pugachev	1	6.1
2	Historical complex "Bokey Ordasy"	1	6.1
3	Beket-Ata Underground Mosque	2	5.9
4	Shopan-Ata underground mosque	3	5.8
5	Bozzhyra tract	3	5.8
	East Kazakhstan		
1	State Historical-Cultural and Literary-Memorial Reserve-Museum of Abai "Zhidebai-Borili"	1	6.1
2	Katon-Karagai State National Nature Park	2	5.9
3	Mount Belukha	2	5.9
4	Lake Alakol	2	5.9
5	Berel barrows	2	5.9
6	East Kazakhstan regional architectural-ethnographic and natural landscape museum-reserve	3	5.8

Note—compiled by the authors based on the results of an expert survey.

It is obvious that each of the presented objects can form a sustainable tourist interest and have a significant impact on the development of educational tourism in the region.

Based on the obtained average expert evaluations, it is also important to trace the minimum, maximum and average evaluations in the context of the studied groups of evaluation factors (Figure 3a–f).

The figures show that the following groups of evaluation criteria received maximum scores: natural and cultural–historical component (8.4 points), educational component (7.6 points), and accessibility and safety (7.4 points). The other groups of analyzed criteria range from 6.8 to 7.2 points. In general, this once again confirms the importance of natural-climatic, cultural–historical and educational resources for the development of educational tourism in Kazakhstan. Marketing and communication aspects took the last place due to the fact that experts do not consider these factors as paramount, noting that they will only start working after a quality competitive educational product is created, requiring further communication with potential customers and promotion both in the domestic and foreign markets.

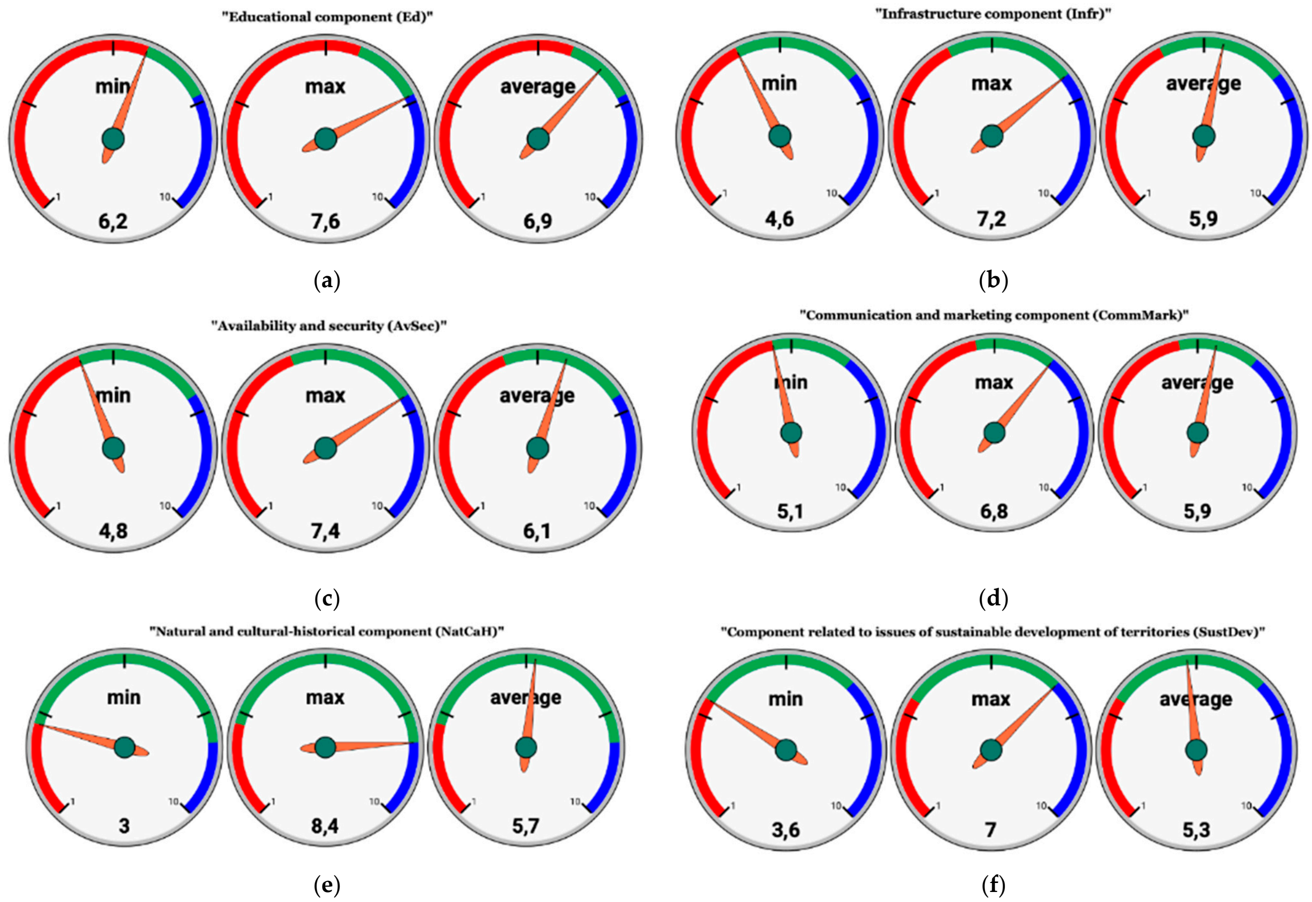

Figure 3. Variability of expert evaluations in the context of the studied groups of evaluation factors. Note—compiled by the authors based on the results of the research. (**a**) Educational component (Ed); (**b**) Infrastructure component (Infr); (**c**) Availability and security (AvSec); (**d**) Communication and marketing component (CommMark); (**e**) Natural and cultural-historical component (NatCaH); (**f**) Component related to issues of sustainable development of territories (SustDev).

4.3. RQ3: How the Scores Obtained, as Presented in the Matrix, Can Be Used in the Construction of Route Threads and the Creation of SMART Audio Guides?

Assessments of the objects obtained in the framework of matrix analysis of criteria and sub-criteria influence the formation of threads of excursion educational routes and the inclusion of certain objects of show and tell in their composition.

Further, the authors developed the SMART audio guide "Tourist objects of Karaganda city" as a conceptual complementary component of the system of implementation of educational tourism in the learning environment of higher school students. It is important to note that this development is a practical example of combining various tourist sites into a single route. Such smart audio guides can be created and scaled up depending on educational goals, areas of training, nature and type of tourist destinations, etc.

The SMART component of the proposed route consists of creating not just a thread of the route with a set of objects, but also developing a description of each of them (Table 8), creating audio tracks in three languages (Kazakh, Russian and English) and subsequent uploading to the izi.Travel platform.

Proposed route: Cosmonautics Monument—Abylkas Saginov Karaganda Technical University—Karaganda Medical University—Eternal Flame Memorial Ensemble of Military Glory—Monument "Where-Where? In Karaganda!"—Monument to Nurken Abdirov—Karaganda Buketov University—Karaganda University of Kazpotrebsoyuz—Central Park of Culture and Recreation of Karaganda—Monument "Miners' Glory".

Table 8. Brief description of the objects included in the route "Tourist Objects of Karaganda city".

Object's Type	Brief Description of the Object
Cosmonautics Monument	It was opened in 2011 in honor of the 20th anniversary of Independence and the 50th anniversary of the first human space flight. It consists of 2 components: a figure of an astronaut and a spire, 36 m high.
Abylkas Saginov Karaganda Technical University	One of the largest technical universities of the country and the region; it was founded in 1953 as Karaganda Mining Institute. In 2023 the university celebrated its 70th anniversary. Today, the university provides training for bachelors, masters, PhD doctors.
Karaganda Medical University	The University was founded in 1950. The history of the formation of the national school of medicine originates here. Today the University provides multi-level training: bachelor's, master's, residency, doctoral and additional education.
Eternal Flame Memorial Ensemble of Military Glory	The memorial was opened in 1975 in memory of the Victory of the Soviet people in World War II.
Monument "Where-Where? In Karaganda!"	This winged phrase became a kind of symbol of the city of miners. The monument is a pole with signs "Moscow", "Astana" and "Karaganda", and there are 2 figures of men. One asks the question, "Where am I?" and the other answers: "In Karaganda!".
Monument to Nurken Abdirov	On the street of the same name, opposite the sports palace, which bears his name, there is a monument to the Hero of the Soviet Union—Nurken Abdirov. The monument to the hero was opened on 30 October 1958.
Karaganda Buketov University	Karaganda Buketov University was founded in 1938 as a Teachers' Institute; in 1952 it was transformed into a Pedagogical Institute, and in 1972 Karaganda State University was opened. In 1992 the University was named after the famous scientist Evney Arsytanovich Buketov. By the Decree of the Government of the Republic of Kazakhstan in 5 April 2024, the status of a research university was granted. It is among the top five leaders of national education according to the national accreditation agencies. Today, the university trains bachelors, masters, PhDs in more than 130 educational programs in the following areas.
Karaganda University of Kazpotrebsoyuz	In 1966 the Karaganda Cooperative Institute of the USSR Centrosoyuz was founded, in 1991 the Institute was transformed into the Kazakh Institute of Consumer Cooperation, in 1997—Karaganda Economic University of Kazpotrebsoyuz, and in 2021—into Karaganda University of Kazpotrebsoyuz. It is one of the best universities of economic profile in the country.
Central Park of Culture and Recreation of Karaganda	One of the largest parks in Kazakhstan. It is a favorite place of recreation for the population of Karaganda city. In the center of the park zone, there is a lake, around which a green massif is laid. There is also a boat station, amusement rides, cafes, restaurants, a stage for holding events, and other park infrastructure facilities.
Monument "Miners' Glory"	The monument was opened on 6 November 1974. The figures of the monument—miners—are made of bronze.

Note—developed by the authors.

Total length—29 km; route type—vehicular; average duration—1 h 5 min (Figure 4).

This developed route and its audio-visual content were successfully posted in three languages on the izi.Travel platform: https://izi.travel/en/browse/7f369ba5-3117-4db2-a6cb-4f82c38765ae/kk (in Kazakh, accessed on 14 September 2024), https://izi.travel/

en/browse/7f369ba5-3117-4db2-a6cb-4f82c38765ae (in English, accessed on 14 September 2024), https://izi.travel/ru/browse/7f369ba5-3117-4db2-a6cb-4f82c38765ae (in Russian, accessed on 14 September 2024).

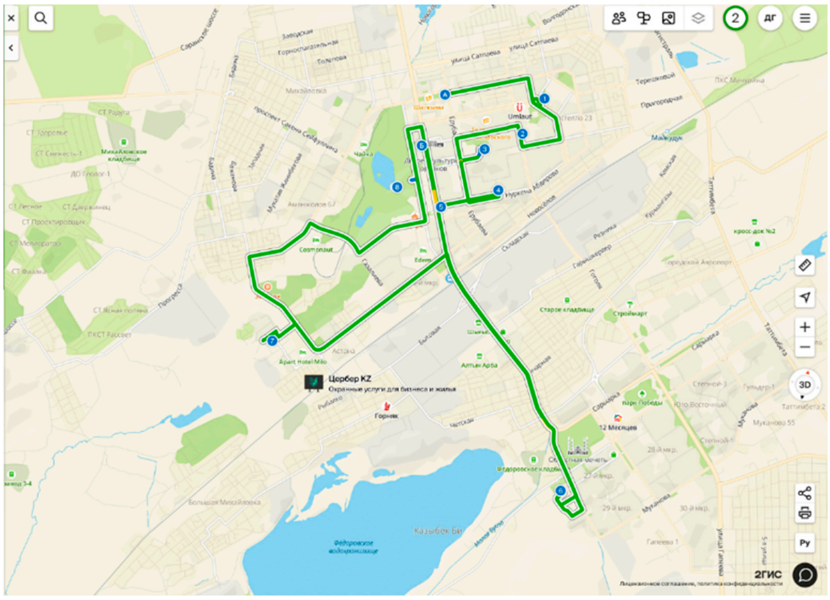

Figure 4. Thread of the route "Tourist objects of Karaganda city", plotted using 2GIS * maps. Note—developed by the authors. * Numbered dots indicate route objects.

5. Discussion

In the scientific literature, there is still no unified approach to the concept and essence of educational tourism, as well as different criteria by which it could be classified; however, the diversity of approaches allows us to study this economic category in a sufficiently capacious way and to identify promising directions of its development. It is important to note the interdisciplinarity inherent in educational tourism, which makes it possible to identify its advantages for the implementation of student-centered learning, to develop the outlook and cognitive abilities of higher education students, and to use the existing tourist and recreational potential of the regions to form competitive tourist products and develop routes of a new formation, including a variety of educational components.

The following can be highlighted as limitations: (1) the cluster analysis did not take into account some factors (due to their absence in the official statistics), especially in terms of research into the development of the tourism industry; (2) a limited number of studied tourist and recreational objects, (10 in the context of each of the regions of Kazakhstan), however, given the universality and adaptability of the proposed author's methodology, this problem can be solved by expanding and adding the necessary objects.

Further research of the authors will be aimed at studying the possibilities of implementation of educational tourism in the system of education of students of higher education in Kazakhstan, including through the development of effective programs of the Summer School (with elements and components of educational tourism), aimed at both domestic and foreign students.

6. Conclusions

The conducted research allows us to draw the following conclusions:

1. On the basis of cluster analysis, three clusters were obtained (the first (blue) uniting 18 regions: Abay, Akmola, Aktobe, Almaty, Atyrau, West Kazakhstan, Zhambyl, Zhetisu, Karaganda, Kostanay, Kyzylorda, Mangistau, Pavlodar, North Kazakhstan, Turkestan, Ulytau, East Kazakhstan regions and the city of Shymkent; the second (red), represented by the city of Astana, the third (green)—the city of Almaty), which

can be useful for the development of republican and regional programs. The second (red) is represented by the city of Astana and the third (green) by the city of Almaty, which can be useful in the development of national and regional programs for the development of educational tourism, as well as in the implementation of the main provisions of student-centered learning by educational institutions;

2. In total, 6 groups of criteria and 53 sub-criteria of the matrix of evaluation of tourist objects of the region from the position of development of educational tourism, which were tested for the evaluation of 50 tourist objects of five regions of Kazakhstan: Northern, Southern, Western, Eastern and Central;
3. On the basis of the conducted assessment, the SMART audio guide "Tourist objects of Karaganda city" was developed, which will find its wide application among educational institutions of the region, as well as among domestic and foreign tourists and excursionists; this audio guide is a kind of example of implementation of educational tourism in the system of education of higher school students, as it will be applied in the training of specialists of specialties "Tourism", "Restaurant and hotel business", "Marketing and SMM", "Logistics".

The obtained results of the study have a pronounced practical focus; in particular:

1. Government agencies can use them in developing regional and national tourism development programs (including roadmaps) with the identification of groups of regions (based on the results of cluster analysis) that are the most promising for the development of the tourism industry and individual types of tourism, including educational tourism, interest in which can be generated in the process of student-centered learning;
2. The formed criteria base for assessing the attractiveness of objects from the standpoint of educational tourism will allow key actors in the tourism market to form competitive educational tourism products for both the domestic and international markets, thereby popularizing domestic tourist destinations and creating a favorable tourist image of the country, since Kazakhstan has a high tourism and recreational potential; in addition, the presented assessment methodology will enable foreign researchers to conduct an effective analysis of the level of attractiveness of tourist sites in their country, supplementing it with new parameters, or removing those that are not significant in a specific assessment context;
3. The developed attractiveness matrix will also allow the selection of those tourist sites that may be interesting from the perspective of educational tourism development and include them in the development of smart audio guides with subsequent posting on various platforms (for example, on izi.Travel, YouTravel.Me, GetYourGuide, etc.) for free use; the article shows an example of developing an audio guide in the industrial city of Central Kazakhstan—Karaganda, where it is trendy among schoolchildren, students, and postgraduate students, as it allows developing critical thinking skills, independent research, skills in working with modern information and communication technologies, as well as communication skills.

Author Contributions: Both authors contributed to the conception, conceptualization, and creation of the methodology of the study and the data analysis reported in this article. All authors have read and agreed to the published version of the manuscript.

Funding: This research has been/was/is funded by the Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan (Grant No. AP14871422).

Institutional Review Board Statement: Not applicable

Informed Consent Statement: Not applicable

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Table A1. Indicators characterizing the development of educational tourism in the context of regions of the Republic of Kazakhstan for 2022 * (Block 1).

Region/Area	Block 1—Set of Indicators Characterizing the Level of Education Development in the Republic of Kazakhstan: CED_1–CED_10									
	1.1 Number of Organizations of Higher and/or Postgraduate Education, Units (CED_1)	1.2 Number of Students in Organizations of Higher and (or) Postgraduate Education, People (CED_2)	1.3 Share of Foreign Students in Organizations of Higher and/or Postgraduate Education, % (CED_3)	1.4 Number of Master's Students, Persons (CED_4)	1.5 Residency Trainees, Persons (CED_5)	1.6 Number of Doctoral Students, Persons (CED_6)	1.7 Number of Teaching Staff by Degree and Title in Organizations of Higher and (or) Postgraduate Education (Candidates of Sciences, Doctors of Sciences), Persons (CED_7)	1.8 Material and Technical Base in Organizations of Higher and (or) Postgraduate Education: Number of Computers Used in the Educational Process, Units (CED_8)	1.9 Indicators of Financial and Economic Activity of Educational Organizations: Transfers Received for Capital Expenditures, Thousand Tenge (CED_9)	1.10. Volume of Services Provided by Educational Organizations, Thousand Tenge (CED_10)
Abay region	3	18,316	6.4	1467	635	140	402	2965	1,331,617	-
Akmola region	4	10,908	3.0	525	-	30	255	1258	713,204	541,601
Aktobe region	6	22,774	3.0	943	602	84	445	4298	2,935,377	1,742,715
Almaty region	1	7303	0.5	544	-	68	44	600	795,173	1,740,279
Atyrau region	3	10,117	1.8	414	-	6	135	894	1,195,384	10,665,169
West Kazakhstan region	4	25,427	0.5	681	-	12	430	2332	733,130	3,085,844
Zhambyl region	2	19,632	3.3	1120	-	38	354	607	2,181,064	354,705
Zhetisu region	1	4400	0.4	391	-	54	99	1100	2,651,498	-
Karaganda region	8	38,079	4.8	1486	737	390	1029	8197	4,179,960	3,875,187
Kostanai region	6	17,143	1.3	433	-	76	364	3336	1,913,852	967,176
Kyzylorda region	3	14,276	0.2	775	-	38	313	1782	293,638	571,561
Mangistau region	1	6744	7.0	432	-	21	82	1133	165,693	1,363,893
Pavlodar region	4	14,586	1.8	1062	-	95	387	1294	1,122,805	964,758
North Kazakhstan region	2	6549	5.8	221	-	18	119	2201	379,078	459,021
Turkestan region	3	10,042	9.0	374	157	57	339	1507	7,488,325	415,418
Ulytau region	1	1310	0.1	16	-	-	24	324	1302,072	-
East Kazakhstan region	3	15,051	1.0	1279	-	120	280	1633	1,085,847	1,496,345
Astana city	14	67,211	2.9	6479	1468	1787	1777	13,991	36,436,181	28,118,137
Almaty city	39	177,568	4.5	11,973	2221	2857	4938	26,182	2,832,149	18,823,574
Shymkent city	8	90,801	5.7	4945	335	265	1296	6487	12,091,862	2,703,687

* data are presented for January–December 2023.

Table A2. Indicators characterizing the development of educational tourism in the context of regions of the Republic of Kazakhstan for 2022 * (Block 2).

Block 2—Set of Indicators Characterizing Cultural Development of the Regions of the Republic of Kazakhstan: CDC_1–CDC_46											
Region/Area	**Block 2—Set of Indicators Characterizing Cultural Development of the Regions of the Republic of Kazakhstan: CDC_1–CDC_11**										
	2.1 Number of libraries, units (CDC_1)	**2.2 Number of cultural events held in the library, units (CDC_2)**	**2.3 Number of visits to cultural events in the library, units (CDC_3)**	**2.4 Number of historical museums (CDC_4)**	**2.5 Number of local history museums (CDC_5)**	**2.6 Number of memorial museums (CDC_6)**	**2.7 Number of science museums (CDC_7)**	**2.8 Number of art museums (CDC_8)**	**2.9 Number of protected museums (CDC_9)**	**2.10 Number of museums of other type (CDC_10)**	**2.11. Number of visitors to museums, thousand people (CDC_11)**
Abay region	137	4787	200,093	1	5	1	-	1	1	-	229.4
Akmola region	343	21,043	1,120,929	-	10	2	1	-	-	3	214.5
Aktobe region	236	10,526	348,862	2	12	6	-	-	-	-	321.3
Almaty region	143	13,179	602,006	2	1	6	-	-	2	5	93.6
Atyrau region	139	8160	203,093	1	10	-	-	-	1	-	73.4
West Kazakhstan region	360	13,394	276,225	3	9	5	1	1	1	-	101.0
Zhambyl region	275	13,467	326,483	3	8	5	-	-	1	-	167.6
Zhetisu region	147	17,299	216,008	4	1	4	-	1	-	3	50.8
Karaganda region	255	26,590	225,844	3	11	1	-	1	-	-	420.9
Kostanai region	340	15,278	269,563	2	4	3	-	-	-	-	353.6
Kyzylorda region	209	9725	233,965	2	8	4	-	-	-	-	138.2
Mangistau region	69	3785	302,382	-	5	2	-	-	-	-	83.7
Pavlodar region	229	10,589	220,043	-	5	4	-	1	-	2	345.5
North Kazakhstan region	318	17,382	432,290	2	4	5	-	1	1	-	142.2
Turkestan region	398	13,687	276,878	4	12	5	-	1	3	2	1285.8
Ulytau region	55	1527	45,015	3	2	-	-	-	1	-	141.5
East Kazakhstan region	170	15,042	447,463	2	4	-	-	1	2	-	575.1
Astana city	23	4088	206,445	2	-	4	-	-	1	-	890.4
Almaty city	34	46,357	320,614	7	-	6	1	2	-	4	571.5
Shymkent city	44	1840	351,677	4	1	-	-	-	-	-	55.9

Table A2. *Cont.*

Region/Area	Block 2—Set of Indicators Characterizing Cultural Development of the Regions of the Republic of Kazakhstan: CDC_12–CDC_23											
	2.12. Number of exhibits of the main collection in museums, units (CDC_12)	**2.13. Number of exhibitions held by museums abroad (CDC_13)**	**2.14. Number of exhibitions held in museums (CDC_14)**	**2.15. Number of theatres, units (CDC_15)**	**2.16. Number of opera and ballet theatres, units (CDC_16)**	**2.17. Number of drama theatres, units (CDC_17)**	**2.18. Number of musical comedy theatres, units (CDC_18)**	**2.19. Number of theatres for young spectators and puppets (CDC_19)**	**2.20. Number of events held by theatres, units (CDC_20)**	**2.21. Number of spectators at events held by theatres, persons (CDC_21)**	**2.22. Number of new productions in the reporting year, units (CDC_22)**	**2.23. Number of performances (theatre repertoire) in the reporting year, units (CDC_23)**
Abay region	130,326	-	140	1	-	1	-	-	438	104,696	15	76
Akmola region	131,658	-	307	2	-	2	-	-	770	99,351	22	83
Aktobe region	97,258	-	688	2	-	1	-	1	812	138,264	12	86
Almaty region	19,056	2	201	2	-	-	-	2	88	1280	x	31
Atyrau region	86,321	-	120	1	-	1	-	-	127	32,069	4	50
West Kazakhstan region	101,861	-	203	2	-	2	-	-	417	74,901	9	113
Zhambyl region	119,346	-	350	2	-	2	-	-	543	79,580	12	73
Zhetisu region	25,405	-	191	-	-	x	-	-	104	24,912	x	x
Karaganda region	232,574	-	567	4	-	2	1	1	1643	275,997	30	243
Kostanai region	210,154	2	555	4	-	2	-	2	1055	112,152	22	132
Kyzylorda region	95,228	-	471	1	-	1	-	-	276	73,324	4	34
Mangistau region	49,022	1	62	2	-	1	-	1	428	65,950	11	82
Pavlodar region	173,483	1	445	3	-	2	-	-	412	91,700	12	87
North Kazakhstan region	171,244	2	180	3	-	2	-	1	517	50,754	16	73
Turkestan region	144,912	4	489	3	-	3	-	-	387	54,343	17	69
Ulytau region	73,813	-	138	-	-	-	-	-	305	46,785	x	x
East Kazakhstan region	253,932	2	445	1	-	1	-	-	344	74,934	11	66
Astana city	136,445	-	165	9	2	3	-	2	2307	520,781	33	257
Almaty city	369,481	5	198	24	1	9	2	6	3992	766,901	67	446
Shymkent city	27,739	-	45	6	1	3	1	1	1563	282,879	28	206

Table A2. *Cont.*

Region/Area	Block 2—Set of Indicators Characterizing Cultural Development of the Regions of the Republic of Kazakhstan: CDC_24–CDC_35											
	2.24. Number of circuses, units (CDC_24)	**2.25. Number of events held in circuses, total, units (CDC_25)**	**2.26. Number of spectators in circuses, persons (CDC_26)**	**2.27. Number of cultural and leisure organizations, units (CDC_27)**	**2.28. Number of cultural centers (palaces), units (CDC_28)**	**2.29. Number of clubs, units (CDC_29)**	**2.30. Number of Folk-Art Centers, units (CDC_30)**	**2.31. Number of other cultural and leisure organizations, units (CDC_31)**	**2.32. Number of seats in auditoriums of cultural and leisure organizations, units (CDC_32)**	**2.33. Number of cultural events held, units (CDC_33)**	**2.34. Number of spectators at the events held, persons (CDC_34)**	**2.35. Number of concert organiza-tions, units (CDC_35)**
Abay region	-	-	-	124	31	93	-	-	18,652	6020	841,489	1
Akmola region	-	-	-	260	111	146	-	2	41,777	32,173	3,944,301	1
Aktobe region	-	-	-	202	55	145	1	1	34,736	12,617	1,989,532	1
Almaty region	-	-	-	119	81	38	-	-	25,145	9724	1,237,112	2
Atyrau region	-	-	-	82	52	29	1	-	14,612	5557	1,216,955	2
West Kazakhstan region	-	-	-	270	125	140	1	4	40,882	14,362	2,144,159	3
Zhambyl region	-	-	-	03	72	124	5	2	34,632	8456	1,024,129	2
Zhetisu region	-	-	-	134	96	35	3	-	30,487	14,343	1,158,632	2
Karaganda region	-	-	-	242	70	132	-	40	34,935	18,334	1,879,691	1
Kostanai region	-	-	-	30	107	120	-	2	26,735	18,270	2,772,779	1
Kyzylorda region	-	-	-	174	55	115	1	3	28,830	7707	1,037,744	1
Mangistau region	-	-	-	43	29	13	1	-	9305	2321	1,135,935	1
Pavlodar region	-	-	-	267	119	132	3	13	38,246	14,773	2,242,617	1
North Kazakhstan region	-	-	-	238	83	97	2	56	34,117	14,977	869,553	1
Turkestan region	-	-	-	255	112	143	-	-	47,540	10,396	1,357,314	1
Ulytau region	-	-	-	42	9	30	1	2	6946	2434	462,460	1
East Kazakhstan region	-	-	-	172	51	115	-	6	27,084	12,729	1,937,201	1
Astana city	1	73	100,254	1	1	-	-	-	2579	394	214,159	6
Almaty city	1	119	161,150	1	1	-	-	-	150	63	1800	13
Shymkent city	1	68	48,899	10	5	5	-	-	1665	344	312,848	1

Table A2. *Cont.*

Region/Area	Block 2—Set of Indicators Characterizing Cultural Development of the Regions of the Republic of Kazakhstan: CDC_36–CDC_46										
	2.36. Number of events organized by concert organizations, units (CDC_36)	**2.37. Number of spectators at events organized by concert organizations, units (CDC_37)**	**2.38. Number of parks, units (CDC_38)**	**2.39. Number of cinematographic organizations engaged in film exhibition, units (CDC_39)**	**2.40. Number of cinema screens in cinemas, units (CDC_40)**	**2.41. Number of seats in cinema halls, units (CDC_41)**	**2.42. Number of zoos, units (CDC_42)**	**2.43. Total area of zoos, ha (CDC_43)**	**2.44. Number of visitors to zoos, persons (CDC_44)**	**2.45. Number of conducted excursions in zoos, units (CDC_45)**	**2.46. Number of organised exhibitions in zoos. Units (CDC_46)**
Abay region	82	22,009	7	4	7	970	1	98.7	7070	8044	10
Akmola region	230	36,081	4	4	5	780	-	-	-	-	-
Aktobe region	342	227,100	12	3	8	1378	-	-	-	-	-
Almaty region	187	80,870	16	3	10	1390	-	-	-	-	-
Atyrau region	200	48,155	13	8	7	785	-	-	-	-	-
West Kazakhstan region	213	94,975	10	11	14	1809	-	-	-	-	-
Zhambyl region	284	42,250	14	15	20	3887	-	-	-	-	-
Zhetisu region	200	56,200	2	2	7	801	-	-	-	-	-
Karaganda region	972	139,453	18	5	14	2314	1	43.5	134,508	177	1
Kostanai region	215	174,500	10	3	12	1405	-	-	-	-	-
Kyzylorda region	324	62,953	1	2	11	1290	-	-	-	-	-
Mangistau region	270	53,000	9	7	16	1866	-		-	-	-
Pavlodar region	236	90,565	-	5	16	2428	-	-	-	-	-
North Kazakhstan region	194	60,589	4	7	13	1803	1	-	5000	-	-
Turkestan region	214	8022	6	6	11	1440	-	-	-	-	-
Ulytau region	176	41,524	27	x	x	x	-	-	-	-	-
East Kazakhstan region	143	174,000	3	3	18	2676	2	3.7	94,186	1500	3
Astana city	911	733,153	6	8	63	8405	-	-	-	-	-
Almaty city	840	725,370	22	20	135	16,871	3	21.2	968,933	206	-
Shymkent city	202	50,500	21	6	30	3345	1	30.1	343,024	130	6

* data are presented for January–December 2023.

Table A3. Indicators characterizing the development of educational tourism in the context of regions of the Republic of Kazakhstan for 2022 * (Block 3).

Region/Area	Block 3—Indicators Characterizing the Development of the Tourism Industry by Regions of the Republic of Kazakhstan: TDC_1–TDC_3		
	3.1 Number of Accommodations * (TDC_1)	3.2 Number of Rooms in Accommodation * (TDC_2)	3.3 One-Time Capacity (Beds) of Accommodation (TDC_3)
Abay region	325	6675	17,379
Akmola region	339	5584	14,577
Aktobe region	100	2205	5751
Almaty region	261	5234	15,375
Atyrau region	128	4051	6700
West Kazakhstan region	92	2430	4812
Zhambyl region	225	2625	7048
Zhetisu region	311	6013	16,189
Karaganda region	245	4425	12,248
Kostanai region	132	2111	5579
Kyzylorda region	150	1769	4195
Mangistau region	101	4066	8148
Pavlodar region	124	3114	8402
North Kazakhstan region	123	1998	6231
Turkestan region	220	3100	9123
Ulytau region	25	276	489
East Kazakhstan region	334	5704	20,058
Astana city	257	9439	17,581
Almaty city	354	11,388	21,813
Shymkent city	146	3305	6058

Note—compiled by the authors according to the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan (Blocks 1–3). * data are presented for January–December 2023.

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Towards diverse, critical understandings of "international" for higher education

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Received 21 August 2023
Revised 23 January 2024
Accepted 7 March 2024

Abstract

Purpose – The study explores diverse and critical understandings of "international" in a higher education curriculum context, situated in a curriculum review of a postgraduate taught programme entitled "International Education" at a university located in England. Our study problematises and decentres some dominant, normalised notions of "international", exploring critical possibilities of engaging with the term for higher education internationalisation.

Design/methodology/approach – We examined a set of programme curriculum documents and conducted a survey exploring teaching staff's uses and interpretations of "international" in their design and delivery of course units. Through a thematic analysis of the dataset, we identify what "international" might mean or how it may be missing across the curriculum.

Findings – Our findings suggest a locally-developed conceptualisation of "international" beyond the normalised interpretation of "international" as the inclusion or comparison of multiple nations, and different, other countries around the global world. More diverse, critical understandings of the term have been considered, including international as intercultural, competences, ethics, languages and methods. The study provides an example approach to reflective scholarship that programmes can undergo in order to develop clarity, depth and purposefulness into internationalisation as enacted in a local curriculum context.

Originality/value – The study provides a first step towards establishing clearer guidelines on internationalising the curriculum by higher education institutions and individual programmes in order to challenge a superficial engagement of "international" within internationalisation. It exemplifies a starting point for making purposeful steps away from normalised notions and assumptions of international education and facilitates development towards its critical, ethically-grounded opportunities.

Keywords Qualitative, Internationalisation, International education

Paper type Research paper

1. Introduction

Within higher education (HE), there are diverse understandings of how to define and enact internationalisation in teaching practice. Despite numerous attempts to define or redefine internationalisation, most definitions leave vague the meaning of "international" itself. Internationalisation, thus, is often reduced to "being international" - defined through language such as the infusing of "an international and intercultural dimension" (Leask, 2009, p. 209) - without clarity about what "international" means in the first place. These unproblemetised and dominant notions of international and internationalisation are often used interchangeably. However, we attempt to detach these seemingly neutral terms and explore how understandings of "international" fit into the broader context and process of "internationalisation".

To interrogate this, we explored alternative and critical understandings of how "international" is enacted in practice, using a curriculum review of a postgraduate taught programme entitled "International Education" at an English university. The university is

We would like to thank our external examiner, Emily Henderson, for providing insightful feedback on the programme curriculum, which has informed a critical, reflective starting point for this scholarship. We would also like to thank all teaching staff and students who have contributed to the process of reflecting critically on the element of "international" in curriculum design and teaching practices.

Equality, Diversity and Inclusion: An International Journal
© Emerald Publishing Limited
2040-7149
DOI 10.1108/EDI-08-2023-0277

likely broadly viewed as "internationalised", particularly as it hosts some of the country's largest populations of international students and staff. The specific programme in evaluation is the largest postgraduate programme in the Education department, one of the largest in the country. Both the teaching team and student population are highly diverse; nearly all students are international students and around half of the teaching team are migrant staff. The topics taught are wide-ranging and loosely connected to "international" from childhood education through to HE, including but not limited to global development, teaching in intercultural settings, language education, and global education, social justice and equity. However, at the time of this study, the programme had no shared working definition of "international" or formal agreement for what constitutes "international education", despite the programme title.

We (the authors) are staff on the programme whose research expertise focuses on the internationalisation of HE and international or intercultural curriculum design. Our backgrounds resonate with the diverse profile of the programme, as staff who identify as migrants (Authors 1 and 3), have experience working/living internationally (Authors 1, 2, and 3), and have varied linguistic resources (such as Chinese and English) (Authors 1, 2, and 3). Our motivation for exploring diverse, alternative and critical understandings of "international" here derives from our practice in this context. Internally, we recognised that the term "international" might be used and interpreted in different ways by teaching staff across course units and, thus, clarity and consistency (rather than standardisation) may be needed across the curriculum. Externally, we respond to feedback from external examiners through the key questions of: what makes the teaching and learning "international" within the curriculum? Are there shared understandings of "international"?

To answer these questions, we examined the programme's curriculum documents and surveyed staff about their uses and interpretations of "international" in teaching. By interrogating what "international" might mean, we examined unproblematised, normalised notions of "international" and explored critical possibilities of engaging with the concept. We provide diverse possibilities of understanding how "international" can be enacted within "internationalisation", contributing to critiques of dominant discourses within HE that are entangled with the promotion and advancement of internationalisation and the shared neo-liberal fantasies of equality and diversity. Although the programme being evaluated here is situated in a highly internationalised context, we believe our findings are transferable for scholars, practitioners, and students in other settings and disciplines.

Below, we first discuss seemingly neutral and innocuous understandings of internationalisation and associated critiques in existing scholarly literature. We then introduce the methods used to understand concepts of "international" in our curriculum context. Finally, we present diverse, alternative and critical understandings of the concept in our findings and provide some concluding thoughts on the implications of the study. Together, our findings provide considerations for scholars and practitioners who may wish to undertake a similar evaluation within their own contexts.

2. Internationalisation of higher education

Internationalisation has been described as a disruptive force for HE practice for over 40 years and has been the focus of an increasing amount of academic research (Kosmützky and Putty, 2016). Despite this increasing focus, questions remain about what internationalisation means and how it can be defined in practice. Knight (2003, p. 2) offers the most cited definition of internationalisation, defining it as: "the process of integrating an international, intercultural, or global dimension into the purpose, functions, or delivery of post-secondary education" This definition is purposefully vague, as Knight suggests internationalisation means different things in different contexts, making it challenging to develop a comprehensive definition. This means the definition faces critiques about its overarching "fuzzy" nature and conflated understandings of international, intercultural, and global (Lourenço, 2018; Marginson, 2023).

Scholars have attempted to address this vagueness in varied ways, as outlined by Hunter *et al.* (2022, p. 53) that "despite the relative ubiquity of the definition of internationalisation developed and re-developed by Jane Knight, diverse and new approaches are reflected in emerging labels". This has been manifested through "internationalisation with adjectives" (Craciun, 2020, p. 156), such as Streitwieser's (2019 in Hunter *et al.*, 2022) discussion of "humanistic internationalisation".

There is an increasing critical awareness of the assumptions and problems which underpin "internationalisation". For instance, internationalisation has frequently been framed as apolitical and often largely divorced from the wider discussions of historical or geopolitical inequalities, ethical responsibilities, and alternative possibilities for engaging with and across differences (Buckner and Stein, 2020; Hayes, 2017; Mittelmeier and Yang, 2022). Internationalisation is often driven by globalisation and neoliberal practice within HE and has been transformed into part of the "meritocratic global race" as nations seek to compete in the global knowledge economy (Bamberger *et al.*, 2019, p. 209). While globalisation seeks to create more interconnection between countries, the results are comparisons, competition and homogenisation, "which deflects attention away from the embedded inequalities within the system" (Bamberger *et al.*, 2019, p. 209). Competing at a global level often results in institutions focusing on internationalisation to increase global reputation or using it as a signal of their presence at a national or local level, to increase their international standing (Cattaneo *et al.*, 2016). Even countries espousing a liberal view to education, emphasising its role in the personal and social dimension of freedom, overlook the reality of colonial expansion and oppression (Baldacchino, 2019). The unidimensional lens of neoliberal policies seeks to standardise education provisions, but this often sacrifices emancipation for "the greater good" and inclusion can become equivalent to enclosure (Baldacchino, 2019, p. 23). Buckner and Stein (2020), thus, note how existing definitions of internationalisation provide limited insights into the ethics of international engagement, particularly across unequal relations of power.

2.1 Internationalisation as enacted through the curriculum

We focus specifically on the curriculum as a space where internationalisation is prominently enacted in teaching and learning. Curriculum can be broadly defined as, "[t]he totality of the experience the pupil [student] has as a result of the provisions made" (Kelly, 2009, p. 13). We particularly focus on two domains of the curriculum: the formal and hidden curriculum. The formal curriculum encompasses the "sequenced programme[s] of teaching and learning" (Leask, 2009, p. 207) which are designated by institutions as part of an accreditation process, including course unit specifications, reading lists, intended learning outcomes, and assessment. At the same time, the choices made within the formal curricular offerings, as well as their links to pedagogy and subsequent classroom environments, form a set of underlying assumptions and messages for students, which is commonly defined as a hidden curriculum: "the tacit teaching of social and economic norms and expectations to students in schools" (Apple and King, 1977, p. 341). It is widely recognised that learning institutions create a world vision which is implied through and beyond the formal curriculum offerings (Giroux, 2020).

In relation to internationalisation, this brings up considerations for how curricula "become international" or how curriculum internationalisation might be enacted in practice. Leask (2009, p. 209) defines this as " … the incorporation of an international and intercultural dimension into the content of the curriculum as well as the teaching and learning process and support services of a program of study". However, we note again that the word "international" is commonly used in definitions of "internationalisation", creating a circular fallacy that raises questions about root understandings of what "international" itself means to different stakeholders (Bucker and Stein, 2020). Leask gives some hints to this, whereby "internationally informed research and cultural and linguistic diversity" is later described as "research that crosses national as well as cultural boundaries" (2009, p. 209). This designates a nation-bounded understanding of "international" curricula, which are often conflated elsewhere in the literature with language around "intercultural" (e.g. Sample, 2013). This raises questions, therefore, about whether and how "international" is individually defined through the enactment of an "internationalised" curriculum.

Such understandings are important, given that the meanings which "international" is given through the curriculum present to students hidden or implicit understandings of global knowledge production and relations. Scholars have outlined ethical challenges, particularly around issues of "epistemic dominance" which "police the categories of meaning by which existence is organised" (Stein, 2017, p. 29), often framing global knowledge through Eurocentrism and coloniality (De Lissovoy, 2010; Marginson, 2023). Teaching through internationalisation also forms the boundaries around which students understand and recognise practices of othering (Said, 1978) - developing a sense of who is "us" and who is "them". Curriculum internationalisation, therefore,is a boundary-making process, whereby assumptions of what "international" means deliver a hidden curriculum lens through which students learn about the world. This sense of "othering" is where we turn our attention to next.

2.2 "Othering" in HE internationalisation

Othering in education usually plays a role in deciding who fits in and who does not and serves as a discourse of exclusion and ethnocentricity (Dervin and Yuan, 2022, p. 47). Othering could refer to a differentiating discourse of (re)creating cognitive and emotional boundaries between us and them as associated with moral and political judgements of superiority and inferiority (Dervin, 2016, p. 45). For instance, the other is often described through a deficit framework positioning them as less capable, ethical, or other negative terms (e.g. passive, mysterious) (Said, 1978). In our UK HE context, the term "international" is often used to label "difference" denoting people and educational systems from outside the UK, who/which are likely to use English as a "non-native" language (e.g. Bamford, 2008, p. 2). As such, "international" is usually labelled under the nationalist ideology of othering (e.g. non-UK) and the hierarchy of native-speakerism and Anglocentrism (Holliday, 2006) appealing to cultural superiority and hegemony (Huang, 2022). Othering in this context involves power inequalities and injustices for representing and interpreting others and self (Devrin, 2016, p. 46).

Issues of "othering" are more often discussed regarding people (e.g. international students) rather than ideas, materials, pedagogies, and approaches. Hayes (2017, pp. 220–221), however, reflects on the historical expansion of education for the British Empire, which aims to "enlighten the uneducated people in the former colonies and to sanction ways of acquiring knowledge to establish supremacy and control over people . . . (and) to establish perceptions of the British education system as superior . . . (and) as a privilege to be paid for". These aims might still inform the pedagogical assumptions around teaching about/with "international". For instance, pedagogic cultures of international students are often assumed to be inferior and their skills and practices are often thought to need improving to meet the "higher" standard of host institutions (pp. 221, 225). These othering discourses can hinder student belongingness (Huang and Cockayne, 2023) and epistemic, linguistic, and cultural inclusion (Viggiano *et al.*, 2018).

Issues of othering and exclusion in teaching about/with "international" may also derive from superficial approaches to multicultural, international curricula (Tavares, 2021). This usually translates into incomplete, skewed understandings of diversity and a "Western" view of knowledge worlds and student success. It can perpetuate essentialist, nationalist notions (e.g. cultural stereotypes) and fuel neo-racism on the basis of linguistic and cultural differences (Lee, 2015). This could include deficit framings of the language practices of racialised populations (Rosa and Flores, 2017) and linguistic racism, symbolic violence, and microaggressions (Dovchin, 2020; Wang and Dovchin, 2023) towards, for example, "international" students. Therefore, inclusive curriculum internationalisation must recognise diverse learning agendas of all students (Haigh, 2002) and foreground the development of transferable, intercultural competence as a core element of the curriculum design (Deardorff and Jones, 2022; Ji, 2020) which moves beyond content materials that perpetuate ethnocentrism, neo-racism, "white privilege", and othering (Parson and Weise, 2020).

From a critical applied linguistic perspective, Tavares (2021) critiques monolingual, monocultural designs of curricula which privilege students who acquired English as a first language and who have been socialised in "Western" academic/epistemological discourse. Othering, as constructed through over-emphasising English language proficiency in the curriculum when certain students are seen as more or less legitimate than others, can evoke nativespeakerism as a benchmark for academic performance (Sterzuk, 2015). Sterzuk (2015) critiques the use of a benevolent discourse of "difference" to imply inferiority, where "non-native" speakers of English are represented as deficit others by local "standards". This is exemplified in the following text from a department policy from a Canadian university quoted by Sterzuk:

> It should be recognized that students whose native language is not English have learned the language in a different way and, to some extent, make different cultural assumptions. As a result, they have problems of a different kind to overcome and may require individual attention and different approaches to teaching. However, ESL (English as a Second Language) students should be judged by standards as rigorous as those applied to students whose first language is English. (2015, p. 61)

To this end, Tavares (2021) suggests that non-native proficiency could play a major role in mediating curriculum inclusion and internationalisation.

2.3 An intercultural approach to curriculum internationalisation

As previously discussed, the circularity of labels like "international" and "internationalisation" expresses a hidden curriculum that usually promotes Eurocentric/Anglocentric values which reproduce othering, neo-racism, and native-speakerism. The term "intercultural" is also sometimes used interchangeably with "international" to further indicate otherness. Interculturalists (e.g. Holliday, 2018; Dervin, 2011; Huang, 2022) have problematised a differentialist, essentialist approach of curriculum design which may fail "to recognise the heterogeneity of those who make up the large grouping" (Jones, 2017, p. 934) and neglects the shared commonalities, interconnections, transformability, and opportunities for creative dialogues (Huang, 2022). Chernilo (2011, p. 99), Beck and Sznaider (2006), and Tavares (2021) critique the issue of methodological nationalism which treats the nation-state as the only essential frame for understanding modern society. Adopting essentialist, nationalist lenses can lead to pedagogical nationalism which reinforces a differentialist notion of boundaries and issues of stereotypes, prejudices, ethnocentrism, and neo-racism in curriculum internationalisation. To this end, Dervin and Yuan (2022, p. 49) suggest a balanced approach to non-differentialism:

> On the one hand, ignoring differences and treating learners as a homogeneous group denies them access to their diverse identities, experiences, and opinions, and goes against contemporary educational objectives suitable for a pluralistic, globalised world. On the other hand, over-

> emphasising differences and heterogeneity among learners can reinforce othering processes and the emergence or solidification of stereotypes inside classrooms.

Huang *et al.* (2019) suggest a critical intercultural ethic to guide scholarship such as curriculum internationalisation. By problematising potential issues of epistemic injustice (Fricker, 2007) and discourse hegemony (Li, 2018), they argue for recognising the power hierarchies between different languages, epistemologies, and pedagogical cultures for developing intercultural knowledge-work. Magne (2016) also critiques common approaches to curriculum internationalisation, such as providing examples from national contexts around the world. This approach, with its best intention for developing students' awareness of perspectives and practices beyond their immediate horizon, might recreate superficial engagement with "international" and reinforce stereotypes, national boundaries, ethnocentrism, and othering. Magne (2016) suggests that intercultural education should move beyond multicultural content emphasising "diversity" and differences and shift towards more transformative, decentring, critical, and ethical dialogues. Having discussed some critical approaches to understanding "international" and problematised the normalised notions of international in the HE curriculum context, we proceed to introduce our methods of study.

3. Methods

This study is a curriculum review of a postgraduate taught programme about international education at a large metropolitan English university. The programme is a master's programme which offers "core" units required for all students and "optional" units for students to select. The purpose of the review is to reflect on understandings and uses of "international" across the programme curriculum. To do this, we reviewed a set of programme documents (n = 21) and conducted a staff survey (n = 27).

The documents included:

(1) *Programme specification (n = 1):* a public record of the programme structure and design as approved by the institution.

(2) *Programme handbook (n = 1):* a record for students and staff of the core learning objectives and processes for the degree programme.

(3) *Dissertation handbook (n = 1):* a record for students and staff which outlines expectations, aims, and processes for the dissertation research project.

(4) *Core course unit specifications (n = 4):* records for staff and students for each core unit that provide information about the learning outcomes, assignment tasks, sessions and delivery format.

(5) *Optional course unit specifications (n = 14):* records for students and staff for each optional unit that provide information about the learning outcomes, assignment tasks, sessions and delivery format.

We recognised interpretations of "international" could be implicit or related to practice beyond these formal documents, though, and so also asked all teaching staff (n = 38) on the programme to fill out an online survey via Qualtrics. Altogether 27 responded, making a response rate of 71%. This survey asked open-ended questions about how staff understand "international" in their course unit design and how they enact this understanding in practice. Informed consent was obtained from all survey participants, allowing us to use their anonymised responses for publication. All details were visible for our analysis to link to the documents. However, this information is not included here to ensure individual units and/or staff are not identifiable. For this reason, staff were also not asked to reveal demographic information about themselves. We recognise this limits opportunities for comparative analysis, but we felt this was ethically necessary given the familiar context in which our research was undertaken.

Thematic analysis (Braun and Clarke, 2022) of the formal curriculum documents and survey responses were conducted. We started by highlighting references to "international" in the documents and developing an initial set of potential codes related to their definitions. These were refined through multiple close readings and in-depth discussion meetings between the authors. These codes were organised and categorised collectively by authors into parent themes, as outlined in the findings section. Afterwards, we reviewed the curriculum written materials again to identify sections and areas where "international" was missing or omitted. As a final step, a member of the research team assessed the trustworthiness of written findings by reviewing pull-out quotes and findings within the original data context. Findings were further developed through open meetings with programme staff and students, who provided feedback for refinement.

While our study is based upon this particular curriculum review, our findings are transferable and can act as a resource for those working in other contexts and disciplines. Our intention is to facilitate critical discussions of diverse possibilities for understanding "international" and to problematise and decentre some commonly-available, normalised notions of the concept.

4. Findings

Through an in-depth analysis of an international education master's programme, we identified that all teaching staff understand, conceptualise, and enact "international" in varied ways, as summarised in Table 1. Some of these are what we might call normative conceptualisations of "international", in the sense that they broadly align with prior understandings of internationalisation (e.g. Knight, 2004). Others might constitute more critical conceptualisations of "international", in the sense that they centre unrepresented, marginalised, or absent notions in scholarly discourses about what "internationalisation" means and how it is enacted. These critical conceptualisations were commonly juxtaposed against normative framings, often in the same document or material, highlighting how internationalisation's "fuzziness" manifests through ambiguities in practice.

Understanding of "international"	Description
International as "other countries"	The inclusion of examples or materials from multiple national contexts and countries
International as "global"	A perspective towards "worldwide" and the global whole
International as "intercultural"	A fluid, political approach to moving beyond the fixed notions of culture, national boundaries, and differences
International as "competences"	A perspective of developing personal, transferable skills such as awareness, attitudes, mindset, and confidence for engaging within intercultural settings
International as "ethics"	A justice-oriented approach to recognising ethical concerns and considerations in international contexts (including decolonisation and epistemic justices)
International as "languages"	The inclusion of diverse linguistic resources and forms in education internationalisation
International as "methods"	A methodological consideration of international as a process, particularly in relation to research design and teaching methods

Source(s): Table by authors

Table 1. Varied understandings of "international" in curriculum review

In presenting Table 1, we argue that there is no "best practice" for how "international" can or should be defined or enacted, but rather this should be negotiated and situated in context. Yet, this suggests that "international" contains multitudes and that programmes which consider themselves having an "international" orientation can benefit from explicitly delineating their own purposes, using conceptualisations outlined in Table 1 as a starting point for discussions. Each conceptualisation is described in detail in the following subsections.

4.1 International as "other countries"

There is often a normative assumption that "international" means "other countries", a common pattern in our data. This was seen throughout most module documents, enacted by drawing examples or case studies from different, non-UK countries, and analysing systems and practices from other national contexts. For example:

> This unit explores four key themes in [unit topic] and contextualises them in a range of international case studies (optional course unit)

In doing so, "international" becomes deduced to geography through methodological nationalist lens (Chernilo, 2011; Beck and Sznaider, 2006), whereby, for instance, students may be simply asked to "choose a country from anywhere in the world" (staff survey). At times this focused on making comparisons between different geographical contexts - "diverse approaches" (optional course unit) - while other units simply foregrounded how "examples will be drawn from international educational contexts" (optional course unit).

One critique of this normalised approach is that it assumes a dichotomy between a national container associated with "us" and other geographies associated with "them" (Marginson, 2023). For instance, programme materials may assume that, if materials are not within the national or local context of teaching, then they must be "international" by default - e.g. "the UK and internationally" (optional course unit). This was apparent in our staff survey, whereby the most common response from staff when asked to define "international" was a reference to "other contexts" or "other settings".

This dichotomous juxtaposition of "international" versus "national/local" - or as, one optional unit described it, "globally, nationally, and locally" - represents a sense of othering (Dervin, 2016) through overreliance on places, cases, and people from "outside of the UK". In doing so, assumptions are made that "other" equals "different", leading automatically to learning value. However, this othering approach, as discussed previously, fails to think beyond national containers and oversimplifies binary distinctions of difference.

A differentialist discourse is also further identified in our data, over-emphasising a central focus on "a range of different contexts and from different perspectives" (optional course unit) as equal to international. This was described by one unit, for instance, as "contextual particularities of international educational settings" (optional course unit). This could also be seen in the programme's aim of developing students "understanding of differences" (programme specification) rather than similarities, interconnectivities, or creative dialogues across and beyond (national) boundaries. The assumption of using national cases to address "international" - especially when one limited example is used to represent a whole country or culture - could reproduce stereotyping and reinforce boundaries in students' understandings.

4.2 International as "global"

Juxtaposed against the differentialist approach is the opposite assumption that "international" equals a homogenised "global". While much of both the literature and our data suggests that "international" is restricted by nation-boundedness (Chernilo, 2011; Dervin, 2016), there were some suggestions that international was at the same time considered more holistically as "global contexts" (optional course unit) or "global views" (staff survey). This is apparent through the "international education" label itself, which conveniently amalgamates a wide range of teaching and research that is broadly "internationally-focused" (optional course unit).

In our analysis, module documents highlighted that students would be learning about "globalised systems" of education, global contexts, and the impact of wider globalisation on education. This was, at times, vague, such as expectations that students will "reflect on teaching and learning in international contexts" (optional course unit). At other times, this was connected to learning about "the role of international organisations in the practice and regulation of education" (core course unit), such as the United Nations, which operates on a broadly global scale. However, the interpretations of the relations between "international" and "global" are not clarified in our data.

One critique of the holistic approach is that it assumes conflation between the concepts of "internationalisation" and "globalisation", despite literature which has conceptualised these as separate processes (Bamberger *et al.*, 2019; Marginson, 2023). The juxtaposition of these two normalised assumptions also appears at odds with one another: "international" is expected to be at once divided into national boundaries, while also functioning as a homogenised whole.

4.3 International as "intercultural"

Common definitions, such as those by Knight (2003), tend to conglomerate the phrase "international and intercultural", despite their varied meanings. Examples of this were seen in our data through interchangeable uses of "international/intercultural learning" or "international/intercultural experiences" and phrases such as "teaching and learning in an international and intercultural curriculum" (course unit specifications). In doing so, some units conflated notions of nation and culture, while also superficially engaging with "intercultural". For example, intercultural was sometimes assumed to mean multinational contexts or was term-tagged rather than critically engaging with curriculum internationalisation as an interconnected, decentring space (Holliday, 2018), or evaluating how "culture" specifically contributes to pedagogical approaches and curriculum (Magne, 2016). Thus, some use of this within our module documents - such as vague notions of "a range of cultural contexts" (optional course unit) - deserves ongoing critique.

At the same time, other units moved beyond national boundaries and notions of differences (e.g. "different countries") to centre transformative spaces of "inter" as a means to bridge creative, humanistic dialogues through the lens of culture (staff survey). For example, one unit highlighted that students will develop "an appreciation . . . for the value of enhancing communication with and participation by individuals from varied backgrounds, experiences, and cultures" (optional course unit). Such approaches offered greater opportunities to evaluate "culture" as applicable to the study topic, moving beyond nation-boundedness and towards recognising where cultures merge, mix, blend, or enmesh.

4.4 International as "competences"

There is a plethora of literature which argues for the development of an "international mindset" for graduates (Jones and Killick, 2013). In our unit specifications, this was described variably as: "global citizenship", "intercultural competence", "21st Century skills", skills of "navigating local and international", skills of critically reflecting on, analysing, and developing international practices, and "collaborative" and "communicative" skills of working as a diverse team. While scholars continues to develop critical understandings of these approaches (see, for example, Brandenburg *et al.*, 2020), what they hold in common is a movement towards recognising that "international" goes beyond simply content and should also be aligned with developing transferable, socially responsible, intercultural competencies (e.g. Ji, 2020; Deardorff and Jones, 2022).

Within our data, “international” was frequently outlined as a skill to be enacted. This was demonstrated through an “appreciation of diversity” (optional course unit) or expressed more explicitly as practising “analytical, critical and political thinking skills for understanding intercultural knowledge-work in international education” (optional course unit). In our staff survey, one unit mentioned developing students’ research methods skills as related to “international research ideas”, although an explicit curriculum design of international research methodology might be missing. Yet, the term “competence” was not mentioned by any course units, which might indicate an opportunity for explicitly developing competence in the curriculum design. The intended development of these competencies were also usually outlined in a section listing the intended “intellectual, practical, transferable and personal skills” rather than the course unit description or reading list. This might indicate lack of alignment between intended skills development and curricula, pedagogy, or assessment. Simultaneously, a focus on competencies remained a feature of only a few course units, meaning there is more space for critically evaluating how to embed internationalisation as a skill students develop, rather than the content they learn. Moving forward, we could also reflect on more explicit questions around the intended development of international-related competence with our staff, which may tease out more implicit intentions for facilitating competence in our ongoing processes of curriculum internationalisation.

4.5 International as “ethics”

Resonating with existing literature about the ethics of international education (for instance, Buckner and Stein, 2020; Huang, 2020; Mittelmeier and Yang, 2022), another way “international” was enacted in our data was through an ethical lens which centred sociocultural, linguistic, and epistemic justice, recognising power inequalities. Ethical issues were explicitly linked to internationalisation by focusing on, for example, examining the intersections of internationalisation and decolonisation (optional course unit) or reflecting on “poverty, education, and place” (optional course unit). This positioning aimed to develop students’ skills of evaluating and debating equity and ethical issues in educational systems “glocally”. This was made evident across the majority of content-focused units through intended learning outcomes which centred on geopolitics, policies, international relations, and migration to develop students’ political awareness of international education.

Nonetheless, an ethics orientation was most strongly apparent in units whose content specifically centred these issues. For instance, an ethical dimension was most explicitly found in units whose course titles focused on equity, diversity, and inclusion (EDI)-related issues. “A critical intercultural ethic”, including teaching, learning, and researching multilingually, and challenging epistemic injustices, was also enacted in critical intercultural, internationalising units (staff survey). Other units oriented ethical positions towards decolonisation, where students are asked to “reflect on the historical, socio-political influences on a curriculum design and the EDI challenges and the voices centred or marginalised in a curriculum” (optional course unit). This raises questions around the inclusion of an ethics perspective in units beyond this explicit orientation.

4.6 International as “languages”

A critical applied linguistic approach to international education was limited in our data, particularly to a few optional units which evaluated key issues around linguistic prejudice and injustices, “World Englishes”, and language identities. Such topics were positioned as valuable for preparing students for the internationalisation of English language teaching, reflecting on “the concepts of linguistic capital and preferred forms of language use within education contexts" (optional course unit). In our staff survey, one course unit particularly discusses "the intersection between English language and education", addressing internationalisation by challenging the homogenous view of "standard" or "correct" English. A core unit"s response also suggests an intention of encouraging students to engage with "a global literature (largely but not only English language mediated)" and a "dialogue across cultures and languages".

The linguistic aspect of internationalisation was also sometimes engaged in less critical, superficial ways ignoring the linguistic power hierarchies and hegemony in internationalisation (Holliday, 2006; Huang, 2022), such as teaching staff in our survey data who highlighted "English as an international language". This highlights the dominant role of the English language in international education and knowledge-work, which is then seen to equate with "international". Yet, such reflections remained subtle and implied, particularly as English language proficiency was not emphasised in the curriculum (course unit specifications), thereby avoiding the reinforcement of nativespeakerism (Sterzuk, 2015). No more than 5% of marks, for instance, was given to appropriate "academic style", or "clear and fluent writing" in the rubrics of assessments (course unit specifications). The programme handbook similarly positioned "English language support" as:

> . . .clear academic English is key to your success – whether or not English is your first language. . . . tutors will help you get the most out of your studies by exploring the key features of both written academic and spoken English. A particular emphasis is placed on communicating well with your intended audience. We also aim to boost your confidence to work independently in English.

Unlike the use of the benevolent discourse of difference to imply inferiority and deficit in Sterzuk's (2015) critique, the text above focuses on developing students' confidence, communication, and academic success rather than a native-speaker standard of English.

However, this approach still highlights academic English as key to success, while formal discussions around engaging with diverse linguistic resources and multilingual skills for international education were largely missing. This missed opportunity for valuing and empowering students' use of multilingual resources in achieving their "success" might risk reinforcing students' linguistic inferiority complex and, potentially, linguistic racism as suggested by Dovicin (2020). In our data the only references towards engaging with multilingual resources was a text within the programme handbook about learning other languages through credit-bearing courses offered by the university. However, this text only provided a performative engagement with curriculum internationalisation (Tavares, 2021), as no students on this programme can take or have taken these language courses. Therefore, more explicit policy and curriculum design on engaging with World Englishes and multilingual resources in the practice of teaching and learning remains an area for improvement.

4.7 International as "methods"

Existing research tends to portray "international" in terms of content or "elements", as described by Leask (2009). In this regard, we noted in our data that there was an overwhelming tendency for "international" to be equated with content, people, and places. However, an emerging question we encountered that may garner greater critical attention is the consideration of how "international" might be developed not as a noun, but rather as a verb (e.g. methods). This raises considerations for how internationalisation can be something that one *does* - an "experience of intercultural engagement" (optional course unit).

We highlight this primarily through its absence in our data. For instance, our analysis highlighted that the core course units on research methods and design hardly mentioned "international" or "internationalisation" despite specific ethical considerations facing research in the international landscape of education (Buckner and Stein, 2020; Huang *et al.*, 2019). Similarly, we noted the tendency for “international” to be prominent across the programme unit specifications in terms of curriculum content, but to be hardly mentioned in descriptions of pedagogy or assessment. Together, this brings up questions about the extent to which staff may consider “international” something that is learnt about rather than enacted through practice of teaching and learning.

5. Moving forward

Moving beyond normalised interpretations of “international” as the inclusion or comparison of multiple nations, and different, other countries around the global world, we have mapped diverse understandings of “international” (as outlined in Table 1), including international as intercultural, competences, ethics, languages, and methods. These understandings resonate with some existing discussions on internationalising programme curriculum in HE (e.g. Gregersen-Hermans and Lauridsen, 2021, p. i) but offers an extended space to reflect on the ethical-oriented, methodological, pedagogical aspects of internationalising. Our conceptual scholarship is developed to reflect on the hidden, implicit assumptions of “international” and to enhance clarity and coherence of deeper internationalisation in programme curricula. We argue that internationalisation should start with a critical exploration of its dominant, unproblematised notions and consider what “international” is assumed to mean within the local context.

We acknowledge that these conceptualisations are influenced and shaped by our specific context. The diverse perspectives considered for understanding “international” is informed by the range of course units offered on the programme where topics at both micro (pedagogical) and macro (sociocultural) levels of education are discussed. Topics include, intercultural education, EDI, language education, research methods, and approaches to teaching and learning, which are also foregrounded in our critical conceptualisations of “international”. Our attention to international competences aligns with an existing dimension of “personal, transferable skills” as intended learning outcomes. The extended, de-normalised understandings of international education accommodate the plural voices and needs of our staff and students with various language, socio-cultural backgrounds, and who share different interests, experience, and expertise around the broad field of international education. At an institutional level, our conceptualisations align with the university’s commitment to internationalisation, EDI and social responsibilities, emphasising an ethical, inclusive approach to internationalising the curriculum is needed in practice.

Rather than attempting to make another definition of internationalisation, given its long scholarly history of (re)conceptualisations, we argue that internationalisation is best served through an “anti-definition”, recognising that the concept might be fuzzy, complex, and undefinable but should be engaged with through a local process of reflection within specific contexts. Our anti-definition of internationalisation, is therefore:

> Internationalisation is a purposeful reflection on the multiple meaning-makings of “international” in higher education and how it can be multidimensionally embedded across individual contexts and within locally-specific practices.

What we have provided is an example approach to the kind of reflective scholarship that programmes can undergo to develop clarity, depth, and purposefulness into internationalisation as enacted in a local curriculum context. Our Table 1 provides a starting point for discussions around multiple meaning-makings of “international” in other programmes and contexts. Our conceptualisations make purposeful steps away from normalised notions of “international” and its commonly-associated issues, such as othering (Dervin, 2016), methodological and pedagogical nationalism (Chernilo, 2011; Beck and

Sznaider, 2006), ethnocentrism (Dervin and Yuan, 2022) Euro-American (Western) centrism (Marginson, 2023), and academic imperialism (George Mwangi and Yao, 2021). Equally, this exercise has provided opportunities to critique our practices and identify where we may be relying problematically on normalised notions of "international". By undertaking a similar evaluation of one's own professional practices, teaching staff can take important steps towards critical, ethically-oriented opportunities for fostering justices, pluralities, and inclusion in HE internationalisation (Heleta and Chasi, 2023). This, we argue, is a first step towards establishing clearer guidelines on internationalising the curriculum by HE institutions and individual programmes to challenge superficial engagements of "international" within internationalisation.

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31st JANUARY 2025

SOURCE: PERPUSTAKAAN UTM

Cogent Education

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/oaed20

The evolution and discourse of higher education internationalization since the 21st century: controversies, criticisms and current trends

Qiren Zhang & Yang Cao

To cite this article: Qiren Zhang & Yang Cao (2024) The evolution and discourse of higher education internationalization since the 21st century: controversies, criticisms and current trends, Cogent Education, 11:1, 2400443, DOI: 10.1080/2331186X.2024.2400443

To link to this article: https://doi.org/10.1080/2331186X.2024.2400443

Published online: 06 Sep 2024.

COGENT EDUCATION
2024, VOL. 11, NO. 1, 2400443
https://doi.org/10.1080/2331186X.2024.2400443

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The evolution and discourse of higher education internationalization since the 21st century: controversies, criticisms and current trends

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ABSTRACT

The internationalization of higher education, driven by globalization, has developed structural diversity on a global scale. This study examines the theoretical and practical transformations in higher education internationalization since the millennium through a rigorous four-stage selection process guided by six inclusion criteria. Using Nvivo14 for thematic coding, 109 relevant articles from 1999 to 2024 were analyzed. On this basis, the key central themes of higher education internationalization, external influences, and the diverse participation of countries and regions in the discourse are revealed. Central concerns in the dialogue on higher education internationalization include its core nature, critical perspectives, operational practices and sustainability efforts. External factors intertwined with internationalization encompass governmental policies, ethnic and racial considerations, economic implications, cultural exchanges, and the broader context of globalization.

ARTICLE HISTORY
Received 7 June 2024
Revised 24 July 2024
Accepted 31 August 2024

KEYWORDS
Higher education internationalization; central themes; external influences; scholarly discourse; literature review

SUBJECTS
Higher Education; International & Comparative Education; Multicultural Education;

1. Introduction

In the contemporary era, marked by the rapid evolution of the knowledge economy and the inexorable forces of globalization, the internationalization of higher education has ascended to strategic prominence for educational policymakers and academic institutions worldwide. The fervent adoption of international projects, campus expansion across borders, the establishment of cross-national partnerships, and the burgeoning mobility of scholars and educators underscore the dynamism inherent in the internationalization of education (Moshtari & Safarpour, 2024). To navigate the currents of global competition and economic imperatives, the extent to which higher education embraces internationalization has emerged as a critical benchmark for gauging its developmental sophistication (EriçOk & Arastaman, 2023; Zhang, 2021).

Historically, the internationalization of higher education prior to the dawn of the 21st century was not an end in itself but served as a conduit for fostering academic exchange and enhancing the caliber of scholarship. Over the past two decades, the concerted processes of internationalization and institutionalization have been instrumental in sculpting the framework of a global higher education system, with national and societal development as its cornerstone. Nonetheless, a critical examination of the strategies, methodologies, and practices of higher education internationalization since the previous century reveals a pattern predominantly dictated by experts and scholars from more economically advanced nations. The global trajectory of higher education, as steered by these nations, has frequently been criticized for perpetuating systemic inequities (Bamberger et al., 2019; Heleta & Chasi, 2023). As such, entities engaged in the internationalization process must cultivate a collaborative ethos to effectively confront emerging challenges and crises while exercising prudent subjective judgment to chart a path toward sustainable development.

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Moreover, despite the burgeoning demand for approaches that address the nuances of higher education internationalization at the micro level, it remains imperative to dissect and reevaluate the phenomenon from a holistic, macro-level perspective to grasp its fundamental nature and implications.

2. Research background and analytical framework

2.1. The external context of higher education internationalization

The internationalization of higher education transcends ideological boundaries, securing its place on the policy agendas of nations across the globe (Hegde & Inamdar, 2023). The macro-level forces propelling this evolution can be distilled into five primary dimensions: the shifting contours of the global landscape, the impetus of political forces, the proliferation of multicultural ideals alongside the expansion of the information society, the dynamics of interethnic and national integration and conflict, and the imperatives of global economic convergence. Despite disparate paths of development, nations and regions worldwide are actively engaging in the internationalization of higher education. This trend has given rise to a vast, interconnected academic network that is both consolidating and continually evolving, with education becoming a field characterized by interdependent competition and cooperation (Cerna & Chou, 2023; Hegde & Inamdar, 2023; Ota, 2018). Against this backdrop of diverse educational paradigms, the study of higher education internationalization must extend beyond micro-level internal practices to encompass a comprehensive system analysis embedded within a specific socio-cultural milieu, identifying central relationships and themes while remaining responsive to temporal and environmental shifts to forecast future trajectories (Knight, 2004).

2.2. The internal framework of higher education internationalization

The definition of higher education internationalization, as articulated by Canadian scholar Jane Knight (2004), has gained broad acceptance within scholarly circles: 'Internationalization of higher education is the process of integrating an international, intercultural, or global dimension into the purpose, functions, or delivery of postsecondary education'. Contemporary discourse on this subject typically revolves around the 'what', 'why', 'how', and 'who' of the process. Following logical definitional constructs, higher education internationalization can be characterized as the process through which international attributes are manifested within the relational, influential, and functional realms of higher education. This study, therefore, posits four analytical dimensions, as depicted in Figure 1.

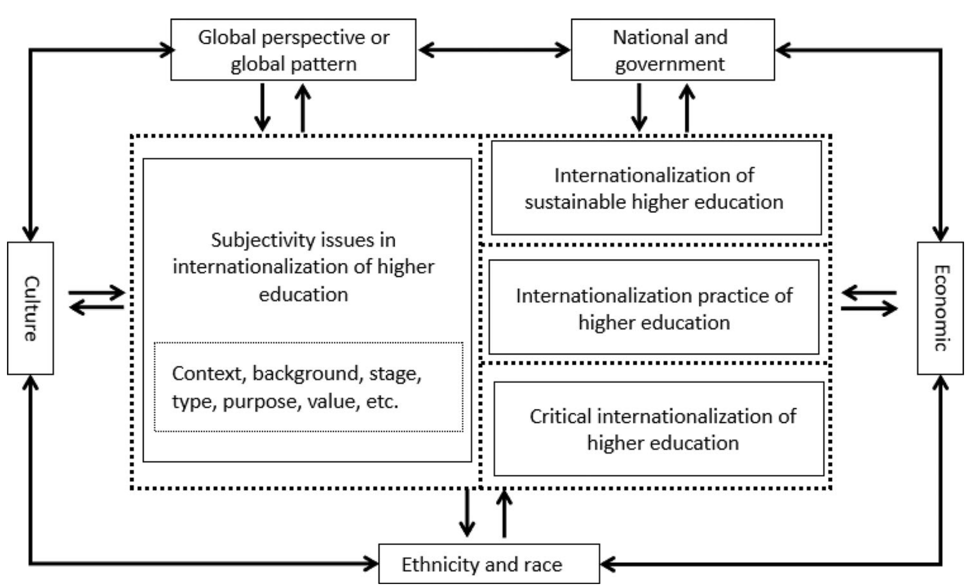

Figure 1. Research framework for internationalization of higher education.

2.3. Research and analysis objectives

We tried to sort out clearly through a data-based literature review:

a. Which topics of the internationalization of higher education have been most widely discussed in the past 25 years? What elements are included in these discussions?
b. What aspects have been focused on in the practical field of internationalization of higher education in the past 25 years?
c. What is the interactive relationship between the internationalization of higher education and its external relations? What factors have the most significant impact on it?
d. What internal controversies exist in discussions about the internationalization of higher education?
e. What are the future trends of internationalization of higher education?

3. Encoding processing and appearance formation

3.1. Limitation of research scope

To incorporate high-level perspectives into the discourse on internationalization within global higher education, this study utilized the EBSCO database for literature searches. The search terms included three variations: 'Internationalization of Higher Education', 'Internationalization in Higher Education', and 'Higher Education Internationalization'. To ensure the scholarly rigor of the sources, the search was confined to peer-reviewed academic journals. The research was conducted on 30 March 2024, without imposing any restrictions on the publication date of the literature. This strategy aimed to map the evolution of discourse on the internationalization of higher education. From 1990 to 2024, a total of 2,556 articles were retrieved for preliminary assessment.

All 2,556 articles underwent an initial screening stage. Utilizing the six inclusion criteria outlined in Table 1, and after four rounds of meticulous screening as depicted in Figure 2, we narrowed down the selection to 109 articles eligible for coding.

3.2. Encoding processing

The titles, abstracts, keywords, introductions, conclusions, and discussions from 109 scholarly articles were imported into separate files. NVivo14 software was employed as an analytical tool to encode and examine these texts following the 'open coding - axial coding - selective coding' methodology.

Open coding is the foundational step of the coding procedure. By systematically summarizing key points and extracting concepts, we refined the initial concepts through continuous comparison, eliminating those that were redundant or of low correlation. Subsequently, axial coding, the second step, involves summarizing the initial categories identified during open coding. This study analyzed the interrelationships between conceptual categories, eventually identifying 17 primary categories. Finally, selective coding further distilled the primary categories, ensuring that the core category could provide a cohesive framework for all primary categories, initial categories, and initial concepts.

3.3. Emergence of international higher education discourse

Upon organizing and encoding the texts according to themes, keywords, abstracts, introductions, and conclusions, the distribution ratio of thematic segments was depicted in a figure. The results suggest

Table 1. Inclusion criteria for literature selection.

No	Inclusion criteria
I	Articulation of clear research questions and methodologies
II	Focus on issues pertaining to the internationalization of higher education
III	Macro-level research scope, excluding micro-level subjects such as individual majors, teaching, or courses
IV	Content concentrating on macro-level analyses, excluding specific domains like technology and distance education within the internationalization of higher education
V	Articles must be written in English
VI	Exclusion of redundant literature

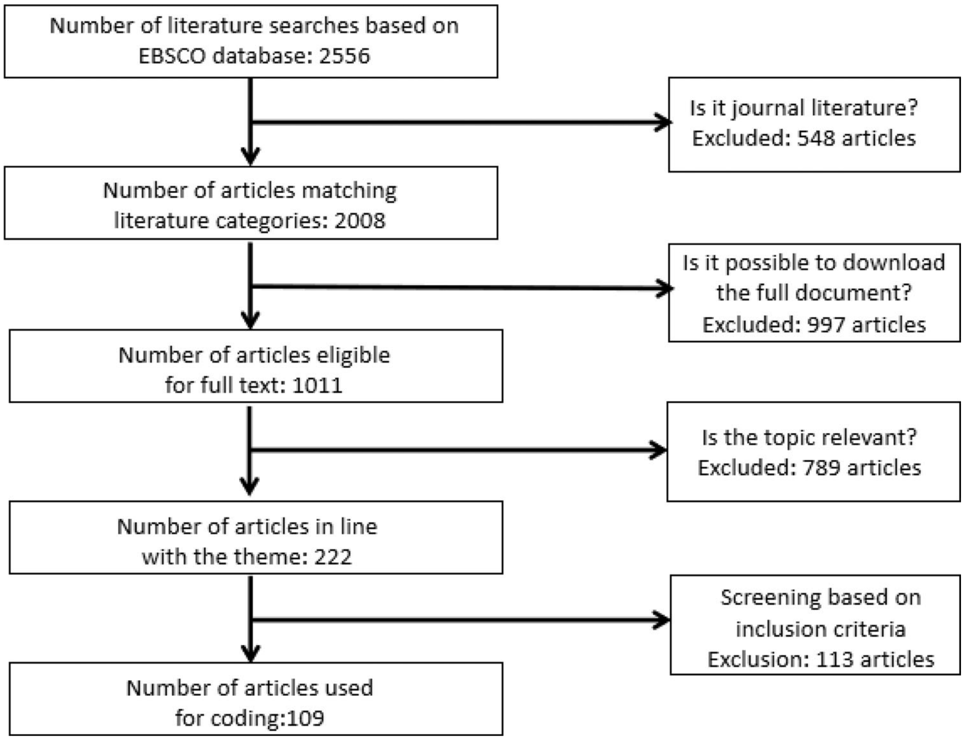

Figure 2. Literature selection processes.

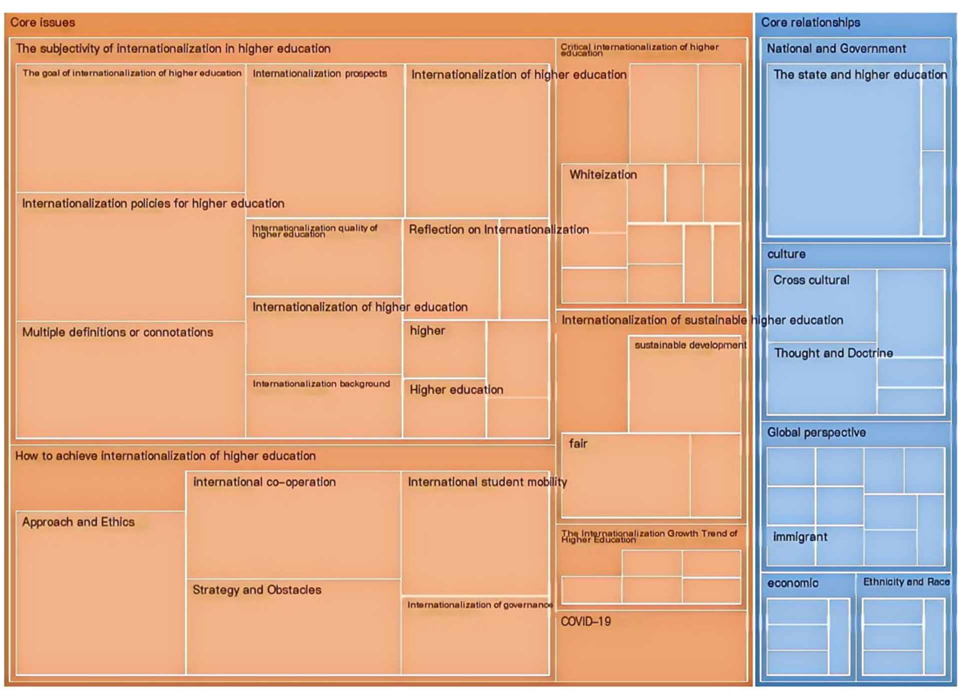

Figure 3. Visual representation of content distribution in international higher education discourse.

that the discourse on the subjectivity of international higher education's internationalization has garnered the most attention. Subtopics within this section encompass a range of questions.

How is the internationalization of higher education defined? What are its objectives? What motivates its development? What is the context, stage, outlook, and value of higher education's internationalization? What varieties, policies, quality assurances, and assessment methods are associated with it? (Figure 3).

The practical dimension of 'how to achieve the internationalization of higher education' encompasses a variety of focal points, including methodological approaches and ethical considerations, international collaborations, the mobility of international students, strategies and challenges, and the globalization of governance structures. Within the critical discourse on the internationalization of higher education, the notion of 'Westernization' or 'whiteization' stands out as a particularly salient concept.

The debate on sustainable internationalization in higher education primarily zeroes in on two pivotal themes: sustainability in development and the pursuit of equity. Moreover, the impact and trans-formative effect of COVID-19 on the internationalization of higher education have emerged as a significant analytical context and, in recent scholarship, have evolved to form a central component of the discourse.

When examining the relationships integral to the internationalization of higher education, five key interrelations are identified: interactions between the state and government, cultural dynamics, economic factors, a global perspective, and issues of ethnicity and race. In the visual representation of the subsequent layer of coded content, the interplay between countries and the internationalization of higher education, cross-cultural exchanges, ideological currents, and migration stand out as prominent themes.

4. The core issues of internationalization of higher education

4.1. Ontology of internationalization of higher education

This study defines the discussion concerning the connotation, boundaries, and internal elements of internationalization of higher education as an exploration into the essence of internationalization of higher education. It is categorized into 9 main categories and 16 subcategories, as depicted in Table 2.

4.1.1. The connotation, goals, and motivations of internationalization of higher education

The internationalization of higher education, as a factual state and a developmental trend, exhibits significant differences, diverse standards, complex goals, and controversial understandings on a global scale. Altbach (2002) characterizes internationalization as specific strategies and innovative actions aimed at aligning countries and educational institutions with global trends, which include attracting international students, collaborating with universities, and establishing overseas academic branches. Canadian scholar Knight (2003) defines internationalization at the national, departmental, and institutional levels as the integration of international, cross-cultural, and global dimensions into the purpose,

Table 2. Categories and subcategories of subjectivity issues in the internationalization of higher education.

Part	Category	Subcategories
Internationalization of higher education ontological discussion	The connotation of internationalization in higher education	Aligning with global trends
		Inter national or cross-cultural participation
		International, cross-cultural, or global dimensions
		Institutional mobility or establishment of branch offices
		Academic or research cooperation
		Student or degree mobility
		Faculty and staff turnover
		International cooperation and partnerships
		International discourse
		International courses
	The goal of internationalization of higher education	Economic goals
		Academic objectives
		Political objectives
	Types of internationalization in higher education	Overseas internationalization
		Local internationalization
		'Virtual' internationalization
	Motivation for internationalization of higher education	
	Background of internationalization of higher education	
	The internationalization value of higher education	
	Internationalization stage of higher education	
	Prospects for internationalization of higher education	
	Reflection on the internationalization of higher education	

function, and implementation process of post-secondary education. Subsequently, Knight (2004) revised her definition to state that the internationalization of higher education is a process that integrates cross-border or cross-cultural dimensions into the teaching, research, and social services of higher education. Erling and Hilgendorf (2006) argue that due to its comprehensive and dynamic nature, there is still no consensus on a universal definition for the internationalization of higher education that applies to many different countries, cultures, and educational systems.

Knight and de Wit (2018) highlight various reasons why most countries advocate for the internationalization of higher education: education branding, global citizenship, knowledge diplomacy, cultural homogenization, scholar mobility, franchising, university rankings, world-class universities, joint and dual degree programs, and local internationalization.

4.1.2. Background, types, and values of internationalization of higher education

The internationalization of higher education is deeply rooted in social, political, economic, and cultural contexts. While insights from international experiences can be beneficial, simply replicating Western policies or models does not ensure success (Knight, 2004; Patel, 2017; Siregar et al., 2021). Membership in the OECD, a group of affluent democratic nations, provides legitimacy for countries leading the discourse on this topic (Bamberger & Kim, 2023).

Internationalized higher education is categorized into two types: foreign (overseas) and domestic (local) internationalization (Knight, 2004). Overseas internationalization involves educational activities abroad, such as student mobility (EriçOk & Arastaman, 2022). Domestic internationalization focuses on curriculum development to foster global perspectives and cross-cultural competencies (de Wit et al., 2015; Guo, 2023; Rios, 2019). Classifying internationalization into 'entry-oriented' and 'exit-oriented' types helps delineate countries' long-term and short-term objectives in higher education and international relations (Wang & Wang, 2022).

Bruhn (2017) introduced virtual internationalization, which leverages information and communication technology to integrate international dimensions into higher education. Classification frameworks inform policy development for structured higher education systems, institutional internationalization, international education monitoring, educational establishments, scholarship programs, and institutional differentiation (Ziegele, 2013).

4.1.3. Stages, prospects, and reflections on the internationalization of higher education

Historically, countries with colonial legacies have played key roles in international education, shaping its development until World War II forced scholars to seek refuge in the United States, fostering its emergence as a global education hub. Post-WWII saw the rise of global governance institutions and the use of education for foreign policy. However, developed nations often used education as a tool for interference in developing countries until the 1980s. In the 21st century, education became a tradable commodity under GATS, with higher education rankings reshaping the field and private institutions evolving into financially driven entities. The COVID-19 pandemic in 2020 accelerated the shift to virtual internationalization. Amid optimistic discussions on internationalization (Merrill & Kretovics, 2020; Suspitsyna, 2021), Gülsah (2021) questions whether cross-cultural knowledge acquisition can thrive under the dominance of developed nations, while Stein (2021) highlights concerns about preparing individuals for global challenges. Scholars urge a critical evaluation of the benefits of deepening international higher education given today's stark wealth disparities.

4.2. Critical internationalization of higher education

Since the 1990s, prominent scholars focusing on the internationalization of higher education have advocated for a reevaluation of its trajectory, leading to the emergence of critical literature grounded in epistemology (Figure 4). In 2011, Uwe Brandenburg and Hans de Wit published an article titled 'The End of Internationalization'. De Wit clarifies that the article does not signal the conclusion of internationalization but rather raises concerns about its increasing instrumentalization (Brandenburg & De Wit, 2011). Suspitsyna (2021) contends that despite the strong commitment of the majority of higher education institutions in the United States to diversity and social justice, they have failed to systematically

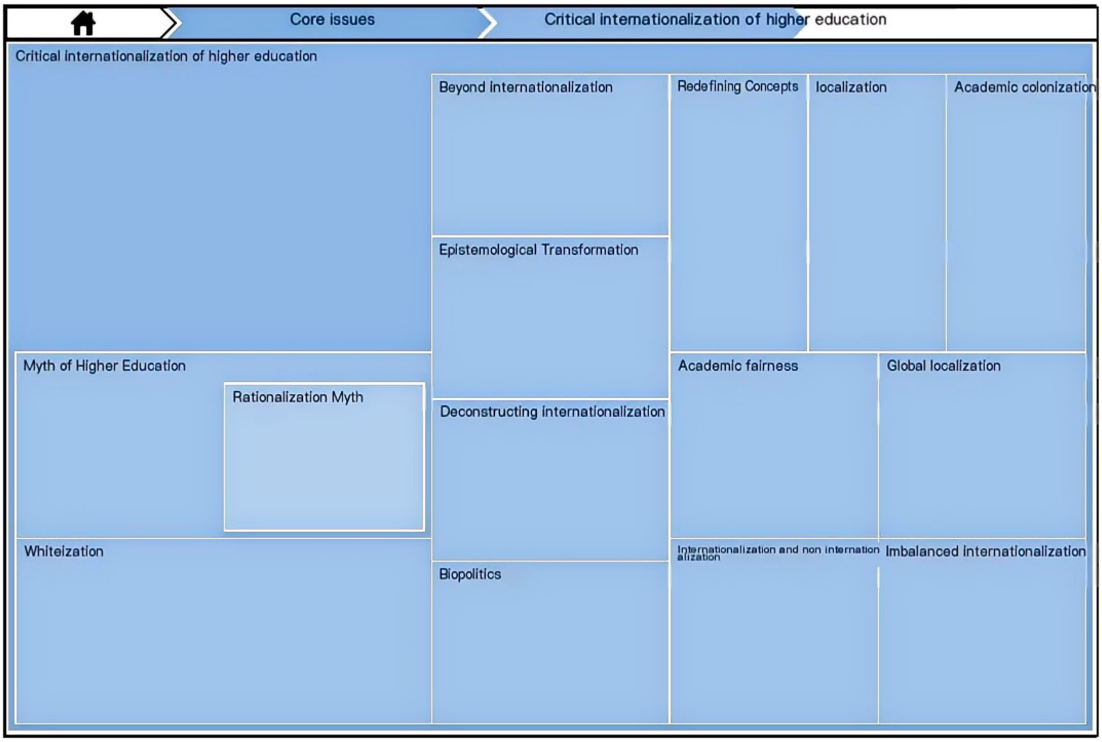

Figure 4. Visualization of the proportion of critical higher education internationalization text fragments.

challenge their complicity in white supremacist behaviors. Therefore, the internationalization of higher education, at its core, represents a form of identity substitution. Xu (2023) illustrates this phenomenon using Wenzhou-Kean University as an example, where 'world-class education' is defined as the importation of educational resources from the West and the teaching of Western curricula and knowledge in non-Western countries.

Building on Stein's concept of affirming interconnectedness and responsibility, Beck (2021) proposes new public resources for international education as alternative forms of internationalization, advocating a post-internationalization movement. Heleta and Chasi (2023) highlight that internationalization in South Africa's higher education does not align with the post-racial segregation landscape and transformative imperatives, perpetuating colonialism and Eurocentric hegemony through uncritical adoption of practices from Northern Hemisphere countries.

4.3. The practice of internationalization of higher education and sustainable internationalization of higher education

The internationalization practice framework of higher education comprises four main categories: international cooperation, international students, experiences and paths, and strategies and challenges, with a total of 22 subcategories. Sustainable internationalization of higher education is characterized by two main categories: sustainable development and equity (Table 3).

4.3.1. International cooperation

As higher education transcends national boundaries, issues of educational justice can no longer be confined to individual countries. In response to this, Mulvey proposes the concept of 'participatory equality' as a guiding principle for internationalizing higher education. Effective promotional strategies are crucial for universities in establishing international credibility (Rosyidah et al., 2020). The use of open educational resources plays a critical role in fostering trust, transparency, and shared decision-making within international partnerships (Nascimbeni et al., 2021). As international institutional collaborations continue to expand, questions arise regarding the entities that will shape and influence academic paradigms and standards (Veerasamy, 2021). Cooperative education emerges as a significant form of

Table 3. Practice of internationalization of higher education and sustainable internationalization of higher education.

Part	Category	Subcategories
Internationalization practice of higher education	International co-operation	Participatory equality
		Partnership
		International trust
		Cooperative education
		Forms of cooperation
		Open educational resources
		Introducing high-quality educational resources
	International students	International enrollment
		International student mobility
	Experience and path	Internationalization of governance
		Habitualization of international norms
		Internationalization experience
		International ethics
		International aid
		Phased approach
		Cross national higher education
		Prefabricated internationalization
		Entry and appearance support system
		Borderless mentality
		Benefits and costs
	Strategies and challenges	Strategy
		Challenge
Internationalization of sustainable higher education	Sustainable development	
	Fair	

internationalization in higher education. However, due to policy adjustments, constraints related to university autonomy, funding, academic freedom, personnel issues, and other factors, the dynamics of cooperative higher education have been subject to ongoing establishment and sporadic disruptions (Hegde & Inamdar, 2023).

4.3.2. International students

From 1998 to 2018, global international student mobility witnessed an annual increase of 5% (EriçOk & Arastaman, 2023). Data from the World Organization for Economic Cooperation and Development reveals a significant rise in the global number of international students, escalating from 2.0877 million in 2000 to 4.528 million in 2021, reflecting a surge of 116.89%. With the upward trajectory in international student enrollment at higher education institutions, projections indicate that the student population is poised to surpass 590 million by 2040. Governments and educational authorities worldwide are undergoing reforms and fostering innovation to accommodate the burgeoning influx of international students (Calderon, 2018). Research by Maringe (2009) focusing on UK universities revealed that emerging universities often face challenges in making substantial strides in scientific research, leading them to prioritize the recruitment of international students as a key facet of their internationalization strategies (EriçOk & Arastaman, 2022). Sahin and Brooks (2023) conducted a study on Poland and Turkey, highlighting that international student mobility is influenced by political and economic fluctuations, with the mobility structure being notably sensitive and fragile.

4.3.3. Experiences and ways

Wright (2022) adopted a policy anthropology approach, drawing from a series of studies on the internationalization of higher education in Denmark spanning from 2004 to 2022. Through this lens, Wright delved into the emergence of two contrasting processes—internationalization and de-internationalization—from the same reform framework. Tasçi et al. (2022) analyzed the internationalization experiences of key stakeholders in select universities in the United States and Turkey. They emphasized the importance of considering not only national culture and background but also the personal factors of decision-makers and managers at grassroots institutions when examining internationalization issues.

Urbanovic et al. (2016) concentrated on the internationalization of higher education in non-English speaking countries, characterizing the process as a form of ‘catching up’. Nada and Araújo (2019) classified these countries as ‘catching up countries’ in terms of their internationalization efforts in higher education.

Table 4. The current challenges confronting the internationalization of higher education.

Part	The Current Challenges
1	The conducive environment for international higher education is becoming more restrictive due to factors such as diseases, conflicts, political tensions, and resource competition, which hinder traditional cross-border exchanges.
2	Fluidity is facing increased constraints, with concerns including costs, safety, public health, nationalism, and demographic shifts making it more difficult for students, researchers, and educators to study and work abroad.
3	Emerging demands in the labor market are shifting towards valuing graduate degrees over undergraduate degrees. This impacts the internationalization of higher education due to rising education costs and uncertain returns.
4	Intensifying competition in knowledge is evident, with factors such as intellectual property, research and development investments, and commercialization creating a more complex international talent and patent market, making cross-border academic cooperation more intricate.
5	Populism, nationalism, and ideology are shaping the landscape through visa restrictions, limitations on international educational opportunities in certain regions, and increased state surveillance of educators, students, and research institutions.
6	Demographic trends are evolving with shifting populations between aging and youthful markets, the growth of the global middle class, and increased participation in higher education, leading to new international education markets and flows.
7	The growing desire for diversity and inclusivity remains a constant theme, with young individuals valuing choice and diversity considerations in higher education over merely pursuing change.

4.3.4. Strategies and challenges

Wright (2022) posits that the internationalization strategy of higher education has empowered universities as a formidable force. The current challenges confronting the internationalization of higher education are central issues of shared concern among researchers worldwide, serving as a critical backdrop for policy development and strategic decision-making. Drawing upon existing research, these challenges can be distilled into eight key facets (Table 4).

5. The external core relationship of internationalization development in higher education

The external core relationships of internationalization in higher education encompass five key categories as state and government, ethnicity and race, economy, culture, and globalization. These categories are further delineated into 18 distinct codes, as illustrated in Table 5.

5.1. Internationalization of higher education and the relationship between countries and governments

5.1.1. The relationship between internationalization of higher education and the country

The internationalization of higher education has become a crucial strategy in national policies and university agendas. However, it's clear that not all countries benefit equally from this process, with power imbalances between nations influencing how effectively universities can internationalize (Mulvey, 2022; Sahin & Brooks, 2023). Firstly, promoting global citizenship serves as a primary driver for countries advancing higher education internationalization (Jaime Ndaipa et al., 2023). By intertwining notions of student citizenship and residency criteria, student mobility can be assessed (Levatino, 2017). Secondly, international politics and national policies play crucial roles in shaping the operational landscape for universities, necessitating their adaptation to external developments (Xi & Rowlands, 2021). As Marginson (2019) aptly noted, 'When the government sneezes, universities catch a cold'. Hegde and Inamdar (2023) highlight that no political or governmental system, regardless of its democratic nature, can completely relinquish control over universities. As nation-states increasingly aim for expansion, protectionist ideologies are gradually giving way to globalized values, prompting universities to align their objectives with global imperatives for development. The rapid pace of globalization has fostered a 'complex connectivity' among nations (Ramaswamy & Kumar, 2022), compelling universities to devise strategies that embrace a global outlook to capitalize on the benefits of higher education globalization.

5.1.2. The relationship between internationalization of higher education and the government

The government stands out as the primary driver among stakeholders in spearheading policy changes to facilitate the internationalization of higher education. The success of internationalization efforts in higher education hinges on the government's endorsement through legislation and its provision of

Table 5. External core relationships of internationalization development of higher education.

	Category	Code	Subcode
The External core relationship of internationalization development in higher education	National and Government	Country	Citizenship
			International politics
			National university relations
			National status
			National development doctrine
			Cross national borders
			Nation-state
			Foreign policy
			Bounded by the country
			Knowledge diplomacy
		Government	Government
			Public relations
	Ethnicity and Race	Nationalism	
		Racism	
	Economic	Economic justice	
		Global knowledge economy	
		Marketization	
		Political economy	
	Culture	Education system	
		Cross cultural	
		Emotion	
		Thought and doctrine	Critical cross-cultural ism
			New institutionalism
			Neoliberalism
			Colonialism and Postcolonialism
	Globalization	Imbalanced world	Center and edge
		Soft power	
		New public domain	
		Immigrant	
		Global university ranking and reputation	
		Globalization 4.0	

adequate resources. Currently, numerous governments, spanning national to local levels, have issued policy directives aimed at fostering the internationalization of higher education institutions. This underscores that the advancement of internationalization in higher education is a collaborative endeavor involving stakeholders across various policy tiers (Bamberger et al., 2023; Cerna & Chou, 2023).

5.2. Internationalization of higher education and the relationship between ethnicity and race

In recent years, there has been a notable resurgence of political and economic isolationism, alongside the proliferation of religious and nationalist sentiments in various countries and regions, leading to a reconfiguration of international relationships (Otto, 2021; Wang & Wang, 2022). Against the backdrop of anti-globalization and rising nationalism, nationalist ideologies have gained significant traction within mainstream politics (Wright, 2022). Widespread racism is intricately linked to the pervasive concept of white supremacy, often manifesting as inherent systemic privileges and perceived superiority among white individuals (Suspitsyna, 2021; Veerasamy, 2021). Scholars are increasingly focusing on anti-racial education initiatives centered on Africa and the 'global South' (Heleta & Chasi, 2023). Racism, under the guise of cultural differences, actively polices the boundaries of academia, reinforcing the privileged position of white individuals through social constructs that govern the allocation of achievements and values (Mulvey, 2022; Suspitsyna, 2021). On a theoretical level, Heleta and Chasi (2023) advocate for an internationalization framework grounded in anti-racism that prioritizes knowledge diversity. Moshtari and Safarpour (2024) propose that critical scholars and educators dedicated to combating racism in higher education should transcend national boundaries to examine the transnational dynamics of racism shaping global higher education policies, practices, and the trajectories of students, universities, and national policies.

5.3. The relationship between internationalization of higher education and economy

The optimal state for the internationalization of higher education is characterized by a virtuous cycle of knowledge production and exchange. Globalization and the knowledge economy are commonly intertwined with the ascendancy of neoliberal rationality. This neoliberal governing logic serves as a continuous critique of the overreach of national governments while extending market principles into non-economic and social spheres (Deuel, 2022).

Many nations link the internationalization of higher education to their competitiveness and stature in the global knowledge economy (Le, 2022; Wright, 2022; Xi & Rowlands, 2021). The trend toward increased marketization and commercialization of higher education is pervasive, aligning with neoliberal economic policies that have gained global traction since the early 1980s (Li & Roberts, 2012). Despite differences in political systems, economic structures, and higher education traditions across countries, there is a noticeable similarity in the models and paths of reform (Bamberger & Kim, 2023).

5.4. The relationship between internationalization of higher education and culture

5.4.1. Education system

Over centuries, Western education influence in the East has steadily grown (Hegde & Inamdar, 2023), with international campuses becoming prominent in global higher education since the early 2000s (Xu, 2023). Gülsah (2021) noted that higher education systems facing economic challenges struggle with effective internationalization efforts, highlighted by the impact of the COVID-19 pandemic. The Bologna Process aids EU countries in integrating international development, leading to modernization and quality reforms (Alexiadou & Rönnberg, 2022). The outcomes of internationalization in higher education vary across universities with diverse backgrounds and contexts, emphasizing the need for a holistic view of the global education landscape (Sarsenbayeva, 2016).

5.4.2. Cross-cultural

A critical factor for effective engagement at the international level is the cultivation of cross-cultural communication skills (Mohammad & Alireza, 2024) and underscoring the essential role of cross-cultural awareness in fostering meaningful participation in cultural exchanges (EriçOk & Arastaman, 2022; Zheng et al., 2020). Ilieva et al. (2014) emphasized the importance of evaluating internationalization practices ethically and morally to ensure their sustainability in higher education. Acknowledging power dynamics within international and cross-cultural relationships is crucial. Moreover, Zheng et al. (2020) suggested moving beyond binary cross-cultural frameworks that dichotomize the East and West into high or low-level opposing categories, advocating for more nuanced and inclusive perspectives on cultural interactions.

5.4.3. Emotions

A study on the emotional dimensions of internationalization in higher education in Japan revealed that promoting the positive aspects of this process embodies a policy paradigm yielding tangible outcomes, underscoring the importance of embracing these attributes for successful internationalization (Morley et al., 2021). In today's global landscape, the world grapples with a mental health crisis that presents challenges related to human emotions (Stein, 2021). Some scholars argue that the establishment of universities represents one of humanity's most profound and noble endeavors (Guo, 2023). Therefore, in the fast-paced, highly instrumentalized, and commercialized neoliberal global academic market, significant emotional labor is crucial for effectively navigating the geopolitics of knowledge (Stein, 2021).

5.4.4. Ideology and internationalization

5.4.4.1. Critical cross-culturalism and new institutionalism. Zheng et al. (2020) stress merging internationalization, cross-cultural views, and critical thinking to explore the link between internationalization and cross-cultural interactions. Internationalization can spark cultural conflicts, necessitating a critical and cross-cultural educational approach. Gülsah (2021) argues that achieving cross-cultural learning through internationalization in higher education faces hurdles due to developed nations' dominance.

New institutionalism focuses on informal institutions beyond national governments. Early neoinstitutionalist theories emphasized institutional determinism, attributing organizational behavior to institutions. However, considering the organizational environment and internal actors' roles is vital.

Understanding internal actors' responses to the system is crucial in internationalizing higher education, rather than solely blaming institutional factors (Bamberger et al., 2023).

5.4.4.2. Neoliberalism, colonialism and postcolonialism. Neoliberal principles have strongly influenced global research and education policies, emphasizing globalization and technological innovation in international higher education (Taşçı et al., 2022). This ideology, which depoliticizes universities and promotes global competition, faces criticism for exacerbating North-South inequalities and commercializing education excessively (Mulvey, 2022).

Western hegemony, rooted in colonial history, continues to shape global power dynamics, with discussions on 'knowledge colonies' and the interplay of postcolonialism, knowledge, and power within internationalization efforts (Taşçı et al., 2022). Scholars like Jaime Ndaipa et al. (2023) advocate for a more conscious decolonization of internationalization, while others, such as Suspitsyna (2021), critique the Eurocentric biases in higher education internationalization.

5.5. The relationship between internationalization and globalization of higher education

5.5.1. Unbalanced world: center and edge

In today's higher education landscape, there is an imbalance between the center (developed countries) and the periphery (developing countries and emerging economies), creating a dichotomy. Developed countries are seen as hubs of civilization and economic prosperity, while institutions in peripheral regions lack resources to attract foreign talent and rely on central institutions for research and training. Institutional internationalization frameworks from developed countries may not always apply directly to universities in peripheral regions (Alemu et al., 2022). This dynamic also exists within individual countries between developed and underdeveloped regions.

5.5.2. Soft power

For instance, China strategically leverages the public diplomacy function of higher education to enhance its technological, economic, and soft power competitiveness globally through internationalization efforts (Xi & Rowlands, 2021).

5.5.3. New public domain

In the internationalization of higher education, the emergence of a new public domain necessitates a focus on educational principles and values, while acknowledging the complexities and contradictions inherent in navigating multiple worlds. Establishing this new public domain for internationalization requires recognition of the inevitable contradictions, limitations, and challenges that arise when integrating and coexisting within diverse contexts (Otto, 2021).

5.5.4. Immigration

The relationship between immigration and higher education encompasses the development of policies that impact both sectors and explain the differences, competition, and contradictions in internationalization outcomes (Cerna and Chou, 2023). Amidst global mobility and increasing immigration trends, higher education institutions across continents are witnessing a surge in international student enrollment (Nada & Araújo, 2019). Immigration policies serve as a key factor motivating students to choose specific countries for their studies (Ramaswamy & Kumar, 2022). Countries heavily reliant on international students for economic growth, university funding, and future labor markets face significant challenges if there is a decrease in international student numbers (Cerna & Chou, 2023; Sahin & Brooks, 2023). Additionally, talented individuals from less affluent nations often migrate to developed countries in search of better opportunities (Guo, 2023).

5.5.5. Global university ranking and reputation

In the context of intensifying competition among universities, reputation is critical for their survival and success (Taylor, 2010). The internationalization of academic personnel is significantly influenced by an institution's scientific reputation (Seeber et al., 2020). Universities with a strong track record of excellence and history typically have higher reputations (Sahin & Brooks, 2023). Strategic partnerships and improvements international rankings can also enhance reputation (Le, 2022).

Global rankings, products of higher education internationalization and global information networks, establish quality benchmarks, prompting institutions to emphasize global rankings based on quantitative metrics (Kusumawati et al., 2020). Knight and De Wit (2018) note that global rankings drive internationalization efforts. They impact university reputation, status, and visibility, influencing competition, resource allocation, and decision-making. Despite their brief history, global rankings have a significant 'landmark position' in academia (Hauptman Komotar, 2019). However, their one-size-fits-all methodology faces criticism, as Cameron (1963) stated, 'Not everything that can be calculated counts, nor does everything that counts can be calculated'. Hauptman Komotar (2019) suggests that ranking competitiveness should prioritize educational quality and the cultivation of responsible global citizens.

5.5.6. Globalization 4.0

The concept of globalization has undergone significant evolution, culminating in what is now known as 'Globalization 4.0', which has profoundly influenced the internationalization of higher education (Aydin, 2021). In the current era of Globalization 4.0, higher education is increasingly focused on sustainable development and fostering global citizenship. The proliferation of open educational resources and online learning platforms has enhanced inclusivity within higher education, thereby deepening academic exchanges and cross-border projects. Examining the evolution of higher education through the lens of global development offers valuable insights for nations and educational institutions seeking to enhance their internationalization strategies.

6. Trends and discussion

The nuanced discourse surrounding the ontology of internationalization in higher education reveals the inherent distinctions and dynamic evolution of this phenomenon across different countries, regions, positions, and backgrounds. The elusive nature and expansive scope of this concept underscore the fundamental paradigm of fostering diversified growth within the global landscape of higher education. At each stage of development, nations wielding substantial influence in the realm of international higher education typically adhere to coherent internationalization strategies and policies, whereas peripheral regions and marginalized groups encounter analogous challenges. Against the backdrop of declining birth rates in major global economies, the internationalization of higher education assumes a pivotal role in sustaining the vibrancy of domestic higher education systems and bolstering the capacity for sustainable development of national human resources and economic markets. Moreover, internationalization in higher education has emerged as a key factor influencing immigration decision-making processes. The future trend of internationalization in higher education is attracting attention not only from academic research but also is an important proposition that must be considered in the realm of higher education practice. Different from the past two decades, the current internationalization of higher education is showing a diverse development trend.

6.1. The connotation and trend of critical higher education internationalization will become more diverse and complex

The rise of critical higher education serves as a direct critique of societal trends shaping the educational landscape. Its positive influence is evident in steering the internationalization of higher education towards a more inclusive and equitable path through informed dialogue. However, this progress is impeded by external factors such as national policies, political and economic conditions, and the forces of globalization, leading to various challenges and deviations. The commercialization of higher education internationalization, driven by globalization and neoliberalism after the Cold War, has sparked a 'critical turn' towards reform and reorientation. Concerns have arisen about the dominance of Western frameworks and the lack of research in authoritarian contexts. Within the radical perspective, adopting a postcolonial view questions the notion of internationalization as an 'unconditional good' and emphasizes a political angle. Criticisms of this approach include fostering stagnation, reflecting Western biases, neglecting individual agency, and distorting the global understanding of internationalization. The post-colonial approach struggles to explain the motives behind internationalization in various countries due to its dependence on a 'modern/colonial global imaginary', which does not fit the emerging multipolar geopolitical landscape. Bamberger and Morris (2024) advocate for nuanced approaches that consider local dynamics, power relations, and historical influences. In the face of calls for change spurred by the COVID-19 pandemic, rising populism, climate urgency, and expected shifts in internationalization, there is potential for a new direction in scholarship and practice.

6.2. The internationalization of virtual higher education will lead the paradigm shift of higher education internationalization

The internationalization of higher education has shifted multiple times throughout history, according to Thomas Kuhn's (1997) paradigm theory. It has progressed through four stages: pre-science, normal science, anomaly and crisis, and scientific revolution. These stages align with loose spontaneous periods, physical internationalization, new forms like localized internationalization, and the emerging mainstream of virtual internationalization. In the post-pandemic era, higher education internationalization is undergoing a scientific revolution. Digital and information communication technologies and new global trends are driving changes in values, models, and paradigms. Virtual internationalization aims to integrate internationalization with digital transformation, remove physical boundaries, and provide certainty in uncertain times, showing potential as a new paradigm. The pandemic's restriction on physical mobility has pushed online and remote solutions to the forefront. Post-pandemic, the return to physical spaces won't erase the valuable experiences and innovations from the crisis. Higher education internationalization must adapt to rapid digital advancements. The inherent contradictions in the old paradigm, highlighted by the pandemic, underscore the emerging significance of virtual internationalization.

6.3. The internationalization of local education will expand the scope of practical exploration and become the main way to combat the colonialism of higher education internationalization

Localized internationalization of higher education contrasts with cross-border internationalization in spatial terms. It involves using locally accessible international resources to enhance education, including curricula, faculty, campus culture, and operational systems. Proposed in the 1990s, it recently gained importance for promoting in-depth internationalization practices, shifting from external element flows to advancing local education values. This focus underscores the intrinsic development of higher education internationalization, strategically valuable in globalization, where universities' international roles are increasingly prominent.

The global localization of higher education, as a novel form and phase in the internationalization of higher education, has charted fresh developmental pathways for numerous non-central nations within the current confrontational global landscape, effectively addressing the tensions between colonial legacies and postcolonial realities.

6.4. The evolving relationship between higher education internationalization and global citizenship

Over the past century, the world has witnessed a multipolar development, with societies undergoing significant transformations towards multiculturalism and an increasingly international labor market. These changes have positioned the internationalization and globalization of higher education as crucial drivers of global immigration and human capital flows. Additionally, they have become vital tools for the survival of global citizens. Looking ahead, the relationship between the internationalization of higher education and global citizenship is expected to deepen further. The struggle between cosmopolitanism, nationalism, and racism will enrich the internal discussion of this topic.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This project was supported by 2023 China National Education Science Planning Project 'Research on the Southward Opening Value and Optimization Mechanism of Lancang-Mekong Education Cooperation under the Belt and Road Initiative' [Grant No. DGA230453].

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SOURCE: PERPUSTAKAAN UTM

ICIC Express Letters
Part B: Applications
Volume **16**, Number **1**, January **2025**

ICIC International ©2025 ISSN 2185-2766
pp. **55–61**

EXPLORING THE IMPACT OF INTERNATIONALIZATION OF HIGHER EDUCATION ON SUSTAINABLE DEVELOPMENT GOALS: THE MEDIATING ROLE OF GLOBAL COMPETENCE AND DIGITAL LITERACY

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Received April 2024; accepted July 2024

Abstract. *This research is primarily focused on examining the influence of the internationalization of higher education institutions (HEIs) on Sustainable Development Goal 4 (SDG4), and the interconnectedness of digital literacy and global competence with HEIs' internationalization and SDG4. The study employs questionnaire surveys and Smart-PLS statistical analysis as its methodological approach to achieve this purpose. The findings reveal a significant positive impact of university internationalization on SDG4, with digital literacy and global competence playing crucial mediating roles. The finding underscores the necessity for the development of appropriate policies and strategies to enhance digital literacy and global competence within HEIs. The study concludes by providing valuable insights for universities in their pursuit of SDG4, emphasizing the importance of digital literacy and global competence.*

Keywords: Internationalization of higher education, Global competences, Digital literacy, Sustainable Development Goals

1. **Introduction.** Over the past three decades, the landscape of higher education has been significantly reshaped by the forces of internationalization. This phenomenon, driven by the increasing interconnectedness among nations and facilitated by rapid advancements in technology and transportation, has broadened students' perspectives and nurtured a mindset of openness and curiosity. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), internationalization plays a crucial role in equipping students with global engagement skills, and integrating foreign students into new educational environments, thus enhancing their learning experiences. Additionally, sustainable development, as defined by the UNESCO, aims to improve well-being while preserving the planet in global development. The United Nations Agenda 2030 [1] outlines seventeen Sustainable Development Goals (SDGs) to address issues like poverty, health, education, inequality, economic growth, and environmental sustainability. SDG4 specifically focuses on inclusive and equitable quality education, highlighting the importance of higher education in achieving these goals [2-4]. While literature has explored higher education's role in achieving the SDGs, actualization within higher education remains under-researched.

The study's purpose is to determine how global competence and digital literacy mediate the relationship between higher education internationalization and SDG4, highlighting the interconnectedness of these elements in promoting sustainable and inclusive education. The research questions are as follows: (a) How does global competence influence the relationship between higher education internationalization and SDG4? (b) What role

DOI: 10.24507/icicelb.16.01.55

does digital literacy play in mediating the relationship between higher education internationalization and SDG4?

In terms of contribution, this study aims to illuminate the intricate dynamics between the internationalization of higher education, digital literacy, and global competence, and their cumulative effect on the attainment of SDG4. This study will also offer invaluable insights that will guide policymakers and educational institutions in aligning their strategies with the imperatives of sustainable development. The study will aid in the development of a strategic framework that amalgamates the internationalization of higher education with initiatives for digital literacy and global competence. This framework could serve as a roadmap for educational institutions seeking to align their curricula with SDG4. The findings of the study could inform the formulation and reform of educational policies, ensuring they are inclusive and cater to the diverse needs of the global student population. By underscoring the importance of digital literacy and global competence, the study will promote capacity building in these areas, which fosters an environment conducive to lifelong learning and adaptability. The research is likely to stimulate further studies and innovations in educational technology, pedagogy, and curriculum design, tailored to meet the demands of a rapidly evolving digital world. It will also highlight the need for cross-cultural collaboration and exchange programs, which are essential for nurturing a globally aware and culturally sensitive workforce.

2. **Literature Review.** Internationalization in higher education institutions worldwide has integrated international, intercultural, and global dimensions into their core functions, fostering cross-national collaboration and interaction. This has not only enhanced the competitiveness of higher education institutions but has also broadened students' perspectives through exposure to diverse cultures and experiences, enriching their learning environment and promoting holistic development. Moreover, the internationalization of higher education has facilitated resource sharing, raised educational standards, and improved accessibility, particularly benefiting developing nations. Various approaches, including activity, competency, ethos, and process approaches, have been identified in the internationalization process, highlighting the need for a comprehensive framework to elucidate the correlation between internationalization and Sustainable Development Goal 4 (SDG4) on quality education [5-8].

Recent research underscores the critical intersection between the internationalization of higher education and SDG4, emphasizing the pivotal role of higher education institutions in advancing sustainable development. Scholars [9] proposed a conceptual framework that links sustainable development practices within higher education to internationalization and student satisfaction, with the latter acting as a mediating factor. Further exploration of the relationship between internationalization, SDG4, and key factors like global competence and digital literacy is scarce in the current literature, despite it being essential to increase the contribution of higher education towards SDG4.

Global competence (GC) is a fundamental skill set encompassing the ability to engage with diverse cultures, fostering global citizenship and sustainable development. It plays a crucial role in enabling students to understand, interact and collaborate effectively and critically with different cultures. This competence is particularly vital in achieving the SDG4 in achieving inclusive and quality education for sustainable development and global citizenship. Recent studies underscore the significance of lifelong learning in post-pandemic SDG attainment, highlighting the essential role of GC. Despite its recognized importance, empirical evidence linking GC to internationalization and SDG4 remains limited, indicating a need for further research in this area.

Digital literacy is critical for effectively using digital technologies in educational and social contexts, enabling individuals to navigate the digital world, engage in online communication and collaboration, and create and share digital content [10]. Higher education institutions shifted to online learning and virtual collaboration during the COVID-19 pandemic, thus highlighting the importance of digital literacy for students and educators. Digital literacy has also facilitated the continuation of internationalization efforts through virtual exchanges, research collaborations, and cross-cultural communication, thus emphasizing the need to equip students with these skills to stay globally connected. It ensures inclusive and equitable access, which is essential to achieve SDG4. However, more research is needed to statistically prove the correlation between digital literacy, internationalization, and SDG4 attainment.

Universities can achieve the SDGs to a greater extent by integrating the principles of SDGs into internationalization strategies. This integration fosters cross-cultural understanding, knowledge exchange, and collaboration among students, professors, and institutions globally, enhancing the fulfillment of the SDGs. Additionally, SDG4 focuses on providing inclusive, equitable, and high-quality education for all, promoting lifelong learning opportunities. Efforts in digital cooperation play a crucial role in enhancing education levels and, consequently, contribute significantly to achieving SDG4. This literature underscores the essential role of global competence and digital literacy in higher education, emphasizing their impact on internationalization efforts and the advancement of sustainable development goals [11,12].

Based on the literature review above, this study hypothesized the following, as per the dearth of empirical evidence on the associations among HEIs internationalization, digital literacy, GC, and SDG4.

H1: Students' perceptions of global competence positively mediated the relationships between internationalization of higher education and SDG4. This indicated that the higher the internationalization of higher education, the higher the GC would be, and would hence also increase SDG4.

H2: Students' perceptions of digital literacy positively mediated the relationships between internationalization of higher education and SDG4. This would indicate that the higher the internationalization of higher education, the higher the digital literacy would be, thereby increasing the achievement of SDG4.

3. **Research Methodology and Data Collection.**

3.1. **Measurement development.** The revision of question items was informed by a thorough review of existing literature on each construct. We adapted eight items based on the work of Chin and Ching [13] and tailored them to align with the specific dimensions of internationalization relevant to our study. Adaptation examples are as follows, "My university has a clear statement on students' admission, rewards, sanctions, and graduations" and, "My university sets up an international affairs office with professional staff to assist in administering international activities and programs". Similarly, in measuring global competence, we utilized a set of seven items that had been revised and validated in prior research conducted by Liu et al. [14], ensuring their appropriateness for our study context. For example, the revisions were "I am willing to experience the life and culture of other countries" and "I try to value their culture and values when communicating with foreigners". The scale for digital literacy was adapted from Ng [10] and comprised nine items, which were selected and modified to capture the key dimensions of digital literacy pertinent to our investigation. Modifications include the following, "I have good ICT skills" and "I found it easy to learn new techniques". Finally, the scale for SDG4, consisting of seven items, was adapted from the United Nations framework and refined to suit the objectives of our study [1]. For example, the measures were "My university offers equal opportunities to women and men for affordable and quality technical, vocational, and tertiary education" and "My university provides and increases the number of youth and adults who have relevant skills". These revisions were aimed at enhancing the relevance and validity of the measurement instruments for our research context.

3.2. **Respondents.** The questionnaire survey targeted Mainland Chinese students mainly, through random surveys online. A total of 571 responses were received but 28 of them were incomplete and hence were discarded. In the end, only 543 questionnaires were obtained, with a 6% follow-up rate. The sample distribution of the respondents showed that 72% of the respondents were female and 89% were undergraduates, respectively. Most respondents were Bachelor degree (89%) and studied with Chinese language (84%).

The sample data, particularly the observation that 72% of respondents were female, may affect the demographic representativeness, and thus indicate the presence of gender sampling bias. While the sample data provides valuable insights, it would be more steeped in representing female Mainland Chinese students in this study due to the majority of the gender being female.

3.3. **Data analysis.** Partial least square structural equation modeling (PLS-SEM) was deployed. The PLS model was noted for its advantages in studying human behavior, optimal predictive potential, and suitability for small samples [15]. PLS-SEM also presented less restrictive requirements in the measurement of sample size scales and in the distribution of the data [16]. Today, the approach had gained wide acceptance [16]. It was chosen in view of its suitability for testing path model hypotheses in an exploratory manner.

The measurement model's convergent validity, discriminant validity, and reliability were evaluated formatively. As shown in Table 1, the average variance extracted (AVEs) of all constructs were well above the 0.50 threshold, signifying a sufficient level of convergent validity. The discriminant validity by the Heterotrait-Monotrait ratio of correlations (HTMT) was tested next [16,17]. The results in Table 1 illustrated that the correlation values corresponding to the respective constructs did not exceed HTMT 0.850, indicating that discriminant validity was achieved. Finally, the reliability of the constructs was assessed according to composite reliability (CR) and Cronbach's alpha values. Table 1 showed that the CR values ranged from 0.971 to 0.983 and Cronbach's alphas ranged from 0.966 to 0.979, which were both more than 0.700, thus providing strong support for construct reliability. Additionally, all factor loadings and the measurement errors were acceptable and significant at alpha = 0.010 and were greater than 0.700 (the minimum factor loadings is 0.856); hence the measurement was reliable. The PLS-SEM model estimation revealed that the latent construct could account for at least 85% of the variance in the items and all model constructs exhibited satisfactory internal consistency.

TABLE 1. Descriptive statistics, reliability, validity, and Heterotrait-Monotrait ratio of correlations (HTMT)

	1	2	3	4	Alpha[a]	CR[b]
1. SDG4	***0.890***[c]				0.979	0.983
2. Internationalization	0.730	***0.854***			0.976	0.979
3. Global competence	0.721	0.597	***0.829***		0.966	0.971
4. Digital literacy	0.791	0.673	0.693	***0.856***	0.979	0.982
Mean	3.939	3.876	3.958	3.755		
S. D.	0.904	1.014	0.869	0.886		

Notes: [a]Internal consistency reliability: Cronbach's alpha coefficient. [b]Composite reliability. [c]Diagonal values in bold italics show the square root of the average variance extracted for each construct.

Additionally, all data for each variable in a dataset from a single individual during a survey was collected, thus ensuring a direct link between each data point and a specific respondent. This approach enhances the reliability and consistency of the gathered information by minimizing the risk of data mixing from various sources, thereby upholding the dataset's integrity and coherence. This methodology is particularly valuable in research or surveys where data accuracy and consistency are of utmost importance, as well as establishing an unequivocal connection between the data points and the surveyed individual [18]. Common method variance might influence some postulated relations in the PLS-SEM path model. Several procedural steps were taken to mitigate any potential effects of method bias as suggested by Podsakoff et al. [19]. First, different-type questions were interspersed in an effort to minimize the potential of use of repetitive Likert scales. Second, respondents were further assured that all data gathered would be treated anonymously and explicitly instructed to answer spontaneously. The order of items for various scales and included reverse-coded items were mixed to reduce question-to-question priming effects that could contribute to a higher risk of bias. Finally, the full collinearity assessment approach proposed by Kock [20] and Hair et al. [15] was deployed to detect if common method bias (CMB) was presented in this PLS-SEM data. All the VIF values of items and independent variables were smaller than the recommended threshold of 3.3, with Inner VIF values having the following values: Internationalization = 1.877; Global competence = 1.949; Digital literacy = 2.277, indicating that the model was free from common method bias.

4. **Findings.** To assess the structural model, we used Standardized Root Mean Square Residual (SRMR), coefficient of determination (R^2), and predictive relevance (Gtone-Geisser Q^2). The SRMR value was 0.032, which was well below the threshold of 0.10, indicating a good model fit. The R^2 value from Table 2 was 70.7% which revealed that the percentages of explained variance for SDG4 was 70.7%. The model thus explained a substantial amount of variance for SDG4. Also, the Q^2 value from Table 2 was 0.625, indicating that the model was capable of prediction. Additionally, the collinearity test showed that the VIF values of all exogenous variables ranged from 1.877 to 2.277, well below the common cut-off threshold of 5.00. This suggested that multicollinearity was insignificant in this study.

Mediation analysis was assessed by examining the *t*-statistics based on performing 5,000 bootstraps (two-tailed). It was also performed to assess the mediating role of global competence and digital literacy between internationalization and SDG4. The results (as per

Table 2. Results of hypotheses testing

Hypo.	Path	Coef.	S.E.	*t*-value	95%CI	Remarks
H1	Internationalization → Global competence	0.581*	0.037	15.787	[0.508, 0.653]	Supported
	Global competence → SDG4	0.254*	0.054	4.726	[0.154, 0.366]	
	Internationalization → Global competence → SDG4	0.148*	0.035	4.199	[0.086, 0.224]	
H2	Internationalization → Digital literacy	0.658*	0.032	20.259	[0.593, 0.718]	Supported
	Digital literacy → SDG4	0.407*	0.052	7.874	[0.304, 0.506]	
	Internationalization → Digital literacy → SDG4	0.268*	0.037	7.222	[0.196, 0.340]	

Note: * = $p < 0.001$; Hypo. = Hypothesis; S.E. = Standard deviation; CI = Confidence intervals; $R^2_{\mathrm{Global}} = 0.337/Q^2 = 0.277$; $R^2_{\mathrm{Dig}} = 0.433/Q^2 = 0.368$; $R^2_{\mathrm{SDG4}} = 0.707/Q^2 = 0.625$.

Table 2) revealed that the mediation role of global competence was significantly positive ($\beta = 0.148^{*}$, $p < 0.001$), which supported H1. In addition, the mediation coefficient of digital literacy was positively significant ($\beta = 0.268^{*}$, $p < 0.001$), which supported H2.

5. **Discussion and Conclusions.** This study provides compelling evidence of the significant role of internationalization in higher education towards achieving Sustainable Development Goal 4 (SDG4), particularly when mediated by digital literacy and global competence. Through a comprehensive methodological approach involving questionnaire surveys and Smart-PLS statistical analysis, the study revealed a positive empirical impact of internationalization on SDG4, with digital literacy and global competence serving as crucial mediators in this relationship. Specifically, the findings underscored the importance of equipping students with essential skills to navigate the digital era and engage effectively in a globalized world, highlighting the transformative potential of integrating digital literacy and global competence into university curricula.

Moreover, the emphasis on the significance of global competence in nurturing students' ability to understand diverse perspectives, communicate across cultures, and collaborate on global challenges further accentuates the importance of holistic education in higher education institutions. By fostering a culture of global competence, universities can produce graduates who are not only academically proficient but also socially responsible and culturally sensitive global citizens. Moving forward, policymakers and educational institutions must develop comprehensive policies and strategies that promote internationalization and sustainable development. This includes creating supportive environments for international students, facilitating faculty mobility and research collaborations, and providing intercultural learning experiences for all students. Additionally, future research endeavors should explore alternative methodologies, such as qualitative interviews, to gain deeper insights into the complexities of internationalization and its impact on sustainable development. Furthermore, there is a need for cross-cultural studies to examine internationalization in diverse contexts and assess its implications for achieving various Sustainable Development Goals beyond SDG4.

In summary, this study not only sheds light on the importance of internationalization in higher education but also provides valuable insights into the mediating roles of digital literacy and global competence in advancing sustainable development agendas. By offering recommendations for policy revision and future research directions, the study aims to contribute to the ongoing discourse on the role of higher education in addressing global challenges and fostering a more sustainable future.

Despite its valuable insights, this study is subjected to several limitations that warrant consideration. Firstly, the reliance on survey questionnaires as the primary data collection method may not fully capture the intricacies of internationalization and its multifaceted impact on sustainable development. This methodological approach might overlook nuanced perspectives and experiences that could be better explored through alternative methods, such as qualitative interviews. Additionally, the study's narrow focus on Sustainable Development Goal 4 (SDG4) neglects the potential effects of internationalization on other SDGs. Future research endeavors should aim to broaden the scope and explore the interconnections between internationalization and various SDGs comprehensively. Moreover, the observed imbalance in gender distribution, with 72% of respondents being female, highlights a potential limitation attributed to online survey bias. This bias, prevalent in online survey platforms, may skew the representation of certain demographics, thereby impacting the generalizability of findings. Furthermore, the study's specific geographic and educational context, focusing on Mainland China PRC, raises questions about its generalizability to other settings and populations. While the insights gained from this context are valuable, they may not fully capture the diverse experiences and dynamics of internationalization in other cultural and educational contexts. Therefore, future research efforts should prioritize cross-cultural studies to provide a more comprehensive understanding of internationalization across different settings.

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"Exploring the dynamics and significant impacts of Internationalization on Higher Education"

TITLE	SOURCE
7) Impact of Perceived Internationalization of Higher Education on Student Outcomes (2024)	INTERNATIONAL JOURNAL OF LEARNING, TEACHING AND EDUCATIONAL RESEARCH (Article From : IJLTER.ORG)

31st JANUARY 2025
SOURCE: PERPUSTAKAAN UTM

International Journal of Learning, Teaching and Educational Research
Vol. 23, No. 10, pp. 102-122, October 2024
https://doi.org/10.26803/ijlter.23.10.6
Received Aug 20, 2024; Revised Oct 16, 2024; Accepted Oct 19, 2024

Impact of Perceived Internationalization of Higher Education on Student Outcomes

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Abstract. Given the multitude of international education options available to students, academic institutions need to understand better how international students perceive their internationalization efforts and how these perceptions influence student outcomes. Employing quantitative and qualitative methods, this study investigated how student satisfaction and performance are impacted by perceived internationalization. Primary data were collected from 124 international students enrolled in a state university in Thailand using a pre-tested questionnaire. The data were assessed for validity and reliability through exploratory and confirmatory factor analyses. The predicted relationships were examined using path analysis and mediation analysis. Results indicated neutrality in students' perceptions of their international educational environment and experience. Perceived internationalization was directly related to satisfaction. However, the path modeling analysis showed a negative mediating effect of satisfaction on the relationship between perceived internationalization and performance. This finding suggests that international students may still perform well academically even in non-satisfying educational contexts. The implications for higher education institutions present opportunities to align policies, strategies, and actions toward developing a truly international learning environment that will be beneficial for students.

Keywords: international higher education; international students; perception of internationalization; student satisfaction; student performance

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1. Introduction

The growing initiatives toward internationalization of higher education have significantly increased student mobility across cultures and borders. OECD (2021) reported that 5.6 million students studied abroad in 2018. Whereas traditionally, the influx of international students had been seen in primarily English-speaking countries in North America, Europe, and Australia, there has been a consistent increase in the flow and movement of students within Asia in the past ten years (UNESCO, 2022). However, the past decade has seen a surge in the movement of students within Asia (UNESCO, 2022). One significant consequence of these developments is increased diversity among students in higher education institutions (HEI). As foreign students invest heavily in their international education, financially and emotionally, they expect the host institution to drive internationalization efforts that impact students' outcomes (Daud et al., 2019). This underscores the complexity of internationalizing higher education, requiring an in-depth understanding of students' goals, motivations, and experiences (Lyken-Segosebe, 2017). A study revealed that compared to their domestic peers, inbound international students often receive less support. This demonstrates an imbalance in how institutions recognize and respond to the unique needs of this student group (Starr-Glass, 2016). This apparent lack of adequate support can hinder meeting students' specific academic and social requirements, consequently affecting their overall success and satisfaction within the institution.

Considering these findings, it is interesting to learn how international students view the internationalization initiatives of their host institution and how this affects their satisfaction and performance. Few research themes focused on the impacts to students of these internationalization efforts. (Mittelmeier et al., 2024). One concluded that the satisfaction and performance of international students are influenced by academic, cultural, social, and economic factors (Son & Cho, 2020). These findings highlight the complex interplay of factors that affect these variables, underscoring the importance of a comprehensive approach to support international students effectively. Further research on these subjects in the Asian context could assist and empower HEIs in identifying effective and innovative approaches to build stronger connections with their international students and help improve their satisfaction and performance. Hence, this study focused on determining how international students' satisfaction and performance levels are influenced by their perception of the internationalization initiatives of their host institution. The research aimed to answer the following research questions: (1) How do international students perceive the institution's internationalization efforts?; (2) How are the international students' satisfaction and performance levels influenced by how they perceive the institution's internationalization efforts?; (3) How does international students' satisfaction mediate the effect of perception on performance?; and (4) How can the educational institution further improve to manage internationalization effectively?

There are four main objectives: (1) Explore the international students' perception of the institution's internationalization efforts; (2) Investigate the link between how the international students perceive their institution's internationalization efforts and their satisfaction and performance; (3) Analyze how the students' satisfaction mediates the relationship between their perception on internationalization and performance; and (4) Explore the areas where the educational institute can further improve to manage internationalization effectively.

2. Literature Review

2.1 Internationalization of Higher Education

Internationalization is the process of integrating the international dimensions across all aspects and levels of higher education, including curricula, pedagogy, research, and governance (Conceição, 2020). It is a response to the ever-increasing demands for world-class talents equipped with technical and cross-cultural skills (Thi Thu Le et al., 2023). One of the main goals of internationalization is students' social and academic integration (Bergman et al., 2023). This means that internationalization should be done holistically. Academic integration pertains to having inclusive curricula and pedagogies with multicultural content and using creative approaches in teaching and learning (Mittelmeier et al., 2024). Social integration refers to the initiatives to support and facilitate students' engagement and interaction with peers and the academic community. Integration also pertains to having culturally sensitive faculty and support personnel and effective communication channels (Ge, 2022). Increased global cooperation and partnerships for student exchange and research collaborations were also identified as critical ingredients to internationalization (Ge, 2022).

2.2 International Students

UNESCO classifies international students as those who crossed territorial or national border to study outside their country of origin (UNESCO, 2022). In the Fourth Industrial Revolution era, young people have become more mobile, seeking new knowledge, technologies, training, and connections beyond their local communities and countries' borderlines (Bruhn, 2020). Their reasons for choosing to study abroad vary, including academic quality, personal growth and development, and better career prospects. The diversity of the student population in an international institution creates opportunities for meaningful exchanges of culture, new ways of thinking, and new skills, norms and values. It also presents challenges such as cultural differences, language barriers, and academic pressures (Telbis et al., 2014). Academic institutes must manage inclusion and diversity to help students adjust to their host university's new social and academic culture (Molley, 2019). A better understanding of the specific needs of this student group could help provide them with supportive environments and resources to overcome these challenges and achieve success and overall satisfaction.

2.3 Student Satisfaction

Satisfaction is an emotional reaction or attitude when a person fulfilled his/her needs or desires. In higher education, student satisfaction is described as the students' disposition resulting from subjective evaluation of how well their expectations and needs are met within their academic environment (Gómez-Baya et al., 2021). It is a multifaceted concept encompassing educational experience across academic, social, and institutional dimensions. A student feels satisfied when his or her educational environment and experiences are positive and desirable. However, unpleasurable emotions and frustrations result in dissatisfaction. The students' assessment of educational experiences, services, and facilities the institution provides continually shapes student satisfaction (Sơn et al., 2018). Factors such as perception, lecturers' expertise, facilities, educational support, and course structure significantly influence international students' satisfaction (Daud et al., 2019). Measuring student satisfaction provides HEIs with helpful information to become more responsive to the needs and expectations of students. Student satisfaction influences not only academic performance and overall student well-being, but as well as student retention (Wong & Chapman, 2022).

2.4 Student Performance

Student performance is a measure of academic achievement through rigorous assessment activities, including test scores, grades, class standings, and learning outcomes (Namoun & Alshanqiti, 2020). Academic institutions commonly use the grade point average to measure student performance. The assessment of student performance evaluates the students' knowledge level, the effectiveness of teaching processes, and overall student satisfaction (Dhaqane & Afrah, 2016). This implies that as international students face unique challenges, it can significantly affect their academic growth opportunities. Hence, institutions cannot just accept students and expect their success without providing them with support and proper programming. Many factors can influence performance, including academic environment and services, cross-cultural interaction, student engagement and belongingness, and personal characteristics (Namoun & Alshanqiti, 2020). The student's level of satisfaction with these factors can affect student achievement. Higher education institutions can impact student outcomes by developing a holistic approach and comprehensive strategies and frameworks that address these factors (Yassin et al., 2020).

2.5 Theoretical Perspectives

This study draws from Tinto's integration theory (1993) and Fredrickson's broaden-and-build theory (2004). Extensive research has explored the link between Tinto's model and student satisfaction. The theory remains influential, but its application varies across different contexts. Recent research has expanded on the original model, incorporating factors such as satisfaction with institutional support (Hadjar et al., 2022) and nationality (Merola et al., 2019). Other research underscores the importance of interactions between students and faculty, particularly within the classroom, as a key element of social integration and persistence (Dwyer, 2015)

Fredrickson's broaden-and-build theory connects student satisfaction with improved academic performance by highlighting the role of positive emotions. The feeling of happiness from positive academic experiences breeds more positive school experiences (Stiglbauer et al., 2013). Faculty support, social interactions with peers, and positive school experiences create this virtuous cycle of students' happiness and satisfaction (Telef, 2020), as well as academic achievement.

Building on these theories, this study suggests that students' satisfaction and performance are affected by their learning environment and how well they integrate into it. When students acknowledge and value their international academic experiences, it can lead to increased satisfaction and, as a result, improved performance.

2.6 Student Perception of Internationalization and Satisfaction

Student integration significantly influences their perception of the learning environment and overall satisfaction. Both formal academic integration and informal social interactions can positively impact students' attitudes and values (Tinto, 1993). International students form opinions and emotions based on their experiences of integration with or alienation from their learning environment. They perceive their international learning experiences nicely when foreign language is used for teaching instruction (Chung & Choi, 2022) and there is substantial amount of intercultural and international contents in the curriculum design (Vahed & Rodriguez, 2020). Student satisfaction is formed by the availability and accessibility of institutional resources, including multilingual websites and signages, libraries with a diverse selection of international texts, student services, and orientation programs (Fit & Gologan, 2018). Organizational capabilities such as staff with cross-cultural competence, openness, and language skills are highly valued by international students (Ge, 2022). Non-academic aspects of student life are also crucial for enhancing satisfaction, such as socialization, peer interaction, and strong identification with the campus community (Mittelmeier et al., 2024). Their level of satisfaction or dissatisfaction depends on how they view their learning environment and experiences (Alcoba et al., 2024).

The study suggests the following hypothesis:
H1: The students' perception of the institution's internationalization will be positively related with the students' satisfaction.

2.7 Student Perception of Internationalization and Performance

Student academic performance serves as one of the primary measures of students' knowledge and skills and a gauge of the success or failure of an educational institution (Narad & Abdullah, 2016). It also indicates students' interest and engagement in their studies (Mensink & King, 2020). Students' perception of their educational environment can significantly influence their academic outcomes. For example, Appiah et al. (2022) demonstrated that internationalization initiatives can enhance students' perceptions of their abilities, particularly in mathematics, thereby boosting academic achievement. The study of Silveira et al. (2019) of immigrant and native-born students indicated the positive effect of exposure to internationalization on performance. Although research directly exploring the connection between student perceptions of internationalization and academic performance is limited, these studies show the relationship between the two. It can be inferred from these examples that when students recognize, engage with, and appreciate their international academic experiences, their academic outcomes tend to improve.

Based on this, the study proposes the following hypothesis:

H2: The students’ perception of the institution’s internationalization will be positively related with the students’ performance.

2.8 Student Satisfaction and Performance

According to the broaden-and-build theory, the broadening of thought processes helps develop physical, intellectual, social, and psychological resources, which in turn enhances performance (Frederickson, 2004). Positive emotions, such as those generated by satisfaction, expand one’s cognitive processes, awareness, and exploratory behavior (Dudasova et al., 2023). Various studies in the context of education suggest a strong link between student satisfaction and various performance indicators, including motivation, confidence, learning outcomes, and retention (Gopal et al., 2021). Improved academic achievement has been directly connected to student satisfaction in online learning environments (Kim & Kim, 2021). Internationalization initiatives like internships and work placement learning were found to positively influence student employability, with satisfaction and achievement acting as mediators (Otache & Edopkolor, 2022). Teacher leadership, another form of internationalization, is directly linked to student satisfaction and achievement (Uysal & Sarier, 2019). Even beyond the academe, empirical data showed the disparity in the performance of satisfied and dissatisfied employees, with the former outperforming the latter (Inayat & Khan, 2021). Task satisfaction has been shown to positively influence task performance (Dudasova et al., 2023).

Based on this, the research proposes the following hypothesis:
H3: The students’ satisfaction will be positively related to the students’ performance.

2.9 Student Perception of Internationalization, Satisfaction, and Performance

Research suggests that internationalization initiatives can positively influence student outcomes, but the relationship is often complex and multifaceted. The effect of education internationalization on student outcomes is not always straightforward, often mediated by other factors. Gopal et al. (2021) found that student satisfaction is a crucial mediating variable between students' performance and their perceptions of educational benefits. As students perceive positively the international learning environment, it can significantly boost satisfaction levels and, ultimately, performance. Students are more likely to succeed when they are satisfied and find meaning in their academic experiences (Dhaqane & Afrah, 2016). Students' satisfaction with their overall educational experience and the academic services and facilities provided to them influence their performance (Sơn et al., 2018). Moreover, specific aspects of internationalization, such as study abroad program design (Hennings & Tanabe, 2018) and institutional support (Bégin-Caouette et al., 2023), can further affect how internationalization efforts impact student satisfaction and performance.

In line with this, the study predicts the following hypothesis:
H4: The students’ satisfaction will mediate the effect of perceived internationalization on the students’ academic performance.

3. Methods

3.1 Research Design

This study utilized a multi-strategy research approach, combining quantitative and qualitative methods. The quantitative approach was employed to explore causal relationships between respondents' perceptions of the educational institution's internationalization practices and their academic experiences. The qualitative approach aimed to gather detailed insights into students' experiences, opinions, and perceptions regarding the internationalization aspects of the host institution, as well as any recommendations for improvement.

3.2 Quantitative Research

3.2.1 Sampling Technique

The population of 180 comprised foreign students enrolled at the college, a distinct characteristic unique to this group. The sample size was determined to be 123, calculated with 95% confidence level and 5% margin of error (confidence interval of 0.05). Considering the relatively small population size, however, the study used total population sampling to include all members in the research.

The study obtained responses from 129 students across all levels and programs. After data cleaning, six individuals who did not complete the survey or wrongly answered were removed. The sample size came up to 124 duly completed responses, which provided a good representation and placed confidence in the results.

3.2.2 Survey Questionnaire

The study utilized survey questionnaires adapted from existing measurement scales, which have been validated and used in previous studies, as shown in the Appendix. The questionnaire included 37 closed-ended questions and could be completed online in approximately 15-20 minutes. Considering the heterogeneous group of respondents, the majority of whom were Chinese, the questionnaire was worded in English and Mandarin. The instrument was piloted with 28 respondents (Cronbach's alpha .92) and was modified and reworded to improve clarity and understanding.

The study used the Google survey platform for data collection. In observance of ethical research standards, student participation was voluntary, and consent was secured prior.

3.2.3 Measurement Scales

Existing measurement scales, which have been validated in previous studies, were adopted. Respondents rated each item on a five-item Likert, with 1 corresponding to strong disagreement and 5 for strong agreement.

The perception of internationalization was assessed across five dimensions: academic factors (Zimitat, 2008), organizational factors (Fit & Gologan, 2018), and social factors (Spencer-Oatey & Dauber, 2019; Zimitat, 2008), which included experiences of discrimination and a sense of belonging (Glass & Westmont, 2014). These factors were included to capture various aspects of internationalization experienced by the institution.

Student satisfaction was measured using a validated scale from Liu and Liu (2004), which included three items. Student performance was evaluated based on the average GPA (Glass & Westmont, 2014) from official school records for the first semester of the 2022 academic year.

3.2.4 Data Analysis Methods
Various statistical methods were employed to describe and analyze the quantitative data, enabling appropriate inferences to be drawn. The dataset was evaluated for validity and reliability through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Path analysis followed the factor analyses to examine the predicted relationships among variables. Mediation analysis tested the mediating effect of satisfaction on perceived internationalization and performance, simulating Model 5 of Hayes' 74-model template.

3.3 Qualitative Research
Focus group discussions (FGDs) were held to obtain detailed insights into students' experiences, opinions, and perceptions regarding the internationalization of the host institution. FGD participants were selected using purposive sampling, with two groups consisting of ten and eight research participants in each group. The study ensured diversity of participants by selecting at least one from each nationality represented in the university enrolled in different programs and year levels. Prior to this, the select research participants had given their consent to participate voluntarily in the FGD. The discussions were guided by unstructured questions where research participants were asked about their experiences and challenges as foreign students. Written and audio recordings of the FGD were used as bases for organizing, coding, and indexing the information into parts to identify a thematic framework. The organized and coded data were interpreted and analyzed, and the themes were presented cohesively.

4. Results
4.1 Quantitative Data Analysis
4.1.1 Demographic Characteristics of Respondents
One hundred twenty-four responses were obtained after removing incoherent and incomplete data. As detailed in Table 1, more than half of the respondents (52%) were aged 20-22. 19% belonged to the 23-25-year-old bracket, 13% were 17-19, and 10% were 26-28. 6% of respondents were 29-43 years old, many taking a second degree in the university. 24% were freshmen students, 20% were sophomores, 22% were junior students, and 34% were in their senior year.

Most respondents were female, 53%, and 47% were male. Fifty-six students were from China, 40 were from Myanmar, nine from Bhutan, and the remaining 19 were from the other 12 countries that comprised the student population.

Table 1: Demographic Characteristics

Demographic Variables	Sample size (n = 124)	
	Frequency	Percentage
Age		
17 - 19	16	13%
20 - 22	65	52%
23 - 25	23	19%
26 - 28	12	10%
29 - 33	3	2%
36 - 40	3	2%
41 - 43	2	2%
Gender		
Male	58	47%
Female	66	53%
Nationality		
American	4	3%
Bhutanese	9	7%
Chinese	56	45%
Filipino	3	2%
Indonesian	1	1%
Japanese	1	1%
Korean	3	2%
Lao	1	1%
Malaysian	1	1%
Myanmar	40	32%
Nepalese	1	1%
Russian	1	1%
Scotland	1	1%
Taiwan	2	2%

4.1.2 Perspectives of International Students on Institutional Internationalization Efforts

Appendix A shows the distribution of internationalization perceptions in absolute frequencies, mean, and standard deviation. On the variable 'Perception of internationalization,' the indicator related to the presence of foreign teachers in the program received the highest score (4.09), indicating agreement on the Likert scale. The indicators referring to support staff being welcoming (4.06) and speaking a foreign language (4.02) also suggested agreement. The mean score for discrimination experience (2.46) implies that discrimination is rare in the learning space. The rest of the indicators under this group recorded scores lower than 4, implying uncertainty or neither agreement nor disagreement.

Respondents indicated neither satisfaction nor dissatisfaction (3.70) on the host institution's internationalization level. For student performance, which pertains to students' grades, the average GPA is 3.32 and a standard deviation of 0.55. The grading system indicates 4 as the highest grade a student can achieve and 1 as the lowest. The mean GPA of 3.32 implies a higher-than-average academic performance of most of the respondents.

The results indicated a small standard deviation, suggesting that the values were closely aligned with the mean and were, therefore, more reliable.

4.1.3 Factor Analysis Results

The results of Bartlett's Test of Sphericity (p = .000) and goodness of fit test, with a KMO score of 0.837, indicated that all items fell within the acceptable range for sampling adequacy. Additionally, the results of Bartlett's Test of Sphericity (p = 0.000) confirmed the appropriateness of the factor analysis, along with the goodness-of-fit test results (Chi-square = 1724.65; df = 435; p = .000) were all significant. Additionally, the eigenvalues were within an acceptable range.

The CFA results indicated a good fit with p-value = 0.60, GFI = .97, CMIN/DF =.89, RMSEA = .00, RMR = .27, CFI = 1.00, and PCLOSE = 0.846. These results support the reliability and validity of the items.

4.1.4 Path Analysis

The path analysis revealed that NFI, CFI, and GFI all had values of 1.000, with df = 0. Figure 1 illustrates the structural model depicting the relationships examined in the study.

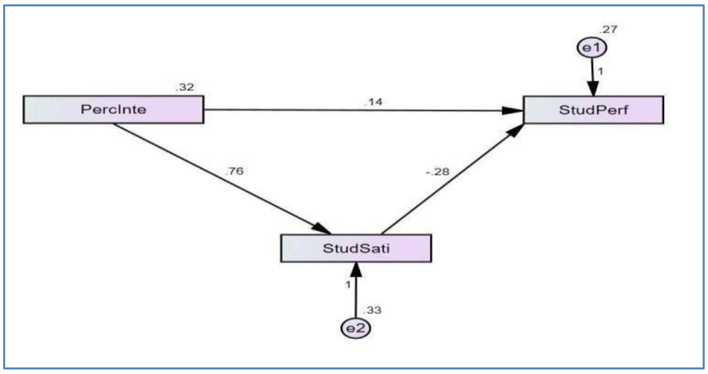

Figure 1: Structural Model

The path model produced the following results, as presented in Table 2:

4.1.5 Influence of Internationalization Perception on Student Satisfaction

PI --> SS. The findings indicated a significant relationship between the perception of internationalization and student satisfaction, with a standardized regression weight of 0.7639 ($p < 0.000$). This implies that student satisfaction is likely to rise correspondingly as perceptions of internationalization increase.

The result supports Hypothesis 1, which predicted a positive relationship between the two variables.

4.1.6 Influence of Internationalization Perception on Student Performance
PI --> SP. Perception of internationalization was not significantly related to student performance. The standardized regression weight was .1357 at $p < .1964$, implying that PI does not affect SP, thereby rejecting Hypothesis 2.

4.1.7 Influence of Student Satisfaction on Performance
SS --> SP. Student satisfaction was indirectly related to student performance (standardized regression weight of -0.2771, significant at $p < .001$). This implies that SP tends to decrease with an increase in SS. This finding contradicted the predicted positive relationship between the two variables, thereby rejecting Hypothesis 3.

Table 2: Path Coefficients

Path	Estimates	S.E.	C.R.	P
PI -------> SS	.7639	.0923	8.2779	.0000
PI -------> SP	.1357	.1044	1.2991	.1964
SS -------> SP	-.2771	.0820	-3.3803	.0010

4.1.8 Mediating Role of Student Satisfaction on the Impact of Perception on Performance
The results presented in Table 3 revealed significant mediation within the path model, demonstrating that the specific indirect effect of perception of internationalization (PI) on student performance (SP) through student satisfaction (SS) was negative (-0.3565 to -0.0893, with a point estimate of -0.2117). This indicates that a decrease in PI is associated with increased SP, mediated by SS. Consequently, this finding supports the hypothesis that SS mediates the relationship between PI and SP, although the mediation effect is negative.

Table 3: Mediation Effect

Effect	BootSE	BootLLCI	BootULCI
PI -------> SS -----> SP	-.2117	.0698	-.3655 - -.0893

4.2 Qualitative Data Analysis
4.2.1 Students' Experiences of HEI Internationalization
The respondents were asked to share their experiences and challenges as international students. Some noted positive aspects, such as a campus environment free from cultural or religious bias, which fosters acceptance and inclusivity. Others highlighted that their studies are practical and relevant, preparing them to collaborate with individuals from diverse perspectives. Additionally, some respondents emphasized the need for improvements in internationalization, particularly regarding instructional and communication

language, curriculum and faculty diversity, and student programs and activities that enhance inclusivity.

4.2.2 Balanced environment without cultural or religious prejudice
With students from 15 different countries on campus, some respondents felt this diversity provides valuable exposure to various cultures. They noted a sense of equality and perceived that the absence of cultural or religious bias contributes to a balanced environment that promotes mutual acceptance and understanding.

> *"There is no prominent culture; anyone can be from anywhere and study here. It is a good environment because there is no bias toward one culture or one religion. This balance allows students to accept each other" (IS10).*
>
> *"……….in my class we treat each other equally. At first I was scared, but not anymore" (IS11).*

Several focus group participants think incorporating real-life examples of global events into the lessons is useful and preparatory for their future. They noted that specific courses, like Cross-Cultural Business Management, offer valuable insights into tolerance and respect for differences, helping to prevent misunderstandings.

> *"Some teachers use real-life examples of what is happening in the world. I feel that the things we learn here prepare us for the future slowly, step by step" (IS1).*

4.2.3 Language for instruction and communication
The language barrier significantly contributed to feelings of exclusion and disengagement from the learning environment. Respondents noted that it can restrict students' ability to participate fully in academic programs and engage socially with their peers.

> *"There is problem with inclusion in classroom environment because of the use of Thai in teaching" (IS7).*
>
> *"Some of the Thai classmates, if they can speak English, they talk to us. But if not, they don't, and I understand. They will greet but won't talk more, there is no deep conversation" (IS12).*
>
> *"There are seven nationalities in my class, so it is good opportunity to know others' cultures. It is easy to establish good relationship with the non-Thai nationals because they can speak English. However, it is challenging with Thai students because of the limitations in language on both sides" (IS8).*

4.2.4 Diversity of faculty and enrichment of curriculum
Some respondents identified challenges with aspects of the learning process, including the textbooks used and the limited number of foreign teachers. Despite the survey showing a high score for the availability of foreign teachers, respondents expressed a desire for more. On the other hand, some respondents felt that the subjects should be made more challenging to better prepare them for the future.

"The main subjects are okay for my level, but some subjects are too basic and not challenging. Examples are the very basic English subjects" (IS4).

"I feel that my English skills is not improving because the English textbooks we use are too basic" (IS7).

".....there should be more foreign teachers from other countries" (IS3).

4.2.5 Student programs/activities that promote inclusivity

The respondents expressed enthusiasm in participating in extra-curricular activities for social interaction and engagement. However, many felt that there are insufficient opportunities for involvement in academic and social activities that foster inclusivity. Additionally, the lack of English-language communication platforms for informing students about programs and activities was cited as another factor limiting their participation.

"When the university organizes activities, such as sports and music activities, or opportunities to work somewhere, or scholarships, they are designed only for Thai students" (IS1).

"I want to be part of the university but there are not many activities that promote inclusivity. Pre-covid, I asked my adviser and teachers what clubs were available that I could join in, but there was nothing at the moment" (IS9).

"I want the university to share information in English in all channels…. in groupchats, website, announcements in social media…. about the activities, scholarships, exchange programs" (IS8).

5. Discussion

The descriptive analysis of variables showed that the respondents' general perception towards internationalization was neither positive nor negative. There seemed not to be a strong positive or negative view, about the different dimensions of internationalization: academic, organizational, and social. Further insights were provided by respondents in the qualitative research. While most comments indicated the need for improvement in the different areas of internationalization, positive comments were received for a balanced campus environment, free from cultural and religious bias, and the relevance and applicability of learning in real life. Students indicated several challenges, including the extensive use of the Thai language in teaching and communication and the lack of diversity and inclusivity in curriculum, faculty, and student programs and activities. These findings do not veer away from existing studies on international higher education about the challenges and hurdles foreign students face in their learning environments (Lyken-Segosebe, 2017; Starr-Glass, 2016; Lee et al., 2019).

The results demonstrated a direct relationship between perceived internationalization and student satisfaction. This is aligned with existing studies suggesting that the positive perception of the educational benefits and experiences enhances student satisfaction (Silva, 2021). However, in contrast to common beliefs, the study found a negative relationship between student satisfaction and performance. This contradicts the idea that greater satisfaction leads to better performance and productivity. Students' subjective satisfaction with the education benefits they receive may not necessarily correlate with their objective performance (Dinh et al., 2022). For example, students who are highly satisfied with their institution may still have poor grades. Conversely, high-performing students might not always be satisfied with their institution.

The mediation analysis results indicate that student satisfaction significantly mediates the relationship between perceived internationalization and student performance, although negatively. This implies that students may still perform well despite having a negative perception of internationalization and low satisfaction. These findings are consistent with other research suggesting that the performance levels of international students are better than their domestic peers (Lee et al., 2019), even in the face of negative perceptions and low satisfaction. However, although student dissatisfaction might not immediately affect their performance, it can lead to other adverse effects, as suggested by previous studies, including increased student attrition (Laufer & Gorup, 2018) and recruitment concerns (Ammigan, 2019).

6. Conclusion

The study’s key findings are four-fold: First, the results suggest that international students generally perceive their institution’s internationalization efforts as neutral rather than distinctly positive or negative. Second, the students’ perception of their international educational environment and experience can influence their satisfaction. The research also showed that low satisfaction does not necessarily equate to poor performance. Third, albeit negatively, student satisfaction mediates the relationship between the perception of internationalization and student performance. Fourth, the qualitative part of the study indicated that respondents are aware of and form opinions about the internationalization elements vital to them.

These findings imply that even in challenging educational contexts, international students can achieve strong academic results through behavioral adjustments. Nevertheless, it is crucial for HEIs to seek strategic improvements in various aspects of internationalization. Understanding how international students perceive their educational experience can offer valuable insights for university administrators to refine strategies, address gaps, optimize resource allocation, and enhance student outcomes. The findings suggest that there are opportunities for the HEI to enhance its strategies and actions to create a more inclusive, diverse, and integrated curriculum, faculty, student support, and programs.

7. Practical Implications and Recommendations

The study provides empirical data and analysis toward a better understanding of the effects of perceived internationalization on student attitudes and outcomes. With the study findings and conclusions, HEIS need to direct more efforts toward further developing a more impactful and truly international learning environment. The study recommends that decision-makers address the areas students find challenging, including multilingualism in instruction and communication, inclusive academic and social programming, diversified faculty and pedagogy, and an internationalized physical learning environment. Administrators should align strategies to develop intercultural competencies among faculty, support personnel, and students. Most importantly, communication channels should be kept open, and dialogue with foreign students should be maintained to address their needs and support their academic and personal development.

8. Limitations and directions for future research

The study's scope limits its broader applicability. The sample size was small and was focused only on the international students. Exploring a more extensive and diverse sample of local and international students could provide a comparative analysis of their perceptions, satisfaction levels, and performance. This could lead to insights for interventions that enhance intercultural interaction and positive development among all students. Additionally, investigating other aspects of internationalization, such as personal orientation, could reveal how different perspectives on internationalization affect student perceptions.

9. Acknowledgement

This research work received funding from the Chiang Mai Rajabhat University Research Fund under Grant number 34/65.

Note

This article is an extended paper focusing on the impact of internationalization efforts on the outcomes of foreign students using path analysis. The questionnaire and primary data were adapted from the author's previous work:

Alcoba, R. C., La-ongsri, W., & La-ongsri, W. (2024). Same Same or Different?: Comparing Perceived Internationalization, Experiences and Satisfaction of Domestic and International Tertiary Students in Thailand. *Community and Social Development Journal*, *25*(2), 49–63. https://doi.org/10.57260/csdj.2024.266615

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Appendix A

Distribution of internationalization perceptions in absolute and relative frequencies, mean and standard deviation (n=124)

PERCEPTION OF INTERNATIONALIZATION	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean (Standard deviation)
Academic Factors						
The content in my courses is often illustrated with examples from, or applied to a range of cultural and international situations.	0	2	22	91	13	3.90 (0.58)
The content of my courses is presented from a range of different cultural and international perspectives.	0	6	25	84	13	3.81 (0.68)
I would prefer to study more about international issues than focus on Thai issues.	1	9	23	58	37	3.98 (0.89)
Assessment tasks in my courses are framed in international scenarios or require me to apply course materials or concepts to different cultural or international situations.	0	4	29	86	9	3.77 (0.61)
In my courses, we have been given a good introduction on how to work effectively in cross-cultural groups.	3	7	21	82	15	3.77 (0.82)
Group work in my courses provides a real opportunity to learn about different cultures and gain different perspectives about my area of study.	0	8	22	76	22	3.87 (0.76)
The teachers in my courses appear to have a deep understanding of how my discipline or profession operates in different cultures and countries around the world.	1	9	23	81	14	3.77 (0.77)
In my courses this year I have become aware of how culture, religion and values have influenced, or shaped my area of study.	1	8	27	78	14	3.75 (0.77)
I am aware of, or have had, the opportunity to include courses on language studies, country or culture studies or study overseas as part of my degree program.	5	5	22	77	19	3.78 (0.89)
There are teachers from other countries in my programme.	2	5	6	82	33	4.09 (0.79)
Programs or courses are delivered in English.	4	20	18	62	24	3.65 (1.06)
My programme prepares me to work in an international environment.	2	6	34	66	20	3.75 (0.83)
Academic staff encourage me to contribute relevant examples from my background experience in class discussions.	3	4	28	72	21	3.81 (0.82)
B. Organizational Factors						
University and college websites are available in different languages.	6	12	20	70	20	3.66 (1.01)
The library has a wide range of international texts.	4	12	39	60	13	3.52 (0.92)
Signs on campus are written in different languages.	5	14	23	80	6	3.53 (0.91)

Support staff is welcoming and open to international students.	1	5	11	79	32	4.06 (0.76)
Support staff can speak other languages besides Thai.	0	4	17	78	29	4.02 (0.70)
University looks international when you walk around.	9	14	32	61	12	3.40(1.04)
Social Factors						
There are good opportunities to participate in volunteer activities during my course.	7	4	38	66	13	3.56 (0.91)
I have good opportunities to socialize with people on campus from many different cultural backgrounds.	5	4	18	86	15	3.8 (0.83)
There are international activities and events that help home students and those from other countries to mingle.	6	11	21	77	13	3.62 (0.96)
I have good opportunities on my course to meet people from many different cultural backgrounds.	4	2	14	84	24	3.95 (0.80)
Socialising with students from other cultures/countries is part of my daily campus life.	3	6	25	80	14	3.75 (0.81)
The social environment on campus enables me to gain an understanding of different cultural and international perspectives of the world.	2	9	28	75	14	3.70 (0.81)
Sense of belongingness						
I have a strong sense of affiliation with my college/university.	5	8	38	70	7	3.51 (0.86)
I have been encouraged to develop my strengths and talents at my college/university.	2	9	14	83	20	3.85 (0.82)
I feel I am a part of a close and supportive community of colleagues and friends.	1	1	30	85	11	3.82 (0.62)
I am both challenged and supported at my college/university.	3	6	22	85	12	3.77 (0.79)
Discriminatory experiences						
I have felt insulted or threatened based on my cultural/ethnic background at my college/university.	30	43	28	21	6	2.46 (1.71)
Satisfaction						
I believe that my studies at University are giving me the necessary content knowledge, skills and perspectives to work effectively in overseas countries.	3	1	22	79	19	3.89 (0.76)
If you could start over again, would you go to the same institution you are now attending?	8	9	39	54	14	3.46 (1.01)
Overall, how satisfied are you with all aspects of your university/institution experience?	2	7	22	81	12	3.76 (0.77)
Student Performance						
What is your average grade earned in the last semester?	0	5	28	91	0	3.32 (0.55)

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31st JANUARY 2025

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Journal of Asian Public Policy

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/rapp20

Rethinking internationalization of higher education for society from an outside-in perspective

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To cite this article: Yuzhuo Cai & Betty Leask (02 Oct 2024): Rethinking internationalization of higher education for society from an outside-in perspective, Journal of Asian Public Policy, DOI: 10.1080/17516234.2024.2406093

To link to this article: https://doi.org/10.1080/17516234.2024.2406093

Published online: 02 Oct 2024.

JOURNAL OF ASIAN PUBLIC POLICY
https://doi.org/10.1080/17516234.2024.2406093

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Rethinking internationalization of higher education for society from an outside-in perspective

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ABSTRACT

Amid increasing criticism of the internationalization of higher education (IoHE) for its Anglo-centric tendencies, there has been discussion of the need to reconsider the rationales for and approaches to IoHE. Specifically it has been argued that there is an urgent need to focus IOHE more sharply on addressing the many complex and persistent issues faced by local and global communities. As part of the discussion, a new model of IoHE, 'internationalisation of higher education *for society*' (IHES) has been proposed by prominent scholars in the field. This paper seeks to make a positive contribution to the discussion of IHES. Our aim is to refine the concept by integrating an 'outside-in' perspective, a viewpoint currently missing from the existing conceptualization of IHES. The paper answers three unique research questions: 1) What are the implications of contemporary societal transitions for IoHE? 2) How can universities use their internationalization activities to more effectively facilitate societal transformations? 3) What are the implications of reforming the rationales of IoHE from the perspective of university–society relations? We highlight that collaborations in higher education between East Asian and Nordic countries offer an optimal platform to explore and promote the potential of a new paradigm of IoHE.

ARTICLE HISTORY
Received 1 February 2024
Accepted 16 September 2024

KEYWORDS
Internationalization of higher education for society; higher education; University; societal engagement; innovation ecosystem; sustainable development

1. Introduction

In recent years scholars have argued there is a need for change in approaches to the internationalization of higher education (IoHE). One of the rationales for change is the dominance of a narrow range of Anglo-centric worldviews in approaches to IoHE that privilege Western (and largely White) approaches to all three missions of universities, perpetuate global power relations and normalize inequalities through the suppression or exclusion of local and indigenous perspectives (Jones et al. (2021). Furthermore, because IoHE has historically privileged institutions in the Global North, and in particular, the

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higher ranked so-called 'world-class' universities, inequalities are exacerbated and the potential of some institutions to have a positive impact on their communities has been limited (Leask & De Gayardon, 2021, p. 324). While these authors speak from 'the West', scholars from Asia, South Africa and Latin America have also argued that in developing countries, IoHE is experienced negatively as colonization or Westernization (Guo et al., 2022; Heleta & Chasi, 2023; Majee & Ress, 2020).

Concurrently there have also been calls from a range of scholars to rethink IoHE, focusing on the *capacities* that universities require in order to maximize their contributions to society, highlighting not only the need for change but the challenges that will need to be overcome (Cai et al., 2022). Marginson (2022) argues that a comprehensive understanding of higher education within the global context is needed, in which higher education is approached as one component of an expansive global system, with the potential to foster global understanding and cooperation. Most recently, Hans de Wit (2024) observed the continued prevalence of a Western paradigm that reinforces Western-centric higher education, and the absence of theoretical frameworks that encompass broader socio-economic perspectives, as core challenges faced by those seeking to rethink IoHE. In summary, in recent years, despite increasing calls from scholars across the world for the development of new approaches to IoHE, progress has been slow.

The development of new approaches is made more difficult by the skewed perspectives built in to the Western-centric approach to IoHE manifesting as biases in university ranking systems that disproportionately favour the dominant paradigm and Western institutions while neglecting the diverse educational values and practices of other regions (Downing et al., 2021). The report of the 6th Global Survey *Internationalization of Higher Education: Current Trends and Future* highlights the wicked nature of this issue, finding that there is still a geographic imbalance at the global level in IoHE with regions in the Global North attracting the most attention and South-South cooperation still not considered a priority (Marinoni & Cardona, 2024). The scarcity of robust theoretical frameworks also hampers the inclusion of contemporary societal challenges such as Environmental, Social and Governance (ESG) issues into academic discussions and institutional approaches to IoHE. For example, even though achieving the Sustainable Development Goals (SDGs) requires international as well as local action, and they are a means of internationalizing the curriculum in higher education (Leask, 2023), they are rarely explicitly included in the internationalization strategies of institutions. It is against this background that de Wit (2024) advocates for research to precisely articulate IoHE's future role in modern society, moving away from the quest for a perfect definition.

To achieve de Wit's (2024) vision for the future of IoHE, research must broaden beyond its current focus, which is often limited to international collaboration in research, teaching, and the mobility of staff and students. This narrow scope might stem from Knight's definitions (Knight, 2003, 2008), which frame internationalization at specific levels within higher education, such as national, sectoral, and institutional. However, while van der Wende (1997) proposed a broader perspective in 1997, defining IoHE as 'any systematic, sustained effort aimed at making higher education (more) responsive to the requirements and challenges related to the globalization of societies, economy and labour market' (p. 19), it was only after de Wit et al. (2015) call to link the purpose of IoHE with meaningful societal contributions that international education researchers began to pay attention to the societal engagement aspect of IoHE. Other calls for change also highlight the difficulty of the task of 'rethinking' the dominant paradigm of IoHE. It has, for example, been argued that universities' engagements with society through their third mission are still today largely disconnected from the agenda of internationalization in terms of both practice and research (Balbachevsky et al., 2022a; Jones et al., 2021). Specifically, Jones et al. (2021) argue this lack of alignment between universities' third mission activities and their internationalization strategies, specifically, a tendency to be inwardly focused on how to gain a competitive edge in the international rankings, rather than externally focused on addressing diverse, complex and persistent issues in local and global communities. This resonates with their earlier call for a realignment of activities towards the 'internationalisation of higher education *for society*' (IHES, italics added) (Brandenburg et al., 2019a, 2019b).

How IHES may 'benefit the wider community, at home or abroad, through international or intercultural education, research, service and engagement' (p. 28) was further elaborated by Brandenburg et al. (2020) who identified three categories of societal goals – social justice, economic development and the public good. More recently, Jones et al. (2021) elaborated the concept further, arguing that it is important to conceptualize society and communities in a broad sense in order to expand and deepen the potential connections between IoHE and the global social responsibility agenda of higher education. They illustrate their point with typologies that suggest how various actors may engage with local and international communities.

Other scholars also address issues related to IHES while not explicitly using the term. For instance, in the EU – China context a study on the role of international university collaboration in building transnational university – industry co-innovation networks (TUICNs) provides both empirical evidence and theoretical insights that fundamentally relate to IHES (Cai, 2023b). Balbachevsky et al. (2022b) also describe a two-dimension typology for understanding the main drivers that shape the policies sustaining IHES (this will be further explained later in the paper). Their typology offers a new perspective on IHES by examining the *relations between* the four rationales for internationalization commonly acknowledged in the literature (Knight, 2004; Zha, 2003) – academic, cultural/social, economic, and political, rather than the more common approach of discussing each in isolation.

Collectively, these studies underscore a significant observation: while the IHES concept, introduced by Brandenburg et al. (2019a, 2019b), is gaining traction in the IoHE literature, it is predominantly discussed from within - that is by insiders from the field. Hence ironically IHES, which seeks to broaden perspectives, , has to date mainly been explored from an 'inside-out' viewpoint. This mismatch between the concept's outward-looking objective and its predominant exploration to date by field insiders is potentially limiting. It may restrict the re-imagination of IoHE both conceptually and practically and therefore limit the ways in which IHES might contribute to resolving contemporary issues and facilitate societal transformations.

In this paper, as insiders, we seek insights into IHES from an 'outside-in perspective'., an approach that incorporates viewpoints and insights from external stakeholders and broader societal contexts into the conceptualization and practice of IoHE. This contrasts with the traditional or predominant 'inside-out' approach in IoHE studies, where internationalization is primarily driven by the internal stakeholders and the goals and priorities of higher education institutions themselves.

Specifically, our outside-in perspective uses the concept of 'innovation ecosystems' from the field of innovation studies which highlights the interconnectedness of different actors, including universities, industry, government, and civil society. By applying this concept to IoHE, we can better understand and facilitate the roles of universities in driving societal transformation through internationalization activities. This may enable universities to better align their efforts with external societal needs for example, fostering sustainable development, social justice, and global cooperation while also responding to internal priorities.

Furtthermore, while there is extensive research on universities' pivotal roles in national/regional innovation systems and a general acknowledgement of the global interconnectedness within innovation ecosystems. However, there is a significant gap in our understanding of universities' international engagements in innovation ecosystems that transcend national borders (Cai, 2023b).

To bridge the gaps outlined above, this paper poses the following research questions: 1) What are the implications of contemporary societal transitions for IoHE? 2) How can universities use their internationalization activities to more effectively facilitate societal transformations? 3) What are the implications of reforming the rationales of IoHE from the perspective of university–society relations? We aim to address these questions through conceptual research, utilizing an outside-in perspective, drawing on innovation ecosystem insights to analyse and synthesize the literature related to IoHE.

2. The challenge of conceptual research and our approach

Researchers face challenges in writing conceptual papers due to a lack of methodological guidance. Jaakkola (2020) provides helpful suggestions on research designs for writing conceptual papers. While empirical studies draw on data based on people's experiences, the data for conceptual papers are in the literature, typically 'in the form of previously developed concepts and theories' (Jaakkola, 2020, p. 19). In this regard, a conceptual paper is similar to a literature review paper. However, a literature review is only a tool used to write a conceptual paper, not its ultimate goal (Jaakkola, 2020). Jaakkola also identifies two often interrelated goals of conceptual papers: 1) to conceptualize a focal phenomenon that is observable but not adequately addressed in the existing research and 2) to improve a particular concept, theory or research domain that is incomplete in some important respects. Among the approaches suggested by Jaakkola to achieve these goals, this research employs theory synthesis and theory adaptation approaches (Jaakkola, 2020).

According to Jaakkola (2020), in employing theory synthesis and theory adaptation, it is essential to distinguish between 'domain theory' and 'method theory', each bearing distinct roles in these methodologies. Theory synthesis aims to enhance an *underdeveloped* research area, called 'domain theory', by integrating insights from more established theories, termed 'method theory'. Theory adaptation involves starting with a relatively *well-established* theory or concept, such as 'domain theory' and applying fresh perspectives or novel insights, known as 'method theory', to refine or extend the domain theory's

Table 1. Domain and method theories in different conceptualization methods.

Method	Research questions	Domain theory	Method theory
Theory synthesis	1) What are the implications of contemporary societal transitions for IoHE?	The phenomenon - demands for IoHE arising from societal transitions	Core components in innovation ecosystems
Theory adaptation	2) How can universities use their internationalisation activities to more effectively facilitate societal transformations?	The IHES concept	A two-dimensional framework of 1) the core components in innovation ecosystems, 2) changing universities' societal engagement roles.
Theory adaptation	3) What are the implications of considering the rationales of IoHE from the perspective of university-society relations?	The rationales of IoHE	New perspective on university-society relations

conceptual scope (Jaakkola, 2020). The specific domain theories and method theories applied to answer the research questions are summarized in Table 1.

The theory synthesis approach is suitable for answering our first research question, which seeks to conceptualize a newly emerging phenomenon, namely IoHE as it responds to the evolving demands placed on it by significant societal shifts. To do this we use insights from authors such as Zheng and Cai (2022) who identified essential features of the transition from innovation systems to innovation ecosystems from a synthesis of relevant literature on interrelated concepts. Specifically, in this paper we use the theory synthesis approach to explore the implications of conceptualizing contemporary societal transformations as a transition from an innovation system to an innovation ecosystem for IoHE.

The theory adaptation approach is helpful in answering the second and third research questions. When answering the second question concerning the role of universities' internationalization activities in facilitating societal transformations, the IHES concept is expanded by integrating the outside-in perspective. This results in a two-dimensional framework that elucidates the role of universities in nurturing innovation ecosystems, which will be further elaborated in Section 4. In addressing the third question concerning new rationales of IoHE, we expand existing studies dealing with rationales of IoHE from the perspective of university–society relations, which will be introduced in Section 5.

In terms of identification of relevant literature in literature analysis, Jesson et al. (2011) differentiate between traditional and systematic methods. We opted for a traditional approach, which allows for a more subjective selection of significant contributions to the field, rather than the application of rigorous selection criteria as in a systematic review. Our extensive experience and ongoing engagement with the literature concerning IoHE and societal transformations bolster our confidence in this traditional approach.

3. New requirements arising in the transition towards innovation ecosystems for IoHE: bringing in an outside-in perspective

Understanding the demands for IoHE arising from contemporary societal transformations requires a deeper understanding of society itself, including an understanding of the features that characterize the societal transformation. Since the onset of the 21st century, several academic concepts have been developed to encapsulate and interpret the pivotal changes occurring in society. Notable terms like 'Knowledge-based Society 2.0', 'Globalisation 3.0', and 'Society 5.0' highlight the evolving versions of society. It has been argued that their essence is embraced by the transitions from innovation systems to innovation ecosystems (Cai & Lattu, 2022). Cai et al. (2020) describe innovation ecosystems as co-innovation networks. In these networks actors from organizations concerned with the functions of knowledge production, wealth creation and norm control interact with each other forming co-evolution and interdependent relations in cross-geographical contexts. This process results in the integration of new ideas and approaches from various internal and external sources and generates shared values for the sustainable transformation of society. Their definition of innovation ecosystems underscores three novel facets of interactions in co-innovation networks: cross-sectoral, transnational, and indirect interactions.

In Zheng and Cai's (2022) literature analysis comparing innovation systems and innovation ecosystems, the transitions from innovation systems to innovation ecosystems are highlighted as follows: 1) a shift from linear and closed innovation processes to non-linear and open innovation processes that involve multiple actors across boundaries and sectors; 2) a transition from a knowledge economy to a knowledge democracy or society, where citizens and users increasingly participate in and drive the innovation processes through bottom-up media and social action; 3) an integration of social, economic and environmental sustainability into the systems of innovation.

Zheng and Cai (2022) examine the key characteristics of innovation ecosystems across several core components: 1) innovation dynamics, 2) knowledge democracy/civil society, 3) the natural environment, and 4) the co-evolutionary and co-creative interplay between innovation dynamics, knowledge democracy, and the environment. These dimensions serve as the analytical framework or method theory to synthesize the relevant literature on IoHE. The objective is to unearth new IoHE imperatives prompted by the transition from conventional innovation systems to more intricate innovation ecosystems, thereby offering an outside-in perspective on IoHE. The outcomes of this analysis are summarized in Table 2 as new requirements for IoHE.

4. The role of IoHE in facilitating the development of innovation ecosystems: advancing the concept of IHES

Brandenburg et al. (2019a) describe the aim of IHES as 'to benefit the wider community, at home or abroad, through international or intercultural education, research, service and engagement'. When further elaborating on the IHES concept in a DAAD report, Brandenburg et al. (2020) identified 17 goals of IoHE for society in three categories based on analysing existing studies and a survey of DAAD participants. They put these goals in three categories: 1) Public goods, 2) Economic development, and 3) Social justice.

Table 2. Using the concept of innovation ecosystems to identify new requirements for IoHE.

Core components in innovation ecosystems	Key characteristics of innovation ecosystems in each component	New requirements for IoHE arising from the transitions towards innovation ecosystems
Innovation dynamics	• Innovations developed must be sustainable or socially responsible. • Both technological innovation and social innovation are fostered. • Participants in a place-based innovation gene, with enhanced adaptive ability, are increasingly interconnected with their counterparts in other innovation genes. • Actors in collaborations or interactions develop co-innovation networks in which indirect relations between actors become increasingly important.	• IoHE provides opportunities for meeting people, ideas and traditions that will establish the ground for innovation since crossing boundary interactions are key to innovation (Johnson, 2010). • IoHE disseminates a sustainability ideology – the belief that ultimate goal of societal development is a higher quality of citizens' lives (Appio et al., 2019). • IoHE builds networks that connect geographically based innovation systems, providing a foundation for innovation ecosystems (Carayannis et al., 2018; Sotarauta et al., 2016). • IoHE helps to create weak ties (indirect connections), which contribute to exploration of innovation processes (Barrie et al., 2019).
Knowledge democracy	• Social structures are being transformed in the shift from the industry 4.0 to industry 5.0:. While Industry 4.0 focuses on production, Society 5.0 puts human beings at the centre of innovation, taking advantage of the impact of technology and the results of Industry 4.0. Deeper technological integration results in an improved quality of life, social responsibility and sustainability (Carayannis et al., 2021, p. 13). • Sustainable innovation is fostered by a knowledge society or knowledge democracy in which there is a strong civil society, characterized by a media- and culture-based public. 'On the one hand, public reality is being constructed and communicated by the media and media system. On the other hand, the public is also influenced by culture and values' (pp. 218–219) (Carayannis & Campbell, 2009, pp. 218–219).	• IoHE helps to transmit social norms across national borders through international education and mobility. For instance, Brown and Stevick (2014) argue that teachers act as cultural ambassadors or agents of institutional isomorphism. • IoHE engaging in developing responsible global citizens (de Wit & Leask, 2017).

(*Continued*)

Table 2. (Continued).

Core components in innovation ecosystems	Key characteristics of innovation ecosystems in each component	New requirements for IoHE arising from the transitions towards innovation ecosystems
Natural environment	• Sustainable innovation is framed in the context of both civil society and the natural environment. • Due to growing environmental concerns, actors participating in innovation processes take on global responsibilities through cross-border collaborations. • Sustainable innovation helps to avoid or resolve environmental challenges.	• Optimizing models of IoHE to lessen its environmental costs (Nikula & Gaalen, 2022) and developing new models (de Wit, 2024). • Teaching and research activities in IoHE include a focus on developing innovative solutions to environmental challenges (Kim et al., 2022). After all, addressing global environmental crises requires international collaborations (Hui & Fangqiu, 2012).
Co-evolution/co-creation relations between innovation dynamics, knowledge democracy and the natural environment	• Innovation genes, social structure and the environment influence one another in the processes of value co-creation and co-evolution. In co-evolutionary processes, key actors in innovation ecosystems must constantly adjust to adapt to environmental changes and create value.	• IoHE focused on developing co-innovation networks with partners/collaborators from other sectors (Cai, 2023b).

Building on this work, Jones et al. (2021) present a typology of IHES initiatives that distinguish between the roles of different actors in promoting global social responsibilities through a universitys' international activities. The actors discussed are 1) Academics, 2) Administrative support staff & librarians, 3) Students, 4) University – community partnerships and 5) University – business partnerships (Jones et al., 2021).

While these studies offer a comprehensive view of how universities can benefit society through internationalization, they do not explore the current or potential role of IoHE in societal transformation. In this paper we seek to do this by exploring how IoHE might contribute to the development of innovation ecosystems. Specifically, we seek to better understand the new roles universities could play in facilitating the development of innovation ecosystems through their internationalization activities employing the approach of theory adaptation.

The insights underlying our method theory or new perspectives were obtained through the development and application of a two-dimensional framework consisting of the four core components of innovation ecosystems (described in Table 2) and changes to the societal engagement roles of universities resulting from the transition from innovation systems to innovation ecosystems identified by Cai and Ahmad (2023) namely:

(1) Knowledge flow – universities are transitioning from primarily being knowledge producers for technology transfer, to now serving as anchor organizations fostering knowledge exchange.
(2) Collaborations – in their interactions with various innovation actors, universities are evolving from fostering reciprocal collaborations with industries and governments, to engendering trust among collaborators within innovation ecosystems.
(3) Social responsibility – in their role in wider societal development, universities are moving from merely satisfying societal needs, to actively shaping a more desirable future society.

Using the two-dimensional framework as a lens, we synthesize recent studies that explicitly address IHES or issues related to this concept. This analysis leads to Table 3, where we describe new roles of universities in facilitating the development of innovation ecosystems through internationalization activities. A better understanding of the demands on IoHE arising from societal transformations towards innovation ecosystems may assist universities to better perform their three evolving societal engagement roles through their internationalization activities.

5. Paradigm changes in IoHE: a new perspective on rationales for IoHE

In the past 20 years various studies identified rationales for IoHE and among those, the four rationales, i.e. academic rationale, cultural & social rationale, political rationale and economic rationale, explicitly proposed by Knight (2004) and Zha (2003), are commonly acknowledged in the literature. While the academic rationale and cultural/social rationale are always intertwined, the political and economic rationales often interact with each other (Hans de Wit, 1999). The descriptions of the four rationales and their influences on IoHE from a historical perspective are shown in Table 4.

Table 3. New roles of universities facilitating the development of innovation ecosystems through internationalization activities.

Changing roles of universities in facilitating innovation ecosystem development	The four core dimensions of innovation ecosystems			
	Innovation dynamics (technology and social innovations)	Knowledge democracy (Civil society)	Natural environment	Co-evolution/co-creation relations
From knowledge transfer to knowledge exchange	Serving as anchor organisations for ideas, people and traditions to meet, which contribute to innovations (Cai, 2023b).		Developing new/green models of IoHE in collaboration with partners (Baer, 2022; Nikula & Gaalen, 2022).	Approaching co-research models as collaborative boundary crossing which invites negotiating and downplaying existing boundaries (Langley et al., 2019) to overcome barriers to change and innovation in IoHE (Whitsed et al., 2024).
From developing reciprocal collaborations with partners from other sectors to building trust among actors in the networks.	Matching suitable collaborative partners in other sectors and building trust among them (Cai, 2023b) Involving stakeholders across different actors in IoHE for the purpose of social innovation (Brandenburg et al., 2020; Jones et al., 2021).	Understanding that universities have a responsibility to contribute to the creation of dynamic and sustainable global communities, no less caring for human values than the pursuit of material wealth (Escrigas et al., 2014).	Providing innovative solutions to environmental challenges through international academic collaborations (Kim et al., 2022).	Enhancing the reputations of international companies in their cooperation countries (Cai, 2023b) Developing transnational university-industry co-creation networks (Cai, 2023b; Cai et al., 2019)
From meeting society's needs to shaping future society through changing social norms.	Triggering normative changes concerning the enhancement of sustainability ethos through international exchange (Appio et al., 2019). Leveraging technology to provide more environmentally sustainable approaches to internationalising the curriculum (Brewer & Leask, 2022)	Raising awareness of critical global and multicultural issues challenging dominant discourse (Jones et al., 2021). Developing global citizens by enhancing tolerance and intercultural understandings (Brandenburg et al., 2020; Nikula & Gaalen, 2022). Fighting radicalisation and preserving peace (Brandenburg et al., 2020). Rethinking IoHE as a means to create a more equitable and just future for all (Heleta & Chasi, 2023)	Supporting the environment and sustainability (Brandenburg et al., 2020). Developing essential skills to solve the climate crisis (Nikula & Gaalen, 2022).	Becoming an engine of innovation ecosystems (Cai, 2023b).

Table 4. Four rationales of IoHE predominantly discussed in the IoHE literature.

Rationales	Descriptions	Influences on IoHE from the historical perspective
Academic	To pursue international academic standards	Dominant since the Middle Ages
Cultural & social	To preserve and promote national culture	Dominant since the Middle Ages
Political	To enhance a nation's global position and exercise soft power	Emerging since the colonial expansion especially important in the time when geopolitics are important in policy discourses.
Economic	To meet the demands for economic development	Becoming dominant in the modern period (when entering industrial societies)

Source: Synthesis of relevant literature (Knight, 1997, 2004; Knight & de Wit, 1995; Yang, 2002; Zha, 2003).

Table 5. Typology for rationales of IoHE in terms of its alignment with political and economic agendas.

		Alignment of IoHE with drivers of *political* cooperation	
		High	Low
Alignment of IoHE with drivers of *economic* cooperation	**High**	I: IoHE for societal engagement	II: IoHE for attracting global talent
	Low	III: IoHE for soft power	IV: IoHE for institutional reputation

Source: Adapted from Balbachevsky et al. (2022b).

Current studies mainly juxtapose these rationales in analysing IoHE, with little attention to exploring the links between them. While IHES requires aligning the rationales, the authors proposing the concept have not discussed how the rationales are associated with each other. To fill the gap, Balbachevsky et al. (2022b) developed a framework of policy logics of IoHE, which aligns the academic/cultural rationales with economic and political rationales, respectively. The framework is based on a two-dimensional typology. The first dimension refers to the degree of alignment between policies for IoHE and the national drivers of international political cooperation. The second dimension is the alignment between policies for IoHE with the national drivers of international economic cooperation.

According to Balbachevsky et al. (2022b), depending on the extent of alignment on both dimensions, four types of IoHE are identified (Table 5). First, when IoHE aligns with both political and economic cooperation drivers, there is a broad societal engagement in higher education (IoHE for societal engagement). Second, if driven mainly by economic factors with minimal political connection, the focus of internationalization is on attracting global talent and advancing knowledge (IoHE for attracting global talent). Third, when national political cooperation goals predominantly shape IoHE, internationalization serves to enhance the country's soft power in the local region or more broadly (IoHE for soft power). In the fourth scenario, where IoHE does not align with the country's international economic or political strategies, the primary aim is to boost the global reputation of the nation's higher education institutions (IoHE for institutional reputation).

Table 6. Three paradigms in IoHE.

Paradigms in IoHE	University-Society relations	Rationales
IoHE 1.0	Universities as mirrors of society	IoHE is driven by four rationales, namely 1) academic, 2) cultural & social, 3) economic and 4) pollical (reflected in Table 4). Through responding to the drivers, IoHE reflects a miniature version of society.
IoHE 2.0	Universities as servants of society	IoHE is driven by four rationales, namely 1) IoHE for societal engagement, 2) IoHE for attracting global talent, 3) IoHE for soft power, and 4) IoHE for institutional reputation (reflected in Table 5). These rationales integrate, to varying extents, the rationales in IoHE 1.0. Through aligning the rationales, IoHE better serves the society.
IoHE 3.0	Universities as shapers of society	IoHE is driven by the rationale of sustainability, which includes economic, social and environmental pillars. Essentially, this reflects that the traditional rationales of IoHE (i.e. in IoHE 1.0) have been transformed and integrated with an enhanced sustainable dimension. Through transforming the rationales, IoHE shapes future society.

Source: The authors.

We further conceptualize the rationales of IoHE using Pinheiro and Cai's (in press) perspectives on three kinds of university–society relations, namely universities as *mirrors*, *servants* and *shapers* of society. Specifically, we propose three paradigms of IoHE that are associated with the three university–society relations, respectively (Table 6).

In IoHE 1.0, academic, cultural, economic and political rationales drive internationalization strategy and activities in universities (Knight, 1997, 2004; Knight & de Wit, 1995; Yang, 2002; Zha, 2003). In IoHE 2.0, the four traditional IoHE 1.0 rationales are integrated into four society-focused rationales, IoHE for societal engagement, IoHE to attract global talent, IoHE for soft power, and IoHE for institutional reputation (Balbachevsky et al., 2022b). There is hence a degree of alignment between IoHE 1.0 and IoHE 2.0. In paradigm 3.0, IoHE is underpinned by a sustainability rationale with economic, social and environmental dimensions. This approach transforms the traditional rationales of IoHE 1.0 by embedding a stronger emphasis on sustainability into the mission of universities.

Our elaboration of IoHE 3.0 draws support from the following three recent studies.

Cai and Ahmad (2023) study, 'Towards a New Model of EU-China Innovation Cooperation', explores the significant role of international university collaborations in reshaping the academic, economic, and political landscapes of higher education through the creation of TUICNs. This research posits that international university collaboration plays a pivotal role in redefining the academic, economic, and political justifications for IoHE. Fostering TUICNs, pushes academic endeavours beyond their conventional limits, promoting a more applied, inter-sectoral and interdisciplinary approach. Economically, these partnerships position universities to meet industry demands, facilitating technology transfer, innovation, and entrepreneurial initiatives that bolster global economic growth and competitiveness. Politically, international collaborations can enhance diplomatic and cultural exchanges between nations, aligning with higher education institutions' strategic goals to fulfil national and international policy agendas. This implies that international university collaborations transform the core purpose and objectives of higher education in a globalized setting, ensuring a balance between academic integrity, market applicability, and political diplomacy.

In the editorial of a special issue on 'Environmental Sustainability and Internationalization in Higher Education', Proctor and Rumbley (2023) (explore the increasingly intertwined realms of internationalization in higher education and environmental sustainability, consistent with IoHE 3.0. The paper stresses the critical need for immediate action in light of the ongoing climate crisis and environmental degradation. It showcases how the sphere of international education is progressively integrating sustainability into its core mission, with a specific focus on areas such as carbon footprints, air travel, sustainability rankings, and the pivotal role played by professional associations. This evolution signifies a shift in the foundational principles of higher education internationalization, moving beyond traditional academic, economic, and political motivations to embrace broader goals such as advancing the achievement of the sustainable development goals (SDGs) and the application of environmental, social, and governance (ESG) considerations, thereby redefining its primary objectives and functions on a global scale.

Another example of the shift towards IoHE 3.0 is reflected in Cai and Ahmad's (2023) exploration of the sustainable entrepreneurial university concept in which they argue that within innovation ecosystems, sustainability encompasses not just environmental aspects but also economic and social dimensions (Elkington, 1998). Their discussion illuminates how the SDGs are woven into the foundational missions of universities – spanning education, research, and societal engagement. This approach not only broadens the sustainability discourse within academia but also enriches the internationalization efforts of these institutions.

It should be noted that the three paradigms of IoHE that we propose are ideal types. An 'ideal type' is an analytical construct developed by Max Weber to exaggerate certain aspects of reality, creating a clear and exaggerated model embodying the most significant characteristics of a social phenomenon, commonly used for comparative purposes (Swedberg, 2018). The three ideal types of IoHE we describe will likely overlap and coexist in different ways through the transition period. Currently, IoHE is shifting from IoHE 1.0 to IoHE 2.0; IoHE 3.0 is emerging and the transition towards IoHE 3.0 may take place at the same time as the transition from IoHE 1.0 to 2.0. While promoting IoHE 3.0, we don't mean that IoHE 3.0 will replace IoHE 2.0 and IoHE 1.0. Rather, we anticipate that the three paradigms may coexist, with IoHE 3.0 progressively becoming the more prevalent model over time.

In this context, we identify two intertwined norms of IoHE: one is *internationalisation as westernisation*, and the other is *internationalisation for a sustainable planet* (or innovation ecosystems). The first is rooted in 'Western supremacy', which 'positions Western higher education as a desirable product in the global higher education market and at the same time underlies the racist reception of many international students by their faculty and peers' (Stein & De Andreotti, 2016, p. 226). The second norm, *internationalisation for a sustainable planet,* is not yet a fully developed norm, although there is clear evidence of its emergence and its potential to shape future society (Zheng & Cai, 2022).

6. Discussion

A pivotal argument underlying the re-conceptualization of IoHE from the outside-in perspective is that the emerging IoHE 3.0 model holds the promise of being more inclusive and equitable compared to the prevailing Anglo-centric framework. Indeed, we stand with those critics who question the Western-centric focus of IoHE, yet we also acknowledge the complexities and potentially insurmountable challenges involved in relinquishing the dominance of Western perspectives in modern higher education. This phenomenon can be understood through the concept of 'institutional isomorphism' (DiMaggio & Powell, 1983), especially when applied to global higher education systems (Cai, 2023a). As posited by DiMaggio and Powell (1983), uncertainty often sparks processes of imitation and copying, as entities search for seemingly legitimate and successful solutions elsewhere. Thus, in an attempt to alleviate uncertainties about future development, nations may look to imitate those perceived as successful (Cai, 2023a). Indeed, the realm of contemporary societal development, inclusive of education, is laden with uncertainty, and the Western approach to higher education is still widely regarded as the epitome of success (Altbach & Reisberg, 2018; Marginson & Xu, 2023).

Nevertheless, IoHE 3.0 has the potential to resolve a fundamental problem mentioned at the outset of the paper – that Western supremacy tends to perpetuate global power relations, normalize inequalities, and minimize the potential contribution of cultural diversity, as well as indigenous knowledge (Jones et al., 2021). If the rationale behind IoHE is to support societal development, the actors engaged in IoHE are unlikely to escape from Anglo-centric worldviews. This is because, for those countries in the global south, development means engaging with the West, meeting Western standards, 'catching up with' Western countries (Yang, 2022).

IoHE 3.0 will not eventuate, however, without policymakers, practitioners and participants of IoHE thinking about higher education differently and orienting their own thinking towards the long-term future of society and how to secure that through a focus today on creating a sustainable, 'nature positive' planet. A planet where species and ecosystems are regenerating rather than being in decline and in which universities, through international collaboration and exchange, develop and disseminate sustainability-based social norms. IoHE 3.0 requires the engagement of scholars and students in the social sciences and humanities as well as the sciences and a focus on the internationalization of teaching and learning as well as research and service.

In advocating for IoHE 3.0 as a means for higher education to contribute to a more positive future, it is essential to recognize that the journey towards this vision is not uniform. Challenges differ across countries and regions. Presently, IoHE literature predominantly focuses on the disparities and interactions between countries in the global north and the global south. However, in this paper we have identified more nuanced distinctions and dynamic interactions which highlight the importance of understanding the evolution of IoHE worldwide (and IoHE as one of its components) as an aspect of modernization (Yang, 2014).

Levy (1972, p. 6) categorizes countries into three groups based on their modernization trajectories: 1) Early adopters who gradually established modern patterns without pre-existing models; 2) Numerous countries, particularly in Europe, that had strong ties with these early adopters during their developmental phase; 3) Latecomers who were minimally exposed to the early adopters' modern paradigms until these were firmly in place. Among the latecomers, a distinction can be made between nations colonized by the West and those that remained relatively autonomous (Pinheiro & Cai, In progress), for comparing universities' roles in the modernization process.

According to this framework, exploring international collaborations between Nordic and East Asian countries within higher education presents a unique and valuable avenue for deepening IoHE research. Nordic countries, with their distinct characteristics, resemble modernization adopters' neighbours more than being direct adopters themselves, unlike nations such as France, the UK, and the US. Meanwhile, East Asian countries offer a distinct perspective, having largely avoided direct Western colonization, unlike many regions in the Global South. This juxtaposition of regions also provides a rich comparative basis for understanding diverse approaches to higher education internationalization and its impact on developing innovation ecosystems.

7. Conclusion

This conceptual paper connects to existing theories and concepts of IoHE, particularly the IHES concept, and integrates insights from recent literature beyond conventional international education discourse. It argues that for IoHE to better serve society, a nuanced understanding of the modern societal context and the innovation ecosystems that are shaping its future are essential. Using the core characteristics of innovation ecosystems, we have highlighted important new demands for higher education systems and institutions and those who work with and within them. Furthermore, the paper identifies the symbiotic nature of the relationship between innovation ecosystems and internationalization activities. Central to our argument is the notion that IoHE not only serves societal needs but also plays a pivotal role in shaping the future societal landscape. Finally, from the perspective of university–society relations, we outline three co-existing but unequal paradigms of IoHE.

Our innovative conceptualization of IoHE, approached from an outside-in perspective, offers scholarly value in two main respects. Firstly, it connects two distinct yet related fields of study: 1) the role of IoHE in serving societal needs and 2) the transition towards innovation ecosystems and their impact on universities. This fusion of literature opens up fresh theoretical insights into IoHE, particularly regarding IHES. Secondly, the conceptual frameworks developed in this study fill two notable research voids within IoHE scholarship. The first gap concerns the predominance of Western-centric models, necessitating novel approaches that transcend these limitations. The second gap pertains to the underdeveloped theoretical foundation concerning the interplay between IoHE and societal transformations.

The study also carries practical implications. By illuminating the impact of innovation ecosystems on IoHE, explicating IoHE's roles in fostering innovation ecosystems, and identifying three IoHE paradigms, we have expanded the practical possibilities available to policymakers and practitioners in IoHE. This understanding could significantly contribute to the dynamic development of IoHE, ensuring it aligns with broader reforms in higher education and societal transformations.

It is important to recognize that the conceptual framework outlined in this paper primarily emerges from synthesizing existing literature, grounded in logical reasoning and analytical processes. Consequently, the proposed conceptual model is to some degree speculative. To test and refine the model, empirical research across diverse contexts is essential. Empirical studies might, for example, apply and test the analytical frameworks proposed by the paper, including the IoHE paradigms, the rationales of IoHE

3.0 and societal requirements for IoHE within innovation ecosystems in different national and global contexts. They might also test the ways in which IoHE currently facilitates the development of innovation ecosystems and evaluates their efficacy. Such investigations are important not only to validate the framework but also to stimulate innovation in IoHE practices and identify new pathways for scholarly inquiry and research in the field.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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"Exploring the dynamics and significant impacts of Internationalization on Higher Education"

TITLE	SOURCE
9) Academics' beliefs regarding the importance of Curriculum Internationalization in the Ethiopian Research Universities (2024)	CELL PRESS (Article From : HELIYON)

31st JANUARY 2025
SOURCE: PERPUSTAKAAN UTM

Heliyon 10 (2024) e29537

Contents lists available at ScienceDirect

Heliyon

journal homepage: www.cell.com/heliyon

Research article

Academics' Beliefs Regarding the Importance of Curriculum Internationalization in the Ethiopian Research Universities

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ARTICLE INFO

Keywords:
Academics
Beliefs
Curriculum Internationalization
Research Universities
Ethiopia

ABSTRACT

This study set out to investigate the beliefs of academics regarding the importance of curriculum internationalization in Ethiopian research universities. A convergent-parallel mixed-method design was used to achieve this purpose. Quantitative data was gathered from 415 randomly chosen academics taken from a sample frame of 6808 through a questionnaire. Using a semi-structured interview, 16 purposefully chosen individuals provided qualitative data. The questionnaire's construct, face, content, and pilot test validity were examined. Moreover, triangulation, use of multiple methods, external audits, and low inference descriptors were employed for the qualitative instrument. Descriptive statistics (frequency, percent, mean, and standard deviation) and inferential statics (Chi-square, Cramer's-V test, and one-way ANOVA) were used to examine the quantitative data. Bell's "Spectrum of Acceptance of Internationalizing Curriculum," integrated with Ellingboe's "Great Divide," was used to identify the positions of the academics in their beliefs. The qualitative data was analyzed using descriptive statements and presented thematically based on research questions. Hence, major findings revealed that academics' representations based on their demographic variables were not as expected; their variation was practically not significant among universities; the majority of academics had crossed Ellingboe's "Great Divide"; significant differences among disciplines and/or universities were not observed in this study. *Finally, urging academics to actively integrate international perspectives into their curricula, elevating curriculum internationalization of higher education to a national priority, and undertaking extensive national research emerged as key recommendations for the Ethiopian Research Universities, Ethiopian Ministry of Education, and future research endeavors, respectively.*

1. Introduction

We nowadays consider those who were once distant to be our neighbors, coworkers, and pupils since we live in a globalized world. This occurred as a result of "Globalization" [1]. Globalization, as [2] noted, inherently has its own positive and negative impacts. Hence, universities are expected to respond and react to these effects of globalization. Because of this, universities are being called upon more and more to prepare students for global labor markets and societies. As a result, many have incorporated intercultural and

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https://doi.org/10.1016/j.heliyon.2024.e29537
Received 22 August 2023; Received in revised form 5 April 2024; Accepted 9 April 2024
Available online 13 April 2024

international knowledge systems into their work, a practice known as "internationalization" [3–5].

Hence, at this time, internationalization is on the agenda of many nations [6–8]. The reason is that it is one of the main factors influencing and molding higher education as it changes to meet the demands of the 21st century. Since internationalization is an emerging concept, different scholars define it in different ways. However, according to Refs. [3,9] offered the definition of internationalization that is currently most widely used. The process of incorporating an international, intercultural, or global component into the goals, operations, or delivery of post-secondary education is what [3] defines as internationalization [3,9,10]. As [10,11] defined internationalization of higher education as "the intentional process of integrating an intercultural, international, or global dimension into the purpose, functions, and delivery of post-secondary education in order to enhance the quality of education and research for all students and staff and to make a meaningful contribution to society".

As noted by Ref. [8], for a long time, internationalization was mostly related to enrolling international students and sending domestic students abroad; however, this idea is currently being questioned. Currently, a new area of internationalization focus being advocated on a global basis is curriculum internationalization [12]. As [13,14] argued, despite these conventional pathways, curriculum internationalization could be a comprehensive model to guarantee that all students have opportunities to be exposed to a global and intercultural learning environment and foster their intercultural competence. The definition of curriculum internationalization, according to Ref. [1], is "the incorporation of international, intercultural, and/or global dimensions into the content of the curriculum as well as the learning outcomes, assessment tasks, teaching methods, and support services of a program."

Today, academics and decision-makers around the world are becoming more interested in how much a university education can produce in terms of employable graduates in the competitive marketplace of the twenty-first century [15,16]. According to Ref. [17], one of the issues is that graduates from present university programs lack the professional and lifetime learning skills necessary to thrive in the competitive and evolving workplace. Numerous academics have offered their own empirical findings in response to this worry [18–20].

Therefore, Ethiopia is not an outlier in the global movement to support and give priority to curriculum internationalization (CI). However, studies on Internationalization of Higher Education (IoHE) are rare, and studies on CI are equally rarer, as far as the researchers know. Three published articles and one unpublished study about Ethiopia's internationalization of higher education were found by the researchers. "Internationalization of Higher Education in Ethiopia: Evidence from Public and Private Institutions" is the topic of one study [21]. This study focused on the main features, justifications, advantages, frameworks, laws, and regulations, as well as the dangers and obstacles associated with internationalization in Ethiopian Universities. "Internationalization of Higher education and Research in Ethiopia: Considerations for Institutional Strategy" was the topic of the second research [22]. This study concentrated on institutional means of enhancing the global characteristic of research within the larger context of IoHE [23]. conducted a third study titled "Internationalization of the Higher Education System in Ethiopia: A Review of Education Policies and Strategies". This research examined the potential role that national education policies and initiatives could play in assisting Ethiopia's higher education institutions (HEIs) in becoming globally integrated. "Internationalization of Ethiopian Higher Education: Towards Policy Framework" was the topic of the fourth study, which was unpublished and supported by the Higher Education Strategy Center (HEAC), a division of Ethiopia's Ministry of Education [24]. The main goals are to assess the state of internationalization at the moment and develop a plan of action and policy framework to open doors and facilitate the country's higher education system's internationalization.

Based on the domestic studies mentioned above, it is apparent that the subject of this study has either been given limited attention or remains underexplored within our context. Notably, the researchers were unable to identify any independent study specifically addressing curriculum internationalization. Nevertheless, it is crucial to highlight that the Ethiopian university training policy strongly underscores the significance of internationalization and collaboration in the discourse surrounding Ethiopian university training and education. Thus, it is these gaps that trigger researchers to investigate and contribute to filling the theoretical and practical gaps via examining academics' beliefs regarding curriculum internationalization in Ethiopian Research Universities. As a result, this study differs from previous domestic and/or international studies in that it focuses on (a) views of academics in postsecondary education, (b) curriculum internationalization (CI), (c) academic staff, and (d) more than one institution or disciplinary case study, which many of the studies of CI to date have not. In order to analyze the aforementioned gaps, the following fundamental queries were raised in this study:

1. What is the representation of academics in the selected universities in terms of demographics, experience, and qualifications?
2. Was there a significant difference between these universities in terms of these demographic variables?
3. What are the academics' beliefs in Ethiopian Research Universities about the importance of curriculum internationalization in their disciplines?
4. Are there any substantial differences in academics' beliefs about IoC among disciplines in one institution or in the same discipline at different institutions?

In conducting this research, it can add to the corpus of knowledge by shedding light on academics' beliefs regarding curriculum internationalization. This can help inform educational policymakers, curriculum developers, and university administrators about how to include global and intercultural viewpoints and methods into the curriculum. In addition, the study's emphasis on Ethiopian research universities contributes to the scant body of work on the subject in Ethiopian contexts. By examining the unique challenges and opportunities faced by these institutions, the study can provide context-specific recommendations and strategies for fostering curriculum internationalization in Ethiopian research universities.

Overall, the study's contribution lies in its potential to enhance our understanding of the importance of curriculum internationalization and its implications for Ethiopian research universities, which can ultimately lead to the improvement of educational practices and the preparation of globally competent graduates.

2. Methods

2.1. Design and Methods

This research adopted a pragmatic paradigm as its philosophical basis to have a complete understanding of the issue under study. Based on this, the design used was a Convergent Parallel Mixed Methods Design. According to Ref. [25], the design is the most well-known of the basic and sophisticated mixed-methods techniques. Both the qualitative and quantitative data were gathered concurrently in this design, but they were examined independently. Then, information from both analyses was combined and was reported side by side to answer each research question. The interpretation brings both pieces together to describe how the findings from the two different methodologies either support or contradict each other [26]. By using this, the extent and depth of the information are increased, and the validity and reliability of the study's data and conclusions are increased [27].

The target population of this study was the academic staff of eight research universities as differentiated by Ministry of Education of the Federal Government of Ethiopia (FDRE) [28]. The reason is that, because CI is a new global practice, the selected universities may be assumed to have more exposure and experience than others in their level of involvement in internationalization as measured by joint research projects, expatriate staff, staff mobility, student exchange, and curriculum internationalization as criteria for selection [21,24,29]. These universities are: Addis Ababa, Haramaya, Jimma, Hawassa, Arba Minch, Bahir Dar, Gonder, and Mekelle [28]. Their total population was 15,710, of which the sample frame was 6808 [30–37]. However, since there was security problem in the area at the time of the study, Mekele University was not included in it.

2.1.1. Quantitative method

For this study, four universities were taken as a sample by using a simple random sampling technique (lottery system). These universities were: Addis Ababa, Bahir Dar, Hawassa, and Jimma. In addition, it is also impossible to handle the total population of the four selected universities. This is due to practical reasons such as time and budget. Hence, the academic disciplines of a sampling frame were determined first based on [38–40] clusters of disciplines. These disciplines were divided into four categories: soft/applied (like psychology, law, business & economics), soft/pure (like history, media & communication, and art & design), hard/pure (like science), and hard/applied (like engineering, medicine, and pharmacy). This categorization of disciplines is essential for answering the fourth research question of this research.

Next, "a formula and published tables were used to determine the sample size" [41]. In light of this, a formula and a table that was constructed using this formula were used for this study [42]. It was used for two reasons: (a) Even though it was old [43], recommended it because of its ease of reference; (b) [44] proved that the sample size suggested by Ref. [42] calculation was large in comparison with [45]'s statistical power analysis.

The formula is:

$S = X^2NP\ (1\text{-}P)/\ d^2\ (N\text{-}1) + X^2P\ (1\text{-}P)$, where:

S = required sample size.

X^2 = the table value of chi-square for one degree of freedom at the desired confidence level.

N = population size.

Table 1
Populations and samples taken from the four universities and clusters of disciplines.

S·N.	Universities	Cluster	Population*	Sample	Sampling technique
1	Addis Ababa	Hard/Pure	273	18	Proportional Systematic Random Sampling
		Hard/Applied	481	32	
		Soft/Applied	446	29	
		Soft/Pure	467	31	
		Total	1667	110	
2	Jimma	Hard/Pure	175	12	
		Hard/Applied	1107	73	
		Soft/Applied	298	20	
		Soft/Pure	194	13	
		Total	1774	118	
3	Bahir Dar	Hard/Pure	327	22	
		Hard/Applied	829	55	
		Soft/Applied	355	23	
		Soft/Pure	245	16	
		Total	1756	116	
4	Hawassa	Hard/Pure	232	15	
		Hard/Applied	978	65	
		Soft/Applied	251	16	
		Soft/Pure	150	10	
		Total	1611	106	
Total			**6808**	**450**	

Note. * = Did not include technicians, assistant graduates, study leaves, or sabbatical leaves Source: [46–49].

P = population proportion (assumed to be 0.50 since this would provide the maximum sample size).
d = degree of accuracy expressed as a proportion (0.05).
According to this formula, the determined sample size was:

$$S = 3.84 \times 6808 \text{ X } .5\,(1-.5)/\,(.05)^2(6808-1) + 3.84 \times .5\,(1-.5) = \mathbf{364}$$

As [41] pointed out, these calculated sample sizes, which are frequently increased to account for non-responses, represent the number of responses rather than the number of surveys mailed. This led to an increase in the study's sample size to 450. Additionally, the sample size was verified by the use of various online sample size calculators, such as the Bukhari Sample Size Calculator and Raosoft.com [43].

Then, in order to have equal representation of samples from each of the four universities and clusters of disciplines, their sample sizes were proportionally determined. Finally, using the systematic simple random sampling technique, each respondent from each discipline was selected. Hence, the sample sizes for each category were calculated as follows:

$n_k=(N_k/\ N_T)Xn_T,$ or $n_k=(n_T/N_T)$ X N_k

Where, n_k = sample size for the kth university.
N_k = population size for the kth university.
N_T = total population size.
n_T = total sample size of the study.
Based on this, Table 1 shows the populations and samples drawn from each of the four groups.

2.1.2. *Qualitative method*

For the qualitative part of this study, participants were selected using a purposive sampling technique [27,50,51]. Hence, academic directors, department heads, program coordinators, and senior academics participated in this study. In a nutshell, four participants, one from each category of discipline at each sample university, purposefully chosen since they have significant responsibilities in CI at various levels. Thus, a total of 16 participants were interviewed.

2.1.3. *Ethical considerations*

It is imperative for educational researchers to consider the impact of their work on research participants, and to act in a way that upholds their human dignity. To do this, the required ethical issues were taken into account at every stage of the research. The Institutional Research Ethics Review Committee (IRERC) at Rift Valley University gave its approval for this (ref. no IRERC/013/2022, date March 15/2024). In doing this, at the onset, an official letter (with a reference number of Hu-AECD-1-011/22, date March 21, 2022) was written from the host university to the selected universities for their cooperation in data collection. Then, based on the permission of these selected universities, participants were fully informed of the purpose, procedures, risks, benefits, anonymity, and confidentiality of the study. The researchers also informed the participants about their rights to participate and to withdraw from the research at any time, and that withdrawal would have no negative consequences for them. The participants were numbered, and the numbers were used during the interviews, data analysis, and presentation to guarantee the confidentiality of the interviewees. The format of the questionnaire did not provide any information for the identification of the participants. However, the participants were not voluntary to give their consent in written form. Their justification for this was that as far as they were not identified on the survey and interview guide, they did not want to give their consent in any written form.

In short, this study has kept an eye on the possible ethical considerations available during design, data collection, analysis, and interpretation.

2.1.4. *Data collection instruments*

A questionnaire was utilized to collect quantitative data for this study, while an interview guide was used to collect qualitative data. These various methods of data collection complement one another and may therefore improve the reliability and validity of the results [52,53].

2.1.4.1. Quantitative data. Questionnaire: The questionnaire for this study was adopted from Bell's four levels of academics' positions along the Spectrum of Acceptance of Internationalizing Curriculum [54]. For each of the four level major scales, a 5-point Likert scale items were used to identify academics' beliefs on the relevance of internationalizing the curriculum within their disciplines. The questionnaire has got two major sections. The first section has a total of nine items asking for the respondents' demographic characteristics and their international and intercultural experiences. The second section was designed to obtain data about academics' beliefs regarding CI. This section was divided into four major scales for the levels of academics' beliefs regarding the importance of internationalizing the curriculum. For level one major scale, six items; for level two, six items; for level three, two items; for level four, three items; and a total of 17 items were used. At the end of the questionnaire, an unrestricted response item was included for respondents to express their feelings about CI.

2.1.4.2. Qualitative data. Interview Guide: The study employed a semi structured interview format, also known as a guided interview, as its second data collection tool. This format comprises a set of questions designed to elicit detailed responses from senior academics, department heads, coordinators, and directors of the chosen universities regarding their beliefs on internationalizing their discipline's curriculum [55,56]. The questions for the interview were prepared grounded on the general definition of the term "belief" that it is introduced by the phrase "do you believe that … " preceding "each of the four level major scales' propositions regarding CI in order to infer from what the participants say" [57,58]. Hence, the interview guide has included demographic data that are similar to the ones in the questionnaire and four propositions related to CI.

2.1.5. Validity and reliability of instruments

2.1.5.1. Quantitative instrument. The validity of the questionnaire (face validity, content validity, and construct validity) was checked [59]. To assure this, a panel of experts in the areas of psychology and curriculum from Haramaya University reviewed and commented on the questions before the pilot study was conducted. The researchers reviewed these comments and suggestions and incorporated them into finalization. In order to assess the reliability of the survey questions, 76 academics from Haramaya University were participated in a pilot study that was not part of the main study. To do this, 24-items of beliefs scale were used. According to Ref. [27], Cronbach's alpha revealed that the items had adequate reliability with $\alpha = 0.78$. Alpha would drop if the majority of items were removed since they were worthy of being kept. Nevertheless, the alpha would rise to $\alpha = 0.80$ with seven items. Therefore, eliminating of these items ought to be addressed about. Hence, the internal consistency of each subscale was as follows: academics' beliefs for level one were = 0.71; for level two = 0.76; for level three = 0.72; and for level four = 0.85.

2.1.5.2. Qualitative instrument. For the qualitative part (interview guide questions), the "trustworthiness" was checked via triangulation, multiple methods, multiple data sources, external audits, and low-inference descriptors—which were recommended by Ref. [60]. After the quality of the instruments was checked, 450 questionnaires were distributed to the respondents (academics) at the four sample universities. Twenty-one of the 450 questionnaires distributed were not returned, and 14 were deemed unusable. This result in a 92.2 % response rate, with 415 questionnaires correctly filled out and returned. A semi-structured interview was also conducted with 16 participants selected purposefully from the four selected universities.

2.1.6. Methods of data analysis

Data sets, both quantitative and qualitative, were examined independently before being combined in the discussion.

2.1.6.1. Quantitative data analysis. The quantitative data in this study were analyzed using both descriptive and inferential statistics. Descriptive statistics aid in comprehending the general patterns, trends, and distribution of the data since they offer a succinct synopsis of a dataset's key features. Thus, in order to respond to the study's first and third research objectives, descriptive statistical methods (frequency, mean, and standard deviation) were employed [61]. Conversely, inferential statistics (one-way ANOVA, Chi-square, and Cramer's V tests) were employed to address the study's second and fourth objectives. Stated differently, the significant variations and their effect sizes on the respondents' demographic factors were tested using the chi-square and Cramer's tests, respectively. Furthermore, the study employed one-way analysis of variance (one-way ANOVA) to ascertain whether the academics' beliefs regarding CI differed statistically significantly between the means of the four academic disciplines at the same university and/or the same discipline at different universities [62,63]. The Likert system with a five-point scale was employed in this study for assigning scores to the data. Computer-assisted data software, called SPSS (Statistical Package for the Social Sciences), version 26, was used for the analysis. In using this software, some of the common procedures and settings employed were: importing, cleaning, and manipulating data; producing outputs of descriptive and inferential statistics; and finally reporting results.

Normality was also checked. Concerning the normality aspect of this study, we rely on the assumption of the central limit theorem, which posits that "in large samples ($n > 200$), the data will approach normal distribution; therefore, it can be assumed that the normal distribution assumption is achieved in large samples regardless of the normality determination method" [64–67]. Consequently, the researchers opted for a parametric test (One-way ANOVA) to explore differences in variables, addressing the second research question of this study. The quantitative findings were succinctly presented in tables. Subsequently, these results were summarized and juxtaposed with existing literature and theories.

2.1.6.2. Qualitative data analysis. Thematic analysis was selected to evaluate the meanings of the qualitative data in this study [68–71]. Subsequently, the conclusions were compared to results of the quantitative data analysis. To ensure confidentiality, the participants' identities were kept anonymous through the use of certain acronyms and a code. As an illustration, consider PI06, AAU 5/23/2022 (participant, interview, participant's interview order, university name, month, day, and year). Ultimately, every step of the data analysis procedure was done by hand.

3. Results and Discussion

This study's results and discussion were organized so that the triangulation of the qualitative findings came after the presentation of the quantitative results.

3.1. Respondents' Demographic Representations among Universities

The relative representations of respondents in terms of some demographic characteristics were examined and presented in Table 2.

These demographic characteristics were: university, sex, discipline, nationality, experience, academic position, and rank. This served to address the first and second objectives.

Table 2 shows that when the four selected research universities were compared, 79–87 % of the academics at each of the four universities were male. As per the results of a chi-square test, there was no discernible variation in the frequency distribution of academic responders' sex across these universities; $\chi 2$ (3, N = 415) = 2.53, $p > 0.05$. This means that the proportion of female academics was lower than that of males throughout the four universities in this study. In terms of discipline categories, academic respondents were distributed in different proportions among the four research universities. The four universities are more evenly distributed in the hard/applied category. The chi-square test result confirmed that the variation in the respondent distribution was significant: $\chi 2$ (9, N = 415) = 38.33, $p <$ 05. The effect size of Cramer's v (V) of 0.17 and a degree of freedom of 3 suggest that the finding was practically small.

From the nationality aspect of the respondents, the non-Ethiopians were small in their proportion, ranging from 8 % (Bahir Dar University) to 16 % (Addis Ababa University). The chi-square test result indicates that the variation in the distribution of non-Ethiopian academics among the four universities was not significant; $\chi 2$ (3, N = 415) = 4.16, p > 0.05. This means the frequency count and percentage distribution of the non-Ethiopian academic respondents relative to their Ethiopian counterparts were evenly distributed. In line with the international experience of respondents, the majority of them, ranging from 93 % (Addis Ababa University) to 82 % (Jimma University), had no international experience within the four universities. The chi-square test also confirms that the variation of the distribution in this regard was not significant; $\chi 2$ (3, N = 415) = 2.39, p > 0.05. In contrast, the majority of the academics, ranging from 69 % (Bahir Dar University) to 63 % (Hawassa University), had intercultural experience within the four research universities. Their distributional difference was statistically significant; 2 (3, N = 415) = 13.49, p = 0.05. However, the effect size of Cramer's V.14 and the degree of freedom of 1 indicate that the significance was small.

Regarding the respondents' academic position in the university, the majority of them, ranging from 83 % (Bahir Dar and Addis Ababa Universities) to 93 % (Hawassa University), did not have positions. Their distribution in this regard was statistically not significant among the four research universities; $\chi 2$ (3, N = 415) = 5.63, p > 0.05. Concerning the last demographic variable, which is academic rank, it can be observed from Table 4 that going from the lower level (lecturer) to the higher level (professor), their distribution was decreasing. Addis Ababa University was exceptional in that the assistant professor rank (35 respondents) had a greater distribution than that of the lecturer rank (23 respondents). In addition to this, Addis Ababa University had higher frequency counts for the highest two academic ranks (associate professor and professor) than the other three research universities, followed by Jimma University. This distribution variation was statistically significant; $\chi 2$ (9, N = 415) = 54.00, p < 0.05. The practical effect size of Cramer's-V of 0.21 and the degree of freedom of 3 is medium.

Table 2
Respondents' representation and differences of the demographic information among selected universities.

Demographic variables		**University**				**Total**	**Chi-Square Tests**	
		Hawassa University	Bahir Dar University	Addis Ababa University	Jimma University		Pearson Chi Square value	Asymp. Sig. (2-sided)
Sex	Male	79	90	86	93	348	2.53	0.47
	Female	21	16	13	17	67		
Total		100	106	99	110	415		
Discipline	Hard/Pure	15	19	18	12	64	38.33	0.00
	Hard/Applied	62	51	28	71	212		
	Soft/Applied	13	20	26	17	76		
	Soft/Pure	10	16	27	10	63		
Total		100	106	99	110	415		
Nationality	Ethiopian	86	97	83	100	366	4.16	0.24
	Non-Ethiopian	14	9	16	10	49		
Total		100	106	99	110	415		
Experiences								
International	Yes	15	18	7	20	60	2.39	0.50
Intercultural	Yes	63	73	64	72	272		
Both	Yes	22	15	28	18	83		
Total		100	106	99	110	415		
Having Academic position	No	93	88	88	93	362	5.63	0.13
	Yes	7	18	11	17	53		
Total		100	106	99	110	415		
Academic rank	Lecturer	60	70	23	58	211	54.00	0.000
	Assistant professor	28	24	35	28	115		
	Associate professor	8	7	30	15	60		
	Professor	4	5	11	9	29		
Total		100	106	99	110	415		

3.2. Profile of the Participants in the Semi-structured Interview

Semi-structured interviews were carried out with sixteen participants from four universities, one from each discipline. In Table 3, the demographic data was compiled and displayed.

As seen from Table 3, one participant from each of the four categories of disciplines and the four universities were involved in the interview. Sex-wise, most of the participants (87.5 %) were male. The majority (81.3 %) of the participants were Ethiopians by nationality. Even if most participants (69.2 %) have intercultural experiences, the others have international experiences or both international and intercultural experiences. Some participants had academic positions (directors, department heads, and program leaders). Finally, regarding the academic rank of the participants, 87.5 % were those under the rank of professorship (assistant, associate, and full professor). This was purposefully done for the reasons mentioned under the methodology section.

3.3. Academics' Beliefs Regarding Curriculum Internationalization

Consistent with the beliefs of academics, the results derived from the examination of both quantitative and qualitative data were showcased in the subsequent manner. Table 6 through Table 9 show the four tiers that these beliefs were divided into. In doing this, the evaluation criteria of a 5-point Likert scale (Table 4) were also used.

Level one of academics' beliefs contains a major belief scale which is stated as "*internationalization would have a negative impact*", this in turn included sub-scales of beliefs (see Table 5).

In the same manner, the result obtained regarding academics' beliefs of level two was displayed in Table 6.

Table 6 shows that almost all level two sub-scales and the major scale mean scores were less than the lower limit of "agree" scale ($M = 3.40$, $SD = 0.65$). That means alike the level one of academics' belief, the majority of the respondents could not decide '*whether or not 'internationalization is not appropriate'*.

In line with this, the data obtained from a few participants in the interview indicates that they occupied the position on the left side of the 'Great Divide'. These participants believed they had nothing new to contribute to the corpus of existing knowledge. Regarding the importance of CI in an Ethiopian context, one participant stated his skepticism.

This is evident from the following verbatim:

I found the purported internationalization of the curriculum to be disheartening. My disappointment stems from questioning what Africans in general, and Ethiopians in particular, can contribute, given that Africa produces only a fraction of the world's global knowledge. The continent heavily relies on knowledge generated by others, amplifying this dependence within the broader Global South. Notably, a majority of books, journals, databases, and other information sources are predominantly produced in the Global North. Moreover, the conventions and styles of intellectual writing and academic communication, such as the American Psychological Association (APA), Harvard Style, and Modern Language Association (of America), are oriented toward institutions in the northern

Table 3
Characteristics of the participants in the interview.

Characteristics	Category	No. of participants	Type of Participants
University	Addis Ababa	4	Academics, Department Heads, Program Coordinators, and Directors
	Bahir Dar	4	
	Hawassa	4	
	Jimma	4	
	Total	16	
Discipline	Hard/Pure	4	
	Hard/Applied	4	
	Soft/Applied	4	
	Soft/Pure	4	
	Total	16	
Sex	Male	14	
	Female	2	
	Total	16	
Nationality	Ethiopian	13	
	Non-Ethiopia	3	
	Total	16	
Experience	International	4	
	Intercultural	9	
	Both	3	
	Total	16	
Academic position	With position	7	
	Without position	9	
	Total	16	
Academic rank	Lecturer	2	
	Assistant professor	3	
	Associate professor	8	
	Professor	3	
	Total	16	

Table 4
Likert scale (5-point) question evaluation criterion.

Score Interval (Mean)	Evaluation Criteria
1.00–1.79	Almost never/Strongly disagree
1.80–2.59	Not often/Disagree
2.60–3.39	Sometimes/Undecided
3.40–4.19	Often/Agree
4.20–5.00	Almost always/Strongly agree

Source [72–74].

Table 5
Mean and Standard Deviations of respondents (n = 415).

Level 1: Internationalization would have a negative impact	N	Minimum	Maximum	Mean	Std. Deviation
Belief Level 1 Subscale1	415	1	5	3.47	1.25
Belief Level 1 Subscale2	415	1	5	3.62	1.31
Belief Level 1 Subscale3	415	1	5	2.72	1.25
Belief Level 1 Subscale4	415	1	5	3.32	1.24
Belief Level 1 Subscale5	415	1	5	2.66	1.07
Belief Level 1 Subscale6	415	1	5	2.52	1.34
Belief Level 1 Major Scale Mean Score	415	1	5	3.05	0.73
Valid N (listwise)	415				

Based on the evaluation criteria of Likert scale, Table 5 shows that majority of the mean scores of the sub-scale items of the major scale were less than the upper limit (3.39) of the undecided level of the interval scale. The major scale mean score of the level ($M = 3.05$, $SD = 0.73$) also confirmed the same result. The interpretation of this result is that the majority of the respondents could not decide whether or not '*internationalization would have a negative impact*'.

Table 6
Respondents' mean and standard deviations (n = 415).

Level 2: Internationalization is not appropriate	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Belief Level 2 Subscale 1	415	1	5	3.56	1.30
Belief Level 2 Subscale2	415	1	5	3.31	1.34
Belief Level 2 Subscale3	415	1	5	2.49	1.16
Belief Level 2 Subscale4	415	1	5	2.83	1.26
Belief Level 2 Subscale5	415	1	5	2.45	1.19
Belief Level 2 Subscale6	415	1	5	2.98	1.24
Belief Level 2 Major Scale Mean Score	415	1	5	2.94	0.65
Valid N (listwise)	415				

hemisphere. This imposition demands adherence to international norms, affecting students worldwide, regardless of their diverse backgrounds and perspectives (PI10, BDU, 5/30/2022).

According to the above-mentioned information, the participant's focus in conceptualizing IoC is twisted toward the international dimension, undermining the intercultural dimension.

The other participant from the hard/pure discipline also demonstrates the following belief: "I believe that my discipline is inherently international and there is no need to further internationalize this curriculum." However [75,76], recognized that "although the problems of science are international and the same for all, the approach to those problems depends on the culture". Table 7 also indicated the result regarding academics' beliefs of level three.

It was seen from Table 7 that all academics' belief level, three sub-scales and major scale mean scores were between the scale range of 3.40 and 4.19. The consequence is that, from the standpoint of their individual disciplines, the majority of respondents agreed with the main scale mean score of believing that "*internationalization is possible*". Similarly, the result of academics' belief of level four was shown in Table 8.

Table 8 displayed the mean scores of all sub-scales and the major scale of academics' beliefs of level four were found to be within

Table 7
Mean and Standard Deviations of respondents (n = 415).

Level 3: Internationalization is possible	N	Minimum	Maximum	Mean	Std. Deviation
Belief Level 3 Subscale1	415	1	5	3.79	0.96
Belief Level 3 Subscale2	415	1	5	3.91	0.93
Belief Level 3 Major Scale Mean Score	415	1	5	3.85	0.77
Valid N (listwise)	415				

the scale range of 3.40 and 4.19, which is categorized under the level of 'agree'. This means respondents believed that internationalization is '*an integral*' part of their teaching activities.

The data obtained from the interview also supported this right side of the 'Great Divide'. For instance, the majority of the participants believed that internationalizing their curriculum was mandatory. Their justification is that they are living in a global, borderless world. As a result, they doubted their ability to be an island. On the other hand, what they repeatedly raised was how to maintain global and local balance. The participants emphasized what they called "thinking globally and acting locally" in doing the business of IoC. In line with this, one of the participants informed the following African mythology:

I prefer to articulate my perspective on the significance of internationalizing our curriculum through the lens of African concepts: "Sankofa" and "Ubuntu." "Sankofa," stands for idea that when contemplating internationalization, we must explore our historical wisdom to reclaim insights that can effectively address contemporary problems and challenges. This concept underscores the importance of drawing from our past to inform our present and future endeavours. However, "Ubuntu" informs my belief that the foundation of internationalization should be values like respect and responsiveness, harmony and hospitality, and care and community. These values underscore the essential interconnectedness of human existence, emphasizing the fostering of a global educational environment that promotes collaboration, understanding, and shared humanity (PI06, AAU, 5/23/2022).

The belief of the participants can be understood from verbatim, as it aligns with [77] recommendation that "the design of the curriculum should not abandon local content at the expense of western or eastern content but create "space for each" knowledge system."

Similarly, the other participant emphasized the importance of CI by quoting the words of Julius Nyerere as:

I do not have a problem with the importance of internationalizing our curriculum. My concern is with its practicality in keeping a balanced view between local and global. Hence, I agree with Nyerere's idea that indicated the possible dangers encountering the universities of the developing countries. That is the problem of dimly loving international standards and the risk of forcing our university to look inwards and isolate itself from the world (PI0, HWU, October 6, 2022).

In keeping with the respondent's aforementioned reservations [78], contended that "smart internationalization should have both a local foundation and an international flavor". In a similar sprit [79] asserted that African Universities' internationalization initiatives, while addressing decolonization and Africanization, ought to be heavily informed by their specific context.

Furthermore, one informant strongly criticized the fact that scholars from the Global South spend their time complaining and hesitating about the innovations developed by scholars from the Global North rather than attempting to contribute their own share. Furthermore, the informant believes that we have to develop self-confidence in order to be competent members of this global community. To do this, we have to think outside the box and challenge western paradigms. This is akin to Ref. [80] concept of CI as curriculum decolonization by interrogating the colonial origins of university practices and curricula and contesting the dominance of Western knowledge, pedagogy, and research.

The results derived from the answers provided for the open-ended questions also showed that most respondents believed it was crucial to internationalize their curriculum. Furthermore, they recommended that this should be done with *intention*, not *coercion* [81]. makes the case that internationalization in middle-class and lower-class nations is more forced than deliberate in this aspect [79]. claimed that African universities should heavily rely on their particular context when addressing internationalization-related concerns. As a result, this study's findings corroborate those of previous research [54,82,83]. For instance, in Bell's study, slightly more than half of the responses from the academics fell into levels 3 and 4 of the "Ellingboe's Divide".

3.3.1. Mean differences among disciplines in one institution

In this study, the second and last research question was included to identify whether or not significant differences exist among different groups concerning academics' beliefs regarding IoC. In this regard, the first groups were the four categories of disciplines in one institution. One-Way Analysis of Variance (One-Way ANOVA) was used for this, and Table 9 shows the results.

The independent variable, academics' belief, included four groups of disciplines: Hard/Pure ($M = 3.40$, $SD = 0.452$, $n = 64$), Hard/Applied ($M = 3.41$, $SD = 0.375$, $n = 212$), Soft/Applied ($M = 3.44$, $SD = 0.386$, $n = 76$), Soft/Pure ($M = 3.41$, $SD = 0.483$, $n = 63$). Levene's test for equality of variance indicated that there was homogeneity of variance, for discipline, $p > 0.05$. The computed one-way ANOVA was not significant at $p > 0.05$ (F (3, 411) = 0.12, $p = .95$). Hence, there is no significant evidence from which to conclude that there were differences in academics' beliefs among the four categories of disciplines. This means that the majority of academics in each of the four disciplines agreed with the belief that *internationalization is possible and integral* within their respective disciplines. This finding seems to contradict with [1] finding, which believed that "many, but not all, of the academics within the hard/pure disciplines are often less open to accepting CI than their peers in the soft/applied disciplines". However, as [1] findings indicated, other academics in the same discipline argue against those who make such claims by justifying that they are working within a culturally defined frame

Table 8
Mean and Standard Deviations of respondents (n = 415).

Level 4: **Internationalization is integral**	N	Minimum	Maximum	Mean	Std. Deviation
Belief Level 4 Subscale1	415	1	5	3.69	1.05
Belief Level 4 Subscale 2	415	1	5	3.84	1.02
Belief Level 4 Subscale3	415	1	5	3.92	0.98
Belief Level 4 Major Scale Mean Score	415	1	5	3.82	0.74
Valid N (listwise)	415				

Table 9
One-way ANOVA for the four universities with the same discipline (n = 415) ANOVA.

		Sum of Squares	df	Mean Square	F	Sig.
Mean ABMS Score	Between Groups	0.058	3	0.019	0.12	0.95*
	Within Groups	68.179	411	0.166		
	Total	68.237	414			

Table 10
One-way ANOVA for the four universities with the same discipline (n = 415) ANOVA.

		Sum of Squares	df	Mean Square	F	Sig.
Mean ABMS Score	Between Groups	0.377	3	0.126	0.76	0.52
	Within Groups	67.860	411	0.165		
	Total	68.237	414			

of reference. In addition, in line with [1] findings [84], also claims that "there is some evidence questioning the relative strength of the influence of discipline on academics' beliefs."

3.3.2. *Mean differences among institutions with the same discipline*

The second group was the four universities with the same discipline. One-Way-Analysis of Variance (One-Way ANOVA) was also performed for this, and Table 10 shows the results.

The independent variable, academics' belief, included three universities: Hawassa University ($M = 3.40$, $SD = 0.468$, $n = 100$), Bahir Dar University ($M = 3.40$, $SD = 0.367$, $n = 106$), Addis Ababa University ($M = 3.47$, $SD = 0.285$, $n = 99$), Jimma University ($M = 3.39$, $SD = 0.470$, $n = 110$). Homogeneity of variance was violated for the institutions, $p < 0.05$. The rationale behind this could be that, according to Ref. [85], "those with small sample sizes are more likely to conclude that the population variances are equal than their counter parts with large sample sizes". Moreover [86], argued that when the variance ratio of the groups is equal to or less than 1.5, in which in the case of this study is 1.26, F-test can be performed with confidence, P.945. The computed one-way ANOVA was not significant at $p > 0.05$ ($F(3, 411) = 0.76$, $p = 0.52$). Hence, there is no significant evidence to conclude that there were differences in academics' beliefs among the four universities. This may be due to the fact that the sampled institutions in this study were research universities with relatively similar experiences regarding the issue under study. The aforementioned study findings could not be compared to other findings since "many of the existing studies of CI focus on one institution or a disciplinary case study" [87,88].

4. Conclusions and Recommendations

In conclusion, the relative representations of academics from the perspectives of their demographic variables of this study were not to the expected level in the selected universities. Furthermore, their variation in this respect was practically not significant. This study also demonstrated the wide diversity of beliefs among academic staff regarding the importance of "internationalizing the curriculum" in their field. However, the majority of academics had crossed Ellingboe's 'Great divide'. Hence, it is possible to conclude that academics at Ethiopian Research Universities believe in the importance of internationalizing their respective disciplines, with a strong emphasis on keeping the balance between international and local tensions. In this regard, significant differences were not observed among disciplines or institutions. This may create a favorable environment for these universities to practice IoC based on their context. This is due to the fact that (a) the academics' role is central, (b) one of the major challenges of the IoC is the academics' resistance, and (c) the academics' beliefs regarding the IoC influence their actual practices.

Some significant recommendations were sent out in light of the conclusions reached. These were: Ethiopian research universities should take initiatives to promote the importance of internationalizing higher education curricula; the Ethiopian Ministry of Education should make internationalizing the curriculum of higher education a national priority; and other scholars should conduct a thorough study in order to capture the national image regarding the issue of CI.

5. Limitations of the Study

While this study has yielded a number of noteworthy results for the field of CI in the context of Ethiopian research institutions, it is not without limits and offers some recommendations for future pertinent research on this topic in Ethiopian HEIs. For instance, this study focused only on the public universities, which were categorized as research universities. It was also studied about academics' beliefs regarding the importance of CI. It did not include the voice of other stakeholders like students, top-university leaders, supportive staff members, professionals from the ministry of education, and representatives of business and industry. As a result, this study indicates that the scope of future research needs to encompass all institutions of higher learning (public and private), the opinions of the stakeholders at different levels, various HEI management bodies, staff members who provide support, and students themselves. This will provide a comprehensive image of curriculum internationalization in relation to Ethiopian Higher Education Institutions. Future studies in this area should also take into account the viewpoints and worries of the business and industry sectors, as well as the local communities, in order to close the gap between the supply of higher education and the demands of the labor market.

Declarations

Funding statement

This research received no external funding.

Authors' contribution statement

All the authors have equal authorship contributions.

Data availability statement

The data used to support the findings of this study were included within the manuscript. The corresponding author can provide the raw data on request.

CRediT authorship contribution statement

Habtamu Teshome: Writing – original draft, Methodology, Conceptualization. **Yilfashewa Seyoum:** Supervision. **Derebssa Dufera:** Supervision. **Samuel Assefa:** Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

The researchers acknowledge the primary sources of data for the willingness they have shown while giving responses during the preliminary and the main study. The researchers also appreciate Haramaya University for providing a limited amount of money for data collection.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.heliyon.2024.e29537.

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"Exploring the dynamics and significant impacts of Internationalization on Higher Education"

TITLE	SOURCE
10) The Internationalization of Higher Education and labor market transformation study current and future digital capabilities (2024)	MULTIDISCIPLINARY SCIENCE JOURNAL (Article From : MULTIDISCIP.SCI.J)

31st JANUARY 2025
SOURCE: PERPUSTAKAAN UTM

MULTIDISCIPLINARY SCIENCE JOURNAL

RESEARCH ARTICLE
Published Online: September 1, 2024
https://doi.org/10.31893/multiscience.2025088

The internationalization of higher education and labor market transformations study current and future digital capabilities

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Abstract The fourth industrial revolution that the world is witnessing has constituted a global turning point in which artificial intelligence systems have begun to invade all fields, including the higher education system as a means of investing in human wealth by qualifying for employment. morocco is not immune to these changes, and therefore the problem of the extent to which Moroccan higher education keeps pace can be addressed. to international developments to acquire employability skills imposed by the international labor market to face external competition for positions by asking the problematic question: Does higher education in Morocco prepare the student to keep pace with employment developments in light of a changing world in the direction of internationalization, artificial intelligence, and digitization that has begun to invade the world of work? The aim of this research paper is to study the extent to which Moroccan university students master new global employability skills, to achieve this goal, we adopted the quantitative approach using questionnaire technology, distributing it to a number of students their number is 45 male and female students the research results showed that Moroccan students have partial mastery of international employability skills, and the university has taken steps toward improving education, but it is still at the beginning of the road, and needs to make more efforts in this field. Therefore, it is necessary to integrate these skills into university curricula. with the necessity of disseminating training curricula within universities and public institutions to provide equal opportunities for students while unifying the vision the future of skills required in the labor market. It also supports, encourages and assists students in training in developed and pioneering countries in the field of artificial intelligence, while granting incentive guarantees to return to the homeland, involving the private sector in exchanging experiences with universities by expanding the field training base.

Keywords: digital transformation, employment, labor market, liberalization, competition

1. Introduction

The concept of internationalization is closely linked to broad discussions about globalization, as internationalization is considered a catalyst and driving mechanism for globalization within the framework of global liberalism (Jiang, 2005; Deardorff, et al., 2012). As higher education has entered advanced stages of liberalization thanks to the Fourth Industrial Revolution and the new technologies it produced and the removal of regulatory restrictions, with the support of international organizations, whether governmental or nongovernmental, for this movement due to their experience by contributing to research and disseminating educational programs and models on a global scale (World Bank - UNESCO - International Bureau of Education - International Institute for Educational Planning). The aim of improving higher education is because it is one of the important means of forming human capital, preparing it, and strengthening its productive capabilities and skills to enter the labor market (Bilel & Medkour, 2022).

Education and work are two basic aspects of human activity in all human societies, and preparing students for work is one of the oldest and most prominent jobs at universities (Ibrahim, 2020). However, with global changes, the labor market has begun to impose standards and skills for the integration of university graduates because the employment sector is one of the sectors most invaded by new artificial intelligence technologies and is in continuous invasion by these systems in light of the transformation of the world in the direction of digitalization.

Artificial intelligence appears in most jobs, starting from searching for candidates, through filtering and sorting candidates, all the way to identifying profiles that meet the required criteria and finally until decision-making and final selection of the candidate (Coron, 2020). Therefore, the decision to hire now or not has become the prerogative of algorithms, under

 Received: May 6, 2024 | Accepted: July 16, 2024

international conditions and standards, within the framework of liberalizing the labor market, which makes higher education, in light of this internationalization, globally competitive.

For university education to fulfill its role in light of digital transformation and the fourth industrial revolution to achieve good education and mature upbringing, it requires modern mechanisms and methods of learning that are compatible with the requirements of the times, establishing partnership relationships at the local and global levels, working in a team spirit, and using technology extensively in all matters. University operations and systems and building a person capable of living in a knowledge society and facing challenges accelerated and varied (Al-Dahshan & Samah, 2020).

1.1. The problem of the study

In light of this proposition, the following main features of the problem formulated in the question emerge:

To what extent is higher education in Morocco able to qualify students to keep pace with employment developments in light of a world changing in the direction of internationalization, artificial intelligence, and digitization that have begun to invade the world of work?

This is a problem that leads us to questions secondary:

- The quality of higher education programs is consistent with the requirements of the labor market
- Do the skills that a student acquires during his university education qualify him to compete for job positions in light of global employment?

2. Literature Review

Several works, including those of Kwiek (2008), have justified the contribution of higher education institutions to the development of society. Similarly, Kasatkin et al. (2019) highlighted the impact of modern universities on the formation of the digital wave of Kondratiev's long cycles. In addition, the results obtained by Kornytska et al. (2023) trace aspects of the adaptation of higher education to the demands of the modern job market. These same authors indicate that rapid digital and technological transformations complicate the training of specialists, but educational institutions in Europe and the United States are actively working to meet these challenges, including the introduction of lifelong learning and a focus on digital technologies, programming and robotics. A study conducted by Liubarets et al. (2024) revealed that one of the promising areas of the educational process today involves the formation of personal qualities of future specialists, including their digital literacy, logical thinking, and international communication skills. In Morocco, (El Khalfi, 2021; Hamdani & Zine, 2022) noted a gap between technological innovations and teachers' educational integration in the school setting. Riyami et al. (2019) emphasize that through the integration of ICT, Moroccan higher education establishments aspire to develop interactive digital platforms to encourage collaboration between teachers and students and to promote more participatory and learner-centered pedagogical approaches. Similarly, Tamer & Knidiri (2023) reported that, facing the challenges of the new industrial revolution, the deep coupling between universities and industry 4.0, the integration of information and communication technologies in education, and the ability to serve society on the basis of internal and external synergy should become common choices for different types of universities.

3. Materials and Methods

To address the problem, analyze its components and dimensions, and discuss its results, a study was adopted based on a descriptive and analytical approach, which is based on describing the phenomenon, analyzing it, and interpreting it constructively on the statistical data that will be collected based on questionnaire technology.

The survey was conducted with 45 participants studying in higher education. The data were collected using a laboratory-developed and validated questionnaire (Cronbach index of 7.07).

It is clear from Table 1 that the overall reliability coefficient (Cronbach's alpha) in the questionnaire was 7.07, which is an acceptable value that indicates the homogeneity of the questionnaire statements and that the tool used has a high stability value, which indicates its suitability for field application.

Table 1 The transmission coefficient of the questionnaire as a whole using Cronbach's alpha coefficient.

Statistics of fiabilité	
Alpha de Cronbach	Number of elements
0.707	9

The questionnaire consisted of 9 elements distributed as follows.

- The first part of the questionnaire covers students' representations of employment and includes three phrases (the field of specialization—the specializations required in the job market—the method you prefer to use in search of work).
- The second part focuses on the abilities and skills acquired during training help in entering the labor market and includes 5 phases: parallel configurations and foreign training, the need for training courses, the suitability of skills in the field

of technology, the mastery of modern methods for international employment applications, and the types of questions in the electronic recruitment form.

• The third part addresses proposals to facilitate the process of integration into the national and international labor markets. Two phrases have been included **(**The sources you suggest, Change in configuration).

The collected data were entered and filtered in Excel and then transferred to SPSS version 25.0.

The results of the stability coefficient of the questionnaire (Cronbach's alpha) are presented in Table 2.

Table 2 Item coefficient of resolution using Cronbach's alpha coefficient.

Item	Your field of specialization	Do you are aware of the types of specializations and training required in the national and international labor market	During your academic path in higher education. Did your institution provide you with parallel training in foreign languages and media studies?	During training period in higher education: Did your institution participate in foreign training through the exchange of applications?	Do you need training courses to qualify for the appropriate job	Do you are familiar with the types of questions in the electronic recruitment form	The suitability of your technology skills to the job market	To support Composition: What sources suggest it?	If you could make a change in the composition, would it be?
Alpha de Cronbach in case of suppression of l'élément	0.718	0.748	0.658	0.749	0.689	0.644	0.626	0.571	0.632

4. Results

It is clear from Table 3 that the average response of the sample members on the statements of these axes reached 1.66, which confirms that the university has taken steps toward improving education, but it is still at the beginning of the road and needs to make more efforts in this field. It is also clear from the same table that the averages of the sample members' responses on the dimensions of these axes ranged between 1.57 and 1.83. The highest percentage of agreement among sample members came in the third dimension (suggestions to facilitate the integration process in the national and international labor market), where the average response percentage reached 1.83 with a deviation standard of 1.025, followed by the second dimension (the abilities and skills acquired during training that help in entering the labor market), with an average of 1.58. The standard deviation was 0.465, while the first dimension (students' representations about employment) ranked third, with an average of 1.57 and standard deviation of 0.604.

Table 3 Arithmetic means, standard deviations, and ranks for the estimates of the study sample members

The hub	The sample	Average	Deviation Standard	Ranking
Students' representations of employment	100	1.57	0.604	3
The abilities and skills acquired during training help in entering the labor market	100	1.58	0.465	2
Suggestions to facilitate the process of integration into the national and international labor market	100	1.83	1.025	1
For the tool as a whole	100	1.66	0.698	-

The results for each axis are presented below.

4.1. The first axis: Students' representations of employment

We note from Table 4 that 65.7**%** of respondents preferred to work in the public sector on average (1.41±,698) and 15.7% preferred to work in the private sector, while another 11.1**%** preferred to work in other professions. We also note from the same table that 65.7**%** of respondents preferred to work in the same general field of specialization on average

(1.29±,456), while 26.9% preferred to work in other fields. For electronic recruitment methods, the results showed that 32.4% preferred this type of general recruitment, with an average of 1.92 ± 787%, while 35.2% preferred direct interview recruitment methods, and 25% of them had no objection to whether recruitment was through electronic recruitment methods or direct interview recruitment.

Table 4 Sample responses in the private dimension: students' representations about employment.

Students' representations of employment	Repetition	%	Average	Standard deviation
Employment in the public sector	71	65.7		
Employment in the private sector	17	15.7	1,41	,698
last	12	11.1		
Do you prefer to work in your field of specialization?	71	65.7		
Openness to other fields	29	26.9	1,29	,456
Electronic recruitment methods	35	32.4		
Direct interview recruitment methods	38	35.2		
Both of them	27	25	1,92	,787

4.2. The second axis, the capabilities and skills acquired during training that help in entering the labor market

Table 5 Opinions of sample members for abilities The skills acquired during training help one enter the labor market.

Table 5 clearly shows the abilities and skills acquired during training to help individuals enter the labor market. The largest average of the sample members' responses to the phrases in this axis was (1.82) for the phrase (the suitability of your level of skills in the field of technology to the labor market), followed by the phrase (during the period of training in higher education: Did you participate? Your institution engages in foreign training through student exchange) with an average response of (1.70), followed by the statement (During your course of study in higher education, did your institution provide you with parallel training in foreign languages, media, and field training with an average response of (1.68), then the statement (Are you familiar with the types of... Specializations and trainings required in the national and international labor market) with an average response of (1.66), while the averages of the rest of the sample members' responses ranged between (1.15 and 1.48), which are low averages and indicate that the content of these statements is available to a weak degree.

Table 5 Responses of sample members about the abilities and skills acquired during training that help them enter the labor market.

The abilities and skills acquired during training help in entering the labor market	Average	Standard deviation	Ranking
During your course of study in higher education, did your institution provide you with parallel training in foreign languages and media studies? And field training	1.68	,469	3
During the training period in higher education: Has your institution participated in foreign training through student exchange?	1.7	,461	2
Do you need training courses to qualify for the appropriate job?	1.15	,359	6
Are you familiar with the types of questions in the electronic recruitment form?	1.48	,502	5
The suitability of your technology skills to the job market	1.82	,539	1
Are you aware of the types of specializations and training required in the national and international labor market?	1.66	,476	4

4.3. The third hub is proposals to facilitate the process of integration into the national and international labor markets

This axis includes two phrases (to support the formation: What sources do you suggest) and a phrase (if you could make a change in the formation, would it be?), as it is clear from the table 6 that the largest average of the sample members' responses to the phrases in this axis was (2.07) for the phrase (if you were able to change the composition, would it be?) followed by the phrase (To support formation: What sources do you suggest) with an average response of (1.59).

Table 6 Sample responses on the topic "Suggestions to facilitate the integration process in the national and international labor market."

Suggestions to facilitate the process of integration into the national and international labor market	Average	Standard deviation	Ranking
To support the configuration: What sources do you suggest?	1.59	,975	2
If you can make a change in the Configuration so will it be	2.07	1.075	1

5. Discussion

5.1. Moroccan students and employment skills within the framework of the internationalization of higher education based on an analysis of questionnaire data

The quality of higher education is now measured by the extent of the connection between the academic programs offered by universities and the needs of the labor market (Alenezi, 2023). Employment is a product of university training (Bilel & Medkour, 2022), and due to this connection, most countries have gone to improve the quality of higher education in light of internationalization, and Morocco is not immune to this, as higher education reform is part of the strategic vision 2015-2030 after a long process of studies and consultations, as well as reports from the Supreme Council for Education, Training and Scientific Research, such as a report 2019, which emphasized the increasing nature of the globalization of higher education and scientific research. The development of higher education worldwide is linked to digital transformations and the dominance of technological innovation to better adapt to the scientific transformations brought about by economic and social life (Akour & Alenezi, 2022). As stated in the decree of July 24, 2023, the new model of the Moroccan University aims to empower students with the skills and knowledge that will help them adapt to rapid social, economic, and technological changes (Anonyme, 2023).

However, field research using a questionnaire distributed to a group of students as an initial question about their preferred type of employment and more than 66% preferred employment in the public sector, which reflects the isolation in which Moroccan students still live and the representations they hold about employment in the public sector, as it provides stability and permanence. These results are comparable to those found during a survey carried out by the Rabat Center for Research and Social Studies (CRES) in 2021. This reflects the new employment trends within the framework of liberalizing the labor market despite their knowledge of the requirements and developments of the labor market and the types of specializations and training required internationally.

This confinement and traditional view of employment is the result of a formative structure that does not keep pace with the rapid transformations imposed by the digital world, which reflects negatively on all the steps taken to modernize administrative management and introduce new patterns of employment that are more open to global systems by resisting all changes and developments.

On the other hand, we tried to determine the students' preferred method of searching for work. A large percentage preferred the direct interview method of employment, which confirmed that the Moroccan students clung to traditional methods of employment, as they had not yet accepted the compulsory choice of artificial intelligence. Artificial intelligence is a qualitative alternative to human intelligence through the electronic recruitment mechanism, and the lack of acceptance is the result of the Moroccan student's inability, according to the questionnaire, to master a set of cognitive and technical skills, such as the international employment form and its standards, the types of questions in automated recruitment, and the etiquette of conducting a remote interview with a nonhuman element.

They consider the public job a way to obtain job opportunities to escape competitiveness, which requires competence as a basis for employing human resources (Rabat Center for Research and Social Studies (CRES) in 2021) and adopts digital skills as a new way to take into account the jobs they adopt as the strengths of the candidates. This pace of integration remains weak in the face of the speed of global digital transformation as a primary driver of the success of any country in the world.

This is what the global crisis revealed (coronavirus), which forced educational institutions to begin digitizing education and using technology in the educational process due to the large disparities between developing and developed countries in terms of infrastructure (computers, internet connections, etc.) or the high material cost of electronic devices despite the attempts made by the state to support students (Babbar, & Gupta, 2022). However, students in their preuniversity stages are still studying through traditional, paper-based methods in public institutions and even in university education (Amaghouss, & Habibi, 2022; Daoudi, & El Adlouni, 2024). All processes are carried out in traditional ways, from curricula and delivering lessons to taking and grading exams, which creates a conflict with requirements and reality and hinders the transformation process in developing countries, especially with the approval of all member states. The United Nations General Assembly Resolution (1/70/RES/A (On Transforming Our World: Agenda for Sustainable Development in 2030), in which member states recognize the spread of information and communications technologies and global interconconnections, has great potential to accelerate human progress, bridge the digital divide, and create new societies based on knowledge (Lee et al., 2016). Here, we are on the verge of 2030, and the gap between developed and developing countries facing an unknown future is still wide in light of the accelerating transformation toward radical economic, social and technological changes that will reorganize the world based on the criterion of technological dominance. Led by major companies such as Openai, the owner of artificial intelligence (Chatgpt), Microsoft, which is developing the Bing engine, and Google, which is preparing to release a very advanced program in 2024, Google Geminiai, which makes the future of competition unknown, and the world awaits the rapid developments that bring about radical changes and affect the job market, which is expected to decrease. Large numbers of workers are being replaced with robots that penetrate a group of professions, such as medicine, law and engineering, which places universities facing technical and time duress.

5.2. General employment trends in light of internationalization and artificial intelligence

The employment sector is one of the sectors most invaded by artificial intelligence technologies (Chui, & Francisco, 2017; Deepak et al., 2024). Many traditional processes have been replaced to increase productivity (Apsilyam et al., 2024; Al

Naqbi et al., 2024), whether in the private or public sector, and these transformations have found an echo on all continents and were then transferred to educational and development policy directives and goals set by constitutions, regulatory laws, or programs designed to organize educational systems (Schriewer, 2004).

This global consensus on new recruitment technologies made us talk about global recruitment, which opens the door to competition for positions, which affects human resource management, both with regard to selecting, appointing and integrating employees according to specific data within the framework of artificial intelligence. Morocco is not immune to these transformations; in particular, the issue of employment is the level of implementation of the administrative approach to managing anticipating competencies to create a match between matches and needs, and in the methodological guide for anticipating the management of jobs, numbers, and competencies, it is indicated that the administration expands the acquisition of competencies and recruitment through recruitment from inside or outside (Anonyme, 2016).

This is a strong indication of adopting the international context of employment and liberalizing the labor market, which will commit to training capable of competing and competing and absorbing the challenges of digital transformation and the future of global employment, as we are now talking about recruitment via the internet or electronic recruitment, as stages of breaking with traditional recruitment methods to improve the quality of recruitment processes. Developed countries have reached advanced stages in this field, as employment is linked to algorithms.

According to Aoun (2022), artificial intelligence helps business owners predict future needs through the use of characteristics, qualifications and skills, which is called the “predictive behavior approach”. Here, the job candidate is faced with choosing the artificial intelligence machine, not the employer, which will require the candidate to be fully familiar with electronic recruitment techniques, as these algorithms analyze the content of the job offer and target the CVs of candidates who match the employer’s expectations, so talking about the CV here is not in its traditional sense but rather by international standards. Developed countries have proven the effectiveness of digital transformation in terms of employment (Cetindamar Kozanoglu & Abedin, 2021; Nosratabadi et al., 2023), from where costs are reduced, time savings or ease of customer service, or remote employment, which has become widespread among today's youth as freelance work.

In France, for example, on the website (Postererute.fr), I placed a chat bot, called Copilote, available at all times. The mission of this website dedicated to employment is to provide its users with information about available jobs, employment procedures, and teaching about work and study (Guinonr, 2021).

5. Conclusions

Digital transformation will reshape work, as the world has never seen before; thus, it is important to know the limits of its influence and try to benefit from it and exploit it to achieve the best results to build a future that is compatible with our economic and social aspirations. Therefore, efforts must be combined from each position to advance higher education and formulate a new model capable of producing human capital with competitive skills, taking into account the homogeneity of the field’s components. educational.

6. Recommendations

Marketing and liberalizing Moroccan higher education has become a necessity by developing new technologies, eliminating regulatory restrictions, and supporting student openness to pioneering foreign experiences within the framework of the globalization of higher education and the international mobility of students to other continents.

All of his position professors intervened in university, administrator official politicians, companies, organizations and students to ensure the success of the transitional phase and keep pace with the international movement, even by integrating into this revolution industry so that history does not repeat itself.

Increasing the budget for higher education and providing it with all necessary technological needs in all operations Management (Administrative), formative, Communicative.

Public policies to internationalize higher education should be established.

Reconsidering the curriculum with all educational streams within the framework of integration and updating education methods from the primary to university levels by unifying the reform vision, such as adopting English from the beginning of education, instead of dual linguistic frenching, and a few hours of English in middle and high school, then englishing in university education.

The necessity of adopting e-learning to develop skills and training to address technology through interaction with the internet, computers, and electronic applications from the beginning.

New specializations and trainings that are in line with the requirements of the labor market and the transfer of the experiences and expertise of private Moroccan international universities to Moroccan public universities in frame work cooperation and partnership were opened.

Linking Moroccan education with foreign education by attracting branches of foreign universities.

Ethical considerations

We proclaim that we absolve the journal *Multidisciplinary Science Journal* responsibility for questionnaire the sample that belongs to the respondent.

Conflict of Interest

The authors declare no conflicts of interest.

Funding

This research did not receive any financial support.

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11) Research in Transnational Higher Education : Mixed Methods, Mixed Locations and Mixed Assumptions (2024)	INNOVATIVE HIGHER EDUCATION (Article From : SPRINGER)

31st JANUARY 2025

SOURCE: PERPUSTAKAAN UTM

Innovative Higher Education (2024) 49:1151–1175
https://doi.org/10.1007/s10755-024-09726-4

Research in Transnational Higher Education: Mixed Methods, Mixed Locations, and Mixed Assumptions

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Accepted: 25 June 2024 / Published online: 20 August 2024

Abstract

Transnational education (TNE) occurs when higher education institutions traverse borders to provide educational experiences outside their home countries. Such mobility creates several research challenges, as such institutions exist between worlds. They must balance home and host country legal requirements, navigate home and branch administrative norms, adjust to differing cultural and learning expectations, and even serve different student populations. To understand this complexity, researchers must employ mixed-method approaches, which are currently limited in higher education studies. In this paper, we explore TNE as a unique setting for conducting research. We outline our design choices and the challenges we faced in conducting research on TNE institutions. For the paper's central focus, we unpack a cross-cultural case study, which employs multi- and mixed-methods research, to assess the role of labor market outcomes at critical junctures of the student lifecycle at a binational university. By incorporating perspectives from the institution, alumni, and current and prospective students, we present a holistic view of perceived and actual graduate outcomes. This case vividly illustrates the limitations of mono-method studies. Furthermore, it demonstrates how mixed-method studies are useful for generating more meaningful outcomes in TNE research.

Keywords Transnational higher education · Mixed methods · International branch campus · International joint university · Research design · Cross-border higher education

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Introduction

Transnational education (TNE) takes place when higher education institutions offer educational experiences beyond their home countries (Knight, 2016). TNE poses many challenges for researchers compared to traditional educational research. When researchers fail to understand these challenges, or when they conflate TNE research with more traditional forms of educational delivery, there is a risk to the research's credibility; moreover, the depth and the breadth of the findings may be limited. The premise of most educational research is an assumption that the actors or institutions studied are embedded within a single cultural or national context (Crossley, 2009). Even researchers who use a comparative education methodology work by comparing two discrete entities rather than analyzing the interplay between them (Bray et al., 2014). Transnational education, however, focuses on the movement of institutions across boundaries (Knight, 2016). Those institutions (and the students they serve) exist in a sort of "Third Space" between countries and cultures (Lane et al., 2024a). Some early researchers of TNE approached their work from a traditional perspective, examining TNE activities from the perspective of either the home or host country. However, TNE challenges many traditional assumptions of education research. One cannot fully understand the complexities and influences on TNE activities without also understanding the complex interplay of cultural, governmental, and educational expectations, as well as the assumptions that intermix in the TNE Third Space. Consequently, research methods must evolve to acknowledge this distinct difference, or at the very least, to clarify the limitations of approaching TNE research solely from the perspective of the home or host nation.

In this conceptual article, we explore the unique setting of TNE for conducting research. We outline our design choices and the challenges we faced in conducting research on TNE institutions using mixed methods research (MMR; e.g., Greene, 2007; Tashakkori et al., 2020). The article comprises four main sections. First, we present a picture of contemporary transnational higher education. We also categorize five different kinds of TNE institutions and propose that TNE functions within what we refer to as a Third Space. Second, we discuss the possible advantages of mixed methods research for TNE. Third, we use the Turkish-German University case study, which is central to the article, to elaborate on these advantages. We unpack a cross-cultural, multi- and mixed methods case study conducted by Schueller (2021b) on the role of labor market outcomes at critical junctures of the student lifecycle at a binational university, a subset of TNE institutions. The Schueller (2021b) study employed an online survey of current and former students and interviews with key experts and alumni. By incorporating perspectives from the institution, the alumni, and the current and prospective students, the study achieved a holistic view of the perceived and actual graduate outcomes. This case vividly illustrates the limitations of mono-method studies. Moreover, it demonstrates how researchers can use mixed methods studies to generate meaningful research in TNE research and employability studies. To conclude, we offer a series of observations and reflections regarding the difficulties and possibilities associated with conducting mixed methods research in the TNE realm.

Transnational Higher Education

Educational institutions crossing borders to deliver education is a radical representation of higher education's internationalization. Transnational education (TNE) is the movement of institutions and programs across borders, in contrast with the movement of people (e.g., students and scholars; Knight, 2016). Although there is no unifying definition, at its core, TNE involves offering educational opportunities from one country to students in another, in the format of a locally established institution or program (Knight, 2016). These TNE institutions assume a "global identity to legitimize themselves to both home country and host country stakeholders" (Farrugia & Lane, 2013, p. 414).

Various forms of TNE have existed for more than a century. During its colonial expansion periods, the United Kingdom exported its form of education to other parts of the world, such as by building extensions of the University of London in Africa or sending UK instructors to India to teach in newly formed colleges (Acharya, 2014; Lane & Kinser, 2013). The United States (or groups within it) supported so-called American universities abroad, such as the American University of Cairo or the American University of Beirut (Long, 2020). These actions can be considered early versions of transnational education, as they brought together stakeholders from at least two countries for the purpose of delivering education.

Today, international branch campuses (IBCs) are among the most common TNE institution types. An IBC is defined as "An entity that is owned, at least in part, by a foreign higher education provider; operated in the name of the foreign education provider; and provides an entire academic program, substantially on site, leading to a degree awarded by the foreign education provider" (C-BERT, 2023, no pp.). As of 2023, C-BERT (2023) tracked 333 IBCs from 39 home countries operating in 83 host countries. While this is only a partial picture of TNE's global presence, it does show that the activity is broadly based and appears to be expanding. Garrett et al. (2016) calculated that there are more than 180,000 students studying at IBCs, and that number has likely increased since.

However, IBCs are not the only institutional type in transnational higher education. The other common institutional type is the international joint university (Knight & Simpson, 2021). It is important to be aware of the vast differences between the various transnational education institution types, as they impact the design of TNE research. Table 1 provides an overview of five transnational educational institution types: international branch campuses, international joint universities, regional universities, and networked universities.

Although the TNE term includes the word "transnational," most TNE projects, as Raev (2020, p. 52) notes, have primarily had a "binational character" because institutions are obligated to adhere to the laws and regulations in both the sending and receiving countries. This observation becomes especially evident in the case at hand, which involves binational universities (BUs).

Table 1 Five Types of Transnational Educational Institutions

Type of TNE Institution	Definition	Example
International branch campus (IBC)	An entity that is owned, at least in part, by a foreign higher education provider; operated in the name of the foreign education provider; and provides an entire academic program, substantially on-site, leading to a degree awarded by the foreign education provider (C-BERT, 2023).	NYU Abu Dhabi
International joint university (IJU)	An HEI co-founded and established in a host country, involving both local and foreign sending HEI/providers who collaborate on academic program development and delivery. Qualifications can be awarded by either or both the host and sending country HEIs. Face-to- face, distance, and blended education can be used. (Knight & McNamara, 2017, p. 16).	Singapore University of Technology and Design
Binational university (BU)	A degree-granting higher education institution founded based on a legal agreement by two nation states that provides degree programs grounded in both countries' education systems and academic traditions (author's definition).	Turkish-German University
Regional university (RU)	A newly established institution involving multiple countries. Defined as "an institution of higher education which involves a group of countries in a designated region that collaborate to establish a university offering degree and pre-degree courses, conducting research and serving the needs of the region" (Knight & Zhang, 2022, p. 115).	South Asia University
Networked university (NU)	An official network of multiple institutions through which students can move as they complete a degree from one or more of the institutions (author's definition).	Alliances in the European Universities Initiative

Authors' conceptualization

Binational Universities

A BU unites political actors from two nation-states to form a new university, although the exact structure of the university and the legal framework used to establish the relationship may take a variety of forms. This governmental bilateralism distinguishes BUs from other transnational higher education institutions that are based on institutional collaboration or the involvement of multiple countries. A BU is a distinct institutional form in that the governments of both the foreign partner and the host country must be involved in the creation, design, and management of the newly established institution.

Germany is the leader in the founding of binational universities. With 10 campuses spread across the globe, Germany provides the model for BUs. The German binational university model involves a consortium of German universities that academically and logistically support the binational university, rather than one supporting institution (as in the case of IBCs; Lanzendorf, 2008). In most cases, German BUs have resulted from political discussion and agreements between the German and partner-country governments, and they focus on mutually beneficial relationships (Fromm, 2017; Lanzendorf, 2016; Schueller, 2020c).

There is no universally accepted definition of a binational university in the literature. However, in view of Germany's involvement in establishing BUs, it is worthwhile to consider the German definition. According to a DAAD representative, the "binational university" phrase or concept "covers a group of newfound, stand-alone, private or state owned HEIs that are established and run with close cooperation and constant involvement of German HEIs" (Kammüller, 2017, no pp.). Before the 2017 definition, Lanzendorf (2008) defined BUs in the German context as legally independent, local universities that were academically associated with several universities in another country, established by local investors or host governments, and academically managed by patron universities (Ashour, 2018). We define a binational university as a degree-granting higher education institution founded on a legal agreement between two nation states that provides degree programs grounded in both countries' education systems and academic traditions. A growing number of countries beyond Germany are developing BUs, including Japan, Turkey, France, and Russia.

Research in Transnational Education

As a form of educational delivery, transnational education has significantly expanded in both scope and scale over the last two decades (Escriva-Beltran et al., 2019). However, unlike international education or comparative education, the research paradigms for transnational education remain nascent, with focused research on the topic only becoming prominent over the past decade (Knight & Liu, 2019). Although general research on TNE has proliferated in the past three decades, it has primarily taken the form of case studies, policy reviews, evaluations, and descriptions of practice (Escriva-Beltran et al., 2019). Moreover, recent texts have continued to focus on cases (e.g., Hill et al., 2022; Tsiligiris et al., 2021). However,

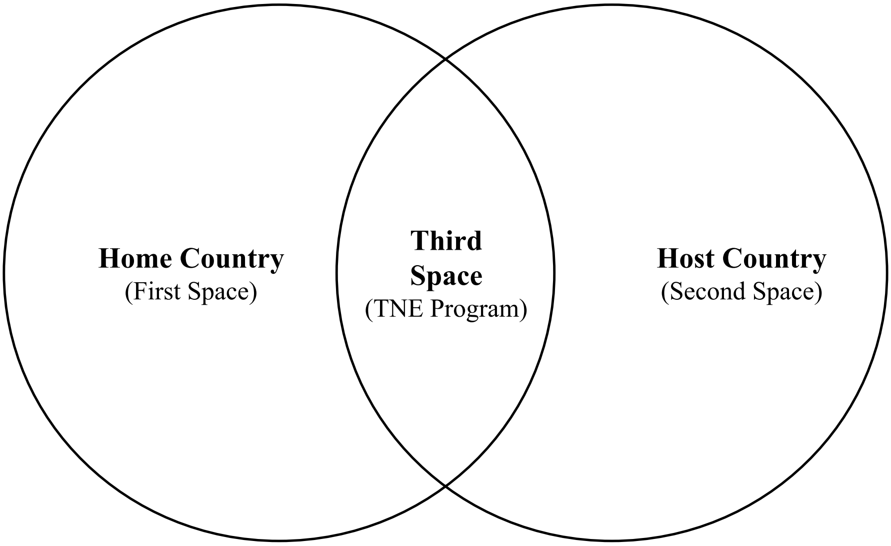

Fig. 1 The third space of TNE. *Source:* Authors' conceptualization

the methods used in transnational education research have not received robust analysis.

Within TNE, the mobility of the institution across national boundaries makes it unique and creates several research challenges. The institution essentially exists between worlds. It must therefore balance home and host country legal requirements, navigate home and branch administrative norms, accommodate differing cultural and learning expectations, and even serve different student populations. Understanding this unique complexity necessitates mixed-method approaches, which are currently limited in higher education studies (Papadimitriou et al., 2014; Seyfried & Reith, 2019; Tight, 2013). As such, many TNE research studies are based on assumptions derived from other research traditions. Consequently, these studies do not account for the uniqueness of this form of educational activity. TNE institutions and the students they serve exist in a Third Space that is influenced by both the home and host countries but is not fully part of either (Lane et al., 2024b). Figure 1 illustrates this concept.

Both IBCs and BUs interact with the TNE Third Space, which has implications for researching the respective institutions. The TNE Third Space is the complex overlap that exists at a transnational higher education institution as it navigates the territory between home campus norms and expectations and home country structures and regulations.

Institutional mobility, as in the case of TNE, creates several research challenges. The institution essentially exists between worlds—balancing home and host country legal requirements, navigating home and branch administrative norms, accommodating differing cultural and learning expectations, and even serving different student populations. Understanding this complexity necessitates unpacking the nature of the institution's Third Space using mixed-methods approaches, which are limited in higher education studies (Seyfried & Reith, 2019; Tight, 2013).

In addition to the inherent Third Space of TNE, one difficulty with TNE research involves the fact that the full extent of global TNE activities remains unknown. No government or non-governmental entity tracks TNE activities holistically or comprehensively, so researchers must fill this gap. However, these studies have their shortcomings. The TRANSEDU research group in Germany was a time-limited project that did not make its data publicly available (Kleibert et al., 2020). The Global American Higher Education website attempts to track the international education activities of only the United States. The Observatory for Borderless Higher Education (OBHE) began tracking IBCs around 2000, publishing occasional reports. The group has since disbanded and merged its data collection with the Cross-Border Education Research Team (C-BERT, 2023). C-BERT, founded in 2010, may have the longest-standing publicly available TNE data collection. However, their work is also limited, as it only tracks IBCs, a subset of TNE. Consequently, researchers must examine relatively bound cases—whether that be an institutional case, host/home country case, or similar. Some additional factors may explain why TNE research is still in its infancy and primarily nationally bound in nature. For instance, some grants, resources, and political issues encourage scholars to concentrate on subjects of national importance. We note that the EU has been a major funder of TNE research, perhaps because it is a transnational entity. When researchers approach TNE cases, mixed methods provide space for centering the contextual richness of such projects.

Mixed Methods in Transnational Higher Education

Over the past 30 years, research has steadily proliferated on transnational education and international program and provider mobility. Although most scholarship has focused on institutional motivations to develop campuses and managerial topics, with very little published work on the methodological complexities of TNE research (Escriva-Beltran et al., 2019; Knight & Liu, 2019), although there are some exceptions (Bordogna, 2016). Such trends are partially due to the rapid increase in IBC development in the late 1990s and early 2000s, which resulted in applied work being conducted by those working in or with transnational institutions. These tendencies are also due in part to the seemingly marginal role of TNE within the broader internationalization of higher education research arena (Altbach & DeWit, 2020). Researchers have tended to assume that the same methods that apply to the movement of people also apply to the movement of institutions, programs, models, and policies. TNE research is unique because it must be highly contextualized and is not easily generalizable, and thus, the sub-field is dependent on case studies. The global nature of TNE also demands varying methodological orientations, unlike studies of place-based mobility. This is especially the case since no central data depositories exist regarding aspects of TNE such as programs offered or enrollment. Therefore, the complexity of conducting research on TNE must be addressed with mixed methods approaches.

Mixed methods research (MMR) is a third research community in addition to the qualitative and quantitative communities (Tashakkori et al., 2020). The use of mixed-methods research in higher education remains in its infancy (Seyfried & Reith, 2019), and its application in TNE is even more limited. Tight (2013) found that only 5% of higher education articles used a mixed-methods approach. Examples of mixed methods studies in international higher education research are even scarcer, although recent work has employed MMR (e.g., Doyle et al., 2022; Whatley & Stich, 2021, 2022). To adequately address the TNE Third Space, it is necessary to use the third research community of mixed methods, which provides an appropriate approach that emphasizes complexity and context.

An MMR design is "a procedure for collecting, analyzing, and 'mixing' both quantitative and qualitative methods in a single study or a series of studies to understand a research problem" (Creswell, 2012, p. 535). For example, in the example case we will discuss later in this study, the researcher utilized both quantitative survey data and qualitative interview data. MMR designs are distinct from wholly quantitative or qualitative designs in that they combine two or more types of data collection and analysis. Importantly, this involves converging the data as part of the analysis.

Research questions also play a central role in deciding the appropriate mixing to be done in an MMR study. Johnson and Onwuegbuzie (2004) argue that "a key feature of mixed methods research is its methodological pluralism or eclecticism, which frequently results in superior research (compared to mono-method research)" (p. 14). As they point out,

> A tenet of mixed methods research is that researchers should mindfully create designs that effectively answer their research questions; this stands in contrast to the common approach in traditional quantitative research where students are given a menu of designs from which to select. It also stands in stark contrast to the approach where one completely follows either the qualitative paradigm or the quantitative paradigm. (Johnson & Onwuegbuzie, 2004, p. 20)

This tenet about creating "designs that effectively answer their questions" (Johnson & Onwuegbuzie, 2004, p. 20) is particularly relevant for TNE researchers, who must grapple with a context very different from that of other educational researchers.

While MMR designs provide "a variety of paths or ideal design types" (Tashakkori et al., 2020, p. 115), "the actual diversity in mixed methods studies is far greater than any typology can adequately encompass" (Maxwell & Loomis, 2003, p. 244). Consequently, TNE researchers can exercise creativity by customizing the design of their studies to each individual case without being concerned with typologies. If there is an interest in generalization, a quantitative element can be integrated into the overall design, with the caveat that the study is still a case and not representative of all TNE institutions.

According to Teddlie and Tashakkori (2009), utility is the rationale for employing MMR. They argue that the motivation to integrate or develop new techniques for MMR persists despite the abundance of research methods associated with the qualitative and quantitative traditions. They identify three key areas that highlight the superiority of MMR compared to single-approach designs: "(a) MMR can simultaneously address a range of confirmatory and exploratory questions with both the qualitative and the quantitative approaches, (b) MMR provides better (stronger) inferences, (c) MMR provides the opportunity for a greater assortment of divergent views" (p. 37). The pragmatist orientation and stance, particularly when embedded within MMR, provide a strong foundation for conducting TNE research that depends firmly on the research question as the guidepost for every project. In choosing MMR for studying TNE, one avoids the methodolatry of being a wholly quantitative or qualitative researcher (Janesick, 1994). Such an individual seeks to lead with their method of choice instead of the most appropriate approach based on their research questions (Janesick, 1994). Researchers who choose to 'do' one method seek out certain research questions based on their methodological expertise, not based on what they want to ask or even what truly needs questioning to improve the social world.

The individuality factor is particularly important to TNE research. Most recent literature on MMR designs states that researchers should embrace individual approaches to designing studies that are driven by the research questions rather than the need to adhere to a particular typology (Tashakkori et al., 2020; White, 2017). However, working within established typologies aids in speaking a "common language" with other MM researchers and helps to "legitimize the field" (Tashakkori et al., 2020, p. 115). Therefore, Taskakkori et al. (2020) recommend that researchers learn about the "families" of MMR. From there, "they can select the 'best' one and then creatively adjust it to meet the needs of their particular research study" (p. 116). To choose the best design, Tashakkori et al. (2020) proposed a six-step process for designing MM studies, but caveated that most MM researchers will need to adapt the steps for their individual processes, as there is no menu of options or set framework for MMR. While predetermined MMR design matrices are helpful for understanding the general type of research design, MMR is inherently complex and hybrid, rarely fitting into the neat categories of design types.

This overarching MMR framework provides the flexibility to approach TNE research from multiple perspectives and angles. This approach is key to understanding the full complexity of not only the case, topic, or institution at hand but also the TNE Third Space that governs it. Since numerous realities exist in the social environment, a pragmatic approach combined with mixed methods can provide a more complex and accurate picture of diverse social phenomena (Shan, 2022). However, "to approach mixed methods inquiry pragmatically does not mean to ignore or set to one side philosophical assumptions and stances when making practical methods decisions" (Greene, 2007, p. 85). To effectively contribute scientifically sound conclusions based on pragmatic stance-based designs, researchers must pay attention to the methodological standards, traditions, and literature base in qualitative, quantitative, and mixed-methods research.

Mixed Methods: Case Application Turkish-German University

To explore the unique and innovative MMR in TNE, we will examine a pre-existing study by one of this paper's authors (Schueller, 2020a, 2020b, 2021a, 2021b; Schueller & Keser Aschenberger, 2022; Schueller, 2023) to understand the employment outcomes of alumni of a binational university based in Turkey. We will present this study, which is a cross-cultural, complex/hybrid multi- and mixed-methods case study of the role of labor market outcomes at critical junctures of the student lifecycle at a binational university, from a methodological perspective (Schueller, 2020a, 2020b, 2020c).

The Turkish-German University (TGU) is a binational university in Istanbul, Turkey, that operates in collaboration with Germany. Consequently, the TGU operates in a TNE third space that is informed by both German and Turkish cultures and regulations. At the time of the research (2020–2021), the TGU had less than 200 alumni, but it focused much of its marketing on graduates' career outcomes. As such, we undertook this study to understand the outcomes of TGU alumni—as in, did they start careers in Turkey or leave for work in Germany? Moreover, how did their outcomes align or misalign with their reasons for attending the TGU?

This institutional case study of alumni outcomes in TNE involved the simultaneous collection and analysis of quantitative and qualitative data via a convergent, parallel, mixed-methods case-study approach (Creswell, 2012, p. 540). The quantitative aspect of this research centered on an online survey of students and alumni, whereas the qualitative portion consisted of semi-structured interviews with expert stakeholders and alumni. With a design that allowed both exploratory and descriptive research types and a combination of data-collection methods, this investigation could generate a deep and contextualized qualitative understanding of the interview findings, strengthened by quantitative survey results. The research questions, basic line of inquiry, associated method, analytical technique, and point of convergence are presented in Table 2.

Based on this line of inquiry, we identified MMR as an appropriate approach for addressing multiple stakeholders, including prospective students, current students, alumni, and institutional stakeholders from Germany and Turkey, with the goal of creating as comprehensive a case study as possible. At this point, it was also important to identify MMR-specific customs for crafting research questions driven by the line of inquiry. MMR requires an overarching research question that allows for high-quality integration of data and findings; this integrative approach to answering a meta-question is a sign of strong MMR (Tashakkori et al., 2020, pp. 120–123). In this study, the meta-question was "What are the labor market outcomes of TGU alumni?"

Since this study takes one university as a case, it fits into both MMR and case study research. Yin (2009) describes the latter as "an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 2009, p. 18). Within this study, the case is the TGU, with

Table 2 Convergent Parallel Mixed-Methods Design in Relation to Research Questions

Viewpoint Explored & Research Question	Method		Analysis	Convergence & Main Research Question
	Type	*Instrument*		Overall
Institutional View	Qualitative	Semi-structured interviews	Deductive coding based on themes from the quantitative study	*RQ6: What role do labor market outcomes play at the binational Turkish-German University?*
RQ1: What are the institutional goals and expectations of the TGU in relation to labor-market outcomes?			Inductive coding *Software*: atlas.ti	Step 1) Separate analysis of quantitative and qualitative studies; compare to document review
Student View	Quantitative & qualitative	Student survey	*Quantitative*	Step 2) Merged quantitative results and qualitative findings alongside document review and analyzed for overlapping themes and areas of (mis)alignment
RQ2: What are the student motivations for attending the TGU?		*Quantitative* ordinal-scaled items; scale development.	Descriptive statistics; scale analysis; group comparisons; ANOVA	
RQ3: What are the student expectations and perceptions of labor market outcomes?		*Qualitative interviews* Open-ended questions	*Software*: SPSS	
Alumni View	Quantitative & qualitative	Alumni Survey	*Qualitative*	
RQ4: What are the alumni expectations and perceptions of labor market outcomes?		*Quantitative* ordinal-scaled items; scale	Inductive coding	
RQ5: What are the labor-market outcomes of TGU alumni?		*Qualitative interviews* Open-ended questions	*Software*: atlas.ti	

Authors' conceptualization based on study design a focus on its alumni outcomes. This focus aligns with Yin's (1994) explanation that "the all-encompassing feature of a case study is its intense focus on a single phenomenon within its real-life context ... [Case studies are] research situations where the number of variables of interest far outstrips the number of datapoints" (p. 13).

Constructing MMR requires researchers to exercise flexibility and creativity, embracing modifications that go beyond pre-set designs (Tashakkori et al., 2020, p. 114). The research design we chose for this study is best described as a "hybrid" (Tashakkori et al., 2020) or "complex" (Greene, 2007) mixed-methods design. A hybrid design "allows a mixture of elements from different families" (Tashakkori et al., 2020, p. 117). The approach involves design aspects from across the spectrum of MMR typologies, including the following: iterative, exploratory, explanatory, opportunistic, emergent, multi-method, multi-strand, sequential, and connected. Tashakkori et al. (2020) recommend describing any design that combines elements from multiple MMR designs as a hybrid mixed-methods design, which

> [employs] a combination of features from two or more of the three basic design families (parallel, sequential, conversion) in three or more strands.

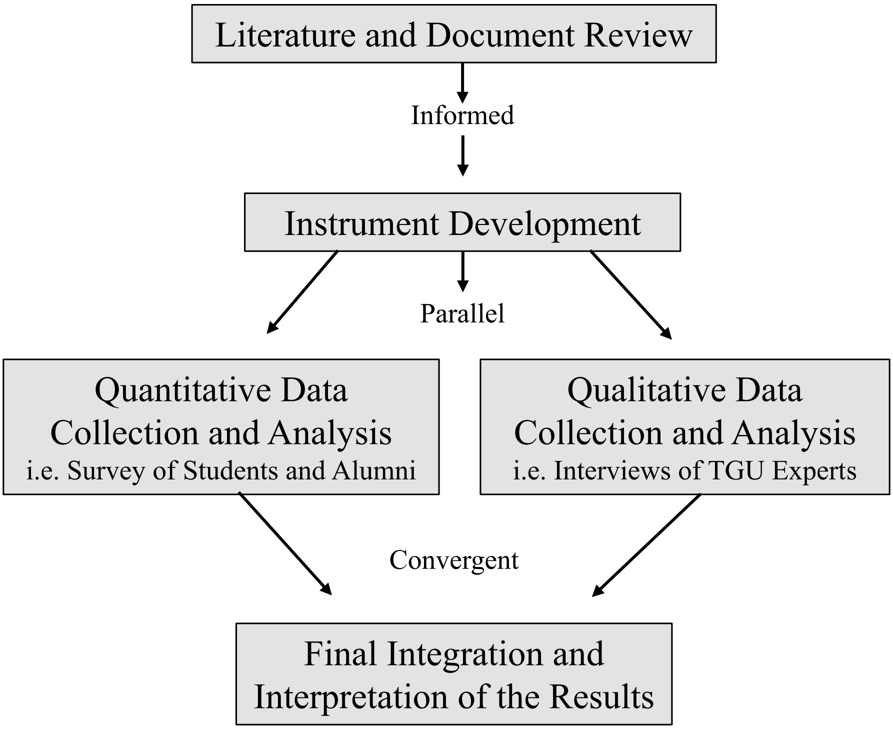

Fig. 2 Convergent, parallel, mixed-methods, case-study study design. Source: Authors' conceptualization based on study design (Schueller, 2021b)

> Mixing of QUAL and QUAN approaches occurs at multiple stages of the study (across two or more strands). As with all MMR designs, degree of integration can vary in different hybrid designs. (Tashakkori et al., 2020, p. 140)

While hybrid designs are unique in combining varying aspects, this study's design most closely resembles a parallel convergent design. No phase or strand is clear-cut; each involves multiple steps that are often iterative within a phase and between phases. This project was inherently complex, not for the sake of sophistication but rather to obtain the most reliable, relevant, and valid data. Figure 2 presents the overall study design.

Both primary and secondary data were collected in this study. The primary data were collected through a survey and interviews. Secondary data informed the instrument development and the collection of primary data. Sources came from academic and gray literature, program and project reports, government proceedings and publicly available university and government records, bilateral agreements, evaluations, quality and audit reports, meeting minutes, media announcements, and laws and regulations. We reviewed some well-known graduate surveys in Europe, such as EUROGRADUATE and several smaller-scale studies (e.g., Shumilova et al., 2012), for the instrument development.

We developed an online survey comprising 33 questions for students and alumni, which included a set of questions specifically for alumni. It was split into five categories, each directly corresponding to one or two of the research questions. One survey was used for both target groups (students and alumni), but different questions appeared depending on whether a student or an alumnus was answering. Survey participants had the option to fill out the survey in either Turkish or English. A pilot study preceded the survey's official administration. We sent the revised survey three times between July and September 2020, in one-month intervals, directly to students' verified accounts from an official TGU account. We then cleaned and analyzed the data in SPSS.

We conducted semi-structured interviews with information-rich stakeholders from the TGU and the DAAD for the qualitative data collection. Interview guides were developed and refined using the same process as with the survey, and translated into German. The interview guide for the key stakeholders included 30 questions, which varied slightly depending on if the stakeholders being interviewed were situated in Germany or Turkey. The interview guide used the same overarching categories as the survey. Interviews were conducted between July and October 2020, after which all responses were transcribed, coded using both deductive and inductive coding, and analyzed in atlas.ti. A full description of the study method and findings appears in the original thesis (Schueller, 2021b). A summary of the study has been published in English (Schueller, 2021a) and German (Schueller, 2023). In addition, a further publication addressed the role of theory in the study (Schueller & Keser Aschenberger, 2022) as well as practitioner-focused topics (Schueller, 2020a, 2020b).

The overall results of this study suggest that TNE institutions support host country labor market outcomes and do not necessarily contribute to brain drain through the migration of highly educated graduates. Furthermore, participation in a TNE program does not necessarily contribute to the likelihood of a mobile international career. While alumni found jobs in Turkey at high rates, most had originally chosen the TGU for the opportunity to pursue an international career. For many Turkish alumni, working at German or international companies was the goal, as was using their international experiences to give back to their home country. Other alumni, particular those pursuing a bachelor's degree in law, reported feeling that they were tricked into a program that was not marketable in Turkey nor useful for finding a job in Germany. This perception resulted in an expectation hangover. In a sense, these two findings contradict each other. The first point supports the assumption that German TNE benefits the host society. The second, however, highlights how German TNEs—BUs and the TGU, in particular—are marketed. The data shows that strong labor market outcomes for alumni can be associated with TNE, albeit primarily in the host country labor market. Therefore, TNE institutions, especially those from non-English-speaking countries, must fundamentally rethink their marketing regarding employability and their support in terms of student career services.

Using this MMR approach, we triangulated multiple stakeholders' beliefs and visions for TGU graduates with the lived experiences, expectations, perceived challenges, motivations, and attitudes of TGU students and recent alumni. Had this study only examined students' perspectives of their experiences and alumni outcomes, we could not have achieved comprehensive findings. It was vital to incorporate the interviews and the stakeholder perspectives from partners in Turkey and Germany. By juxtaposing these various viewpoints, we gained insights that provide direction and insight regarding the past, current, and future role of binational universities and binational education in student career development and labor market outcomes.

Reflections on Using a Mixed-Methods Approach in TNE Research

Each transnational education institution operates differently and is subject to different regulatory mechanisms, whether it be a British IBC in Malaysia, a German-backed university in Jordan, or an Italian branch in Uzbekistan. The rise of organic and strategic education hubs is also correlated with the explosion of international campuses. Other forms of transnational campuses have developed simultaneously, albeit in much smaller numbers than IBCs. Transnational education institutions encompass international branch campuses, international joint universities, binational universities, regional universities, and networked universities.

Many TNE studies are inherently case studies, since there are often no locally comparable institutions or locations with which to make reliable or justifiable comparisons. While case studies have inherent weaknesses, conducting a case study with MMR capitalizes on the strengths of case study work. These strengths are especially evident when a study includes multiple stakeholder perspectives, such as students, parents, alumni, administrators, faculty, leadership, employers, policymakers, and the public. What follows is a collection of design choices made in the study, reframed as reflections that other researchers can utilize as they embark on designing mixed-methods research in TNE studies.

Research Design Choices

The first choice involved the use of multiple phases and strands. This study combined four parallel phases, which we divided into multiple strands. Each phase and strand followed or emerged from the prior strand. Some MMR studies have as many as 20 phases Tashakkori et al., 2020. While this design was partially predetermined, all MMR must allow for some movement if necessary. In MMR, phases and strands are "nested" within each other, with each data collection and analysis strand building on and informing the next (Small, 2011, p. 69). As such, "the research questions, data, and data analysis procedures for a later strand depend on (are determined or influenced by) the previous strand. Qualitative and quantitative strands are related to one another but may evolve as the study unfolds" (Tashakkori et al., 2020, p. 124). Phases and strands should be preplanned in MMR based on the research questions (Tashakkori et al., 2015).

The second choice involved multiple methods. We used qualitative and quantitative methods, including survey research and semi-structured interviews. In addition, leading up to these main forms of data collection, we engaged in document analysis and conducted an extensive literature review. Researchers should consider the role of multiple methods from the same methodological category (e.g., two qualitative strands and one quantitative strand), as we have done in the present study. In the TGU study, qualitative interviews with institutional stakeholders and interviews with alumni were conducted, and we counted them as two separate strands with different interview protocols. Studies do not have to include a survey and interviews to be counted as MMR; many other viable combinations exist (consult Tashakkori et al., 2020 for examples).

MMR design choices are enabled or limited by extraneous factors, such as the financial and temporal resources available to the researcher(s). For example, one of the authors of this study was enrolled in a fully funded graduate program while undertaking the TGU research project. This enabled her to devote significant time to the project, including time to visit the TGU on-site. Most of the work, such as interviews, were conducted online, reducing costs. However, observing the local context is not possible in the same way through such means. Like all research, MMR is replete with design choices that must be made and understood in the context of the researcher's constraints.

Theoretical Choices

Within psychology and sociology, the theoretical debate regarding how the individual–societal dynamic can be parsed plays out in cross-cultural research. This debate is significant because "individuals can vary quite a bit in the extent to which they subscribe to group beliefs, values, and practices. Furthermore, individuals differ within themselves in expressing, enacting, or applying their cultural beliefs"

(Schrauf, 2018, p. 479). As such, the individual impacts the culture and the culture impacts the individual, making it difficult to determine causality. However, mixed methods, which involve collecting data at multiple levels and analyzing them both individually and together, are key to engaging effectively with the individual-cultural dynamic in cross-cultural studies (Schrauf, 2016, 2018).

Moreover, as designs in MMR are still evolving, one area of tension has become aligning theory with the mixed methods approach. Alavi et al. (2018) observed: "When a theoretical framework (and its components) is not clearly linked to research methods, researchers risk designing flawed studies, wherein the stated research question is inconsistent with the research design" (pp. 528). While researchers may be explicit about their theoretical orientation, they do not always clearly indicate how their research design aligns with the theoretical framework, or how concepts or constructs fit into both. These oversights ultimately impact the validity and reliability of the research results (Alavi et al., 2018).

Researchers often select theoretical frameworks after the fact, to make sense of the data or interpret it through a favored framework. Some scholars argue that "research processes in higher education research rely on concepts and theories, which are borrowed from other more or less connected research fields. It requires considerable work to transfer theories and concepts and make them fit into a context that they were not genuinely invented for" (Seyfried & Reith, 2019, p. 113). Due to the novel topic addressed in this study and our goal of achieving theoretical and methodological linearity and complementary, we conducted a comprehensive review of transnational human capital to develop the unique theoretical framework used in the study (see Schueller & Keser Aschenberger, 2022 for a complete overview).

Data Choices

First, data conversion occurred at multiple stages in the study. This process involved converting quantitative data into qualitative and vice versa, such as when we used the themes found in qualitative data to devise the quantitative instrument. In this type of study, both sets of data that result from the same collection technique are analyzed separately and together, revealing new insights (Tashakkori et al., 2020, p. 132). These results are then used to inform the next data collection process. In the case of our study, this occurred when we converted the most commonly occurring themes from survey comments into questions that were used to shape a semi-structured interview guide for alumni. Researchers should consider ahead of time which data conversion opportunities exist at which points in the study (Tashakkori et al., 2020, p. 118).

Second, there was no priority for a certain type of data (quantitative or qualitative) in this study, and therefore one form of data did not have higher importance than or dominance over the other (Tashakkori et al., 2020, p. 117). This method represents an "equal-status" design (Tashakkori et al., 2020, p. 119), a design approach that is "very important and characteristic of strong MM research" (Tashakkori et al., 2020, p. 123). However, depending on the research, some studies may choose to prioritize one type of data over another.

Third, we used diverse data sources of different levels. One key consideration in designing MMR involves choosing data sources. Our focus on methodological variability was directly related to cultural variability among the participants. Regarding methodology, Schrauf (2018) argues that the range of cultural variability within and between groups is best captured with multi-method approaches that are “sensitive to different dimensions or levels of cultural variation.” Results are also optimized when the mixed-methods researcher “purposefully brings together these differing accounts to generate a more coherent and comprehensive view of what is shared across groups and unique to each one” (Schrauf, 2018, p. 478). Applying a mixed method approach to the study of TNE provides space for data collection and analysis that addresses multiple dimensions. This study involved the entire target population of alumni at the TGU in all parts of the study: the only exception was that we used a subsample of this target population for the qualitative portion due to time and feasibility constraints. This study included multi-level data at the individual unit level (students, alumni) and at the institutional unit level (institutional stakeholders). The institutional- and individual-level data included the same participants throughout the study. Data on other individuals (e.g., students, faculty, alumni) or on other institutional types were not included. While this decision limited the breadth of the investigation, it allowed the study’s scope to accommodate depth. Data sources for the quantitative and qualitative phases came from the same sample or were a subsample of the main sample (Tashakkori et al., 2020, p. 117). Especially within TNE research, it is possible to reach incredible depth in data sources when applying MMR as a part of the research design.

Cross-Cultural Choices

This research sought to explore career outcomes among TNE alumni using mixed methods. Since the primary researcher did not speak the alumni’s language natively, the cross-cultural aspect of this project required extra attention and consideration. Cross-cultural mixed-methods research designs are projects “in which data are systematically collected and analyzed from two or more socio-cultural contexts for the purposes of making comparisons between groups on a phenomenon of interest” (Schrauf, 2018, p. 477). In considering how the “integration of data types in cross-cultural research sharpen our sensitivity to cultural difference and refine our explanations,” Schrauf (2018, p. 477) suggests three areas of consideration: methodological (e.g., How can the range of cultural variability within and between groups be captured?), theoretical (e.g., How can the individual–societal dynamic be parsed out?), and data collection and analysis (e.g., How can cultural equivalence in data collection and analysis be achieved?; p. 477). Within this study, we treated the target population in multiple ways: as one group that has individual variety within it, and as two or more groups (e.g., based on regional differences, sending or host country affiliations) that we compared to each other.

Furthermore, cultural equivalence in data collection and analysis was a key concern. As Schrauf (2018) notes, “ensuring the conceptual equivalence of constructs, the functional and linguistic equivalence of instruments, and the authentic comparability of translated data are critically important issues for all cross-cultural research" (p. 479). For data to be equivalent across cultural groups, Schrauf (2018) notes that the following must be present:

- *Construct equivalence* (i.e., whether the psychological or social construct of interest has the same meaning and functions in two or more cultural contexts)
- *Meaning equivalence* of the natural language expressions of the groups under study (i.e., the issue of translation in data gathering and analysis)
- *Cross-cultural instrument validation* (i.e., addressing whether and how interview schedules, instruments, and surveys have been pilot tested and/or validated in each of the cultural contexts; pp. 490-491).

To address these areas of equivalence, this study first integrated a language and expression search through multiple pilot studies involving native speakers and translators. One aim was therefore to understand the language, terminology, and expressions used by the participants and whether any differences existed. The language, constructs, and instruments were then reviewed and checked for cross-cultural validity through the pilot study. These aspects were already integrated into the study design prior to the data collection, accounting for the cross-cultural, between-group, and within-group components of this study.

Validity and Reliability, Trustworthiness, and Methodological Integrity

MMR research requires attention to measures of validity, reliability, and trustworthiness to ensure methodological integrity. In quantitative research, it is particularly important to ensure validity and reliability. According to Fraenkel et al. (2009), validity "refers to the appropriateness, meaningfulness, correctness, and usefulness of the inferences a researcher makes," and reliability "refers to the consistency of scores or answers from one administration of an instrument to another, and from one set of items to another" (p. 147). Qualitative research additionally requires trustworthiness, which can be ensured through credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). This requirement was addressed in the overall study design, as well as in each separate strand and specific instruments we used.

To establish validity, the results and findings must be tested for internal consistency (e.g., pilot study, reliability tests) and subject to methodological and theoretical triangulation in the data collection and analysis. Creswell (2012) defines triangulation as "the process of corroborating evidence from different individuals (e.g., a principal and a student), types of data (e.g., observational field notes and interviews), or methods of data collection (e.g., documents and interviews) in descriptions and themes in qualitative research" (p. 629). Triangulation offers data richness and increased methodological integrity while unearthing any viewpoints that diverge from the patterns in the quantitative results (Patton, 2002). To ensure our study's reliability, two experts in the field of education research rated the survey and interview guides.

We took three steps to ensure external validity, which refers to the extent to which the results can be generalized or transferred (Fraenkel et al., 2009): First, information about the features of the setting, sample, and procedures was recorded. Second, a journal was kept to document the researcher's processes, thoughts, and biases, beginning at the conception of the research project. Third, every effort was made to ensure a large sample for the survey and the representation of a variety of stakeholders. All components of the research were reviewed for dependability by an education research expert. Finally, we paid particular attention to the internal and external validity of our instruments based on standards created specifically for instrument development and validation within MMR studies (Onwuegbuzie et al., 2010).

Positionality and Role of the Researcher

Research positionality within international higher education and global exchange studies was acknowledged in the early years of the field's development: "Research on educational exchange – like all research – has a very strong personal component and scholarly interest or individual edification may prompt research just as much as professional interest" (Littmann, 1987, p. 197). The role of the researcher is paramount in every study, including traditional quantitative designs. The researcher's own life experiences, biases, personality, and interests inform and influence the choices they make about the research they do. As Seyfried and Reith (2019) argue, in higher education, "the connection between research subjects (who are conducting the research) and research objects (who are under investigation) is closer than in any other research field. In this sense, researchers have often argued that the combination of field knowledge and scientific practice is a unique advantage. At the same time, it "exposes researchers to a high risk of institutionalized introspection resulting in investigations of implicit assumptions and biases based on individual or collective perceptions" (p. 113). This observation is especially concerning for researchers who work at the TNE institution they are researching. Beginning with the choice of topic, the researcher has the power to shape a study that could help or harm the living beings (human or otherwise) that they interact with and influence over the course of the study. In MMR, it is vital to include positionality.

Managing Limitations

There are many limitations involved in implementing an MMR research design, the most obvious of which is that this design type is inherently risky. Fetters & Molina-Azorin, (2017) points out:

> When embarking on a new study, one does not know whether the multiple types of data will confirm each other. Rather, at the design stage and at the

onset of implementation, the extent that the data will confirm, expand, diffract, tell different stories, or contradict is unknown (p. 8).

MMR requires a long time frame and significant effort for the development of instruments and data collection, as well as for data analysis. Tashakkori et al. (2020) have noted on multiple occasions that MMR is especially cumbersome for doctoral and early career researchers because it requires them to be familiar with multiple paradigms, methods, and modes of analysis. While rare, it is not entirely uncommon for doctoral researchers to choose MMR if their research questions dictate it as the most appropriate approach, especially in TNE studies.

In addition, conducting MMR (whether as part of a degree program or stand-alone research project) often requires the methodological expertise of two or more scholars. Such projects may involve working with a team of researchers with diverse epistemological perspectives that must be managed and negotiated throughout the process. When working with researchers from varying methodological backgrounds, generalizability may also become a point of contention. Comparative education research has shown that while it is possible and necessary, it is challenging to generalize data across diverse nations, cultures, and educational frameworks (Crossley, 2009). Findings may be generalizable to an institution or a host country's other TNE projects. In some cases, they may not be generalizable at all. Rarely are generalizations possible in TNE for these reasons, in addition to the complicating dynamics of the TNE Third Space. To the extent possible, we encourage researchers to discuss such issues early in the process, instead of having to confront them at a later stage when it is more difficult to change the research design.

Further limitations include difficulty recruiting participating institutions and individuals, gaining permission for research, and achieving respectable response rates. All these factors may impact MMR's feasibility in TNE studies. However, MMR's multi-layered designs can be shaped to account for these potential limitations. For example, participants can be surveyed ahead of interviews to determine whether a larger survey with an advanced scale design would be feasible, considering the response rate from the first survey.

Integration of Findings and the TNE Third Space

Tashakkori et al. (2020) recommends integrating data at multiple points throughout the study to "capture the benefits of MM research to answer research questions" (p. 130). This study fully integrated the results and findings from all data collection sources to answer the research questions. This integration occurred at multiple points during the study, and again at the conclusion of the study, in order to make meta-inferences (Tashakkori et al., 2020). Due to the complex nature of this study's design, data integration occurred at all four levels: initiation, implementation, analysis, and inference.

Research on TNE requires battling with cross-cultural research, language, and translation of data, as well as confronting asymmetries in knowledge, power, and difference in partnerships at institutional and national levels. While some studies focus on an institution's or specific country's approach to TNE, other studies put TNE in the background and foreground other topics. These may include quality assessment; graduate employability; sustainability, diversity, equity, and inclusion; virtual/blended learning; crisis response and risk management; relevance to the host region and community; and economic impact (see Hill et al., 2022). Regardless of the topic and study method, the TNE Third Space remains relevant whenever research analyzes a two-party TNE program, institution, or activity. To illustrate the importance of considering the TNE Third Space, we emphasize that transnational education institutions can either be sites of inequality or sites of increased access, equity, and inclusion, depending on the TNE Third Space context. Outlining the third space in TNE studies is necessary for accurately exemplifying the relevant contextual factors, regardless of the study topic or design. Understanding where the Third Space exists in a TNE case study means recognizing and unpacking the dual entities, as well as identifying the boundaries, influences, and actors of the TNE Third Space to constrain or advance a study's topic. To do this, researchers can map the stakeholders and influencers in the first, second, and third spaces of a given TNE project.

Conclusion

In this article, we aimed to demonstrate the potential benefits and explore the complexities associated with a mixed-methods research (MMR) approach in transnational education (TNE) studies. The use of MMR in higher education research is uncommon despite its inherent benefits, and it remains especially rare in TNE studies. The use of MMR in our TGU study highlights the strengths of combining qualitative and quantitative methods. MMR allows for a comprehensive understanding of the multifaceted and multi-contextual nature of TNE, which occupies the Third Space between nations and cultures. The methodological design, which incorporates multiple phases and strands, multiple data sources, a process of data conversion, and an equal-status data approach, supports a thorough and detailed analysis. The incorporation of diverse data sources and multiple perspectives constitutes a vital characteristic in this study. Such practices are essential for fostering a comprehensive and in-depth understanding of both the research problem and the broader research context. The study's attention to cross-cultural considerations and its integration of findings at various levels further exemplifies the depth and breadth that is achievable through MMR.

Furthermore, we highlighted the importance of addressing validity, reliability, and trustworthiness in MMR, emphasizing the role of theoretical framework choice in enhancing research integrity. The humanizing approach adopted in the research design, along with the consideration of researcher positionality, exemplifies a progressive and ethical approach to TNE research.

While acknowledging the inherent challenges and limitations of MMR, this study illustrates its viability and richness, particularly in TNE contexts and in studies of binational universities. Our insights from the TGU study serve as valuable reflections for researchers considering MMR in TNE research. This study offers a template for methodologically sound, culturally sensitive, and theoretically informed research designs that move beyond the limitations of traditional single-study designs. The study's outcomes not only contribute to the TNE research field, but they also set a precedent for future research endeavors in similar complex and dynamic educational environments.

Authors' Contribution Jessica Schueller and Filiz Keser Aschenberger contributed to the study conception and design. Instrument preparation by Jessica Schueller and and Filiz Keser Aschenberger; data collection and analysis were performed by Jessica Schueller. The first draft of the manuscript was written by Jessica Schueller, reviewed and edited by Filiz Keser Aschenberger and Jason Lane. All authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Funding Open access funding provided by Danube University Krems University for Continuing Education. No funding was received for conducting this study.

Declarations

Competing Interests The authors have no competing interests to declare that are relevant to the content of this article.

Ethics Approval The research plan was reviewed and approved by the Miami University Research Ethics and Integrity Office.

Consent All study participants received a research information sheet and participant consent form (interviews) or checkbox (survey).

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