

Indicators of Internationalization in Higher Education Institutions: A Systematic Review

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Abstract

Background: Despite the numerous advantages of internationalization, universities and higher education institutions (HEIs) often encounter challenges when implementing internationalization activities. Part of the problem concerns the vague definition of internationalization and its performance indicators.

Objectives: The present research aims to identify indicators for internationalization in universities and (HEIs) by conducting a comprehensive literature review to help universities better understand and implement internationalization activities and processes.

Methods: This study is a systematic literature review, informed by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, in which six bibliographic databases, including Web of Science, Educational Resources Information Center (ERIC), ScienceDirect, and Wiley Online Library for English literature and Scientific Information Database (SID) and MagIran for the Persian literature were searched in 2023. Approved articles underwent synthesis, and findings were analyzed using qualitative content analysis.

Results: A total of 2086 articles were identified, out of which 37 were selected for content analysis. The content analysis and final synthesis revealed six overarching themes consisting of 12 subthemes, 38 groups, 11 subgroups, and 466 codes. The main themes included education (with three subthemes of internationalization at a distance, quality assurance and continuous improvement of internationalization, and internationalization of education, teaching, and learning outcomes), international aspects (with two subthemes of international public relations and communication, and international cooperation and networking), research (with two subthemes of internationalization of research, and commercialization of ideas and innovations), students (with two subthemes of student welfare/support services, and cultural/social services), management and human resources (with two subthemes of management, and human resources), and healthcare (with one subtheme of healthcare and treatment).

Conclusion: The results necessitate consideration of several indicators, rendering internationalization a multifaceted challenge that requires inter-sectoral cooperation at both internal and external university levels. The results hold significance for international relations managers and education policymakers in facilitating the planning and implementation of internationalization activities.

Keywords: Indicators; Internationalization; Universities; Higher Education Institutions

Background

It has been more than three decades since the discussion of the internationalization of higher education at national levels started in many countries as

an important aspect of responding to the challenges and needs caused by globalization (1). In many universities and Higher Education Institutions (HEI), the concept of internationalization has received much attention and is

becoming one of the main concerns of universities around the world. The importance of internationalization is so great that many universities and HEIs have gone beyond and included it in their vision/mission statements, operational plans, national institutional frameworks, and the content of their curricula (2). Knight has defined the internationalization of higher education at national, sectoral, and institutional levels as “the process of integrating the international, intercultural, or global dimension into the goals, functions, and delivery of higher education” (3). The internationalization of higher education has experienced many changes in recent years and has changed from a concept that was only related to the transfer of students to a broader concept that includes academic programs (student exchange programs, foreign language training, internationalization of curriculum), scientific research (international joint research projects, international conferences, and conventions), extracurricular activities, and international relations (4-7). Internationalization is one of the ways to respond to the effects of globalization while fully respecting the national identity (8). Universities and HEIs have realized more and more that internationalization is a necessity and a mission for all departments of a university rather than a marginal activity.

In Asian countries, creating world-class universities and promoting them in global rankings are often on the agenda of the internationalization of universities, and governments such as China and South Korea have adopted strategic policies to achieve such goals (9). Pre-defined and quantitative Key Performance Indicators (KPI) associated with governments' internationalization initiatives have also become commonplace with the rise of such policy measures (10). However, the problem is that achieving quantitative KPIs is often the end goal in some universities, and less emphasis is on improving the quality of internationalization activities. Most of the indicators in global ranking systems and academic journals are quantitative and of the same type as KPIs and are of the same problem (11).

Numerous studies have been conducted to investigate the internationalization of higher education, considering internationalization at organizational levels and internationalization of curricula and learning outcomes. The Organization for Economic Co-operation and Development (OECD) has provided a tool called “Internationalization Quality Review

Process” to evaluate internationalization. This assessment includes internationalization policies, support structures, academic programs, grants and contracts, students, scientific cooperation and research, and human resource development programs and opportunities (12). Ellingboe's Six Dimensions of Internationalization (1998) is the result of two large research studies in American universities (13). Five of these dimensions, i.e., faculty participation in international activities, international curriculum, study abroad, international students and researchers, and leadership, are mentioned in almost all internationalization documents and thus represent key components at the international level (13). In Paige's (2005) internationalization model, key functional categories include university leadership for internationalization, internationalization strategic plan, institutionalization of education, infrastructure and staff, internationalized curriculum, international students and researchers, studying abroad, participation of professors in international activities, extracurricular activities in the university environment, and monitoring the internationalization process (14).

In Iran, several studies have been conducted to investigate the internationalization of higher education at the institutional level and the internationalization of curricula and learning outcomes (15-19). Additionally, by interviewing 16 academic experts, Zamanimanesh et al. (2016) designed a local model for the internationalization of Iran's medical sciences universities (17). The conceptual model of their research included infrastructure (which indirectly and imperceptibly affects internationalization) and superstructure factors (which directly and visibly give medical sciences universities an international image). The infrastructure factors also included global and regional conditions, cultural and economic conditions, and political and security conditions, while the superstructure factors included management and human resources, scientific cooperation, space and equipment, curricula, extracurricular activities, monitoring and evaluation, and academic culture (17).

In Iran, despite the fact that the upstream documents and related long-term plans, such as “The 20-Year Vision Document,” “The Comprehensive Scientific Map of the Country,” “The Major Objectives of Science and Technology System,” “The Sixth Five-Year Development Plan Law,” and “Transformation and Innovation Programs of Medical Education,” by the Ministry of Health, Treatment and Medical Education

explicitly emphasize on the development of science and technology in the world and the expansion of international cooperation in all fields of science and technology, Iranian universities and HEIs are facing challenges in assuming the roles, priorities, and strategies of internationalization.

Objectives

The present study aimed to provide a comprehensive set of quality indicators that can be used for self-evaluation and peer evaluation of internationalization performance. The present study intended to provide a manageable set of internationalization evaluation indicators for universities and HEIs through a comprehensive review of existing literature. These indicators allow universities to analyze their current situation in relation to their internationalization activities, identify their weaknesses, and develop strategies and plans for internationalization improvement.

Methods

This study is a systematic literature review conducted based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, in which available original English papers related to indicators, criteria, or standards of internationalization of universities and HEIs were searched. The Patient, Intervention, Comparison, Outcome (PICO) framework was applied to identify and define the research population (universities and HEIs), intervention (internationalization activities), comparison (N/A), and outcome (self-reported effectiveness). The six bibliographic databases included Web of Science, Educational Resources Information Center (ERIC), ScienceDirect, and Wiley Online Library for English literature and Scientific Information Database (SID) and MagIran for Persian literature. All retrieved articles (n=2086) were examined. The data collection tool was a research-made form consisting of various fields, such as author, title, journal name, year, publication date, uniform resource locator (URL) of the article on the web, abstract, link to the full text of the article, organizational affiliation of the first author, country, type of study, data collection method, participants, number of participants, and main findings, which were organized in the form of a table. The validity of the form was confirmed through review by the research team, which has expertise and experience in the field of qualitative research methods. Original research articles published in both Persian and English languages

were searched in the target databases by applying a time span of 1 January 2017 to 16 July 2023.

Search Strategy

Keywords included Evaluation, Assessment, Accreditation, Quality, Standard, Criteria, Indicator, Internationalization, University, Higher Education, and their respective Persian equivalents. Boolean operators (AND, OR, NOT) were used appropriately to construct the search query.

Examples of English search queries included as follows:

- ((Evaluation OR Assessment OR Accreditation) AND Quality AND Internationalization AND (University* OR (Higher AND Education AND Institution*)))
- (Internationalization AND University* AND (Standard OR Indicator*))
- (Quality AND Internationalization AND (University* OR Higher Education) AND Iran)
- (Evaluation AND Quality AND Internationalization)
- Inclusion Criteria
- Being related to the research purpose, i.e., focusing on:
 - ✓ Internationalization standards/ indicators/ dimensions/ strategies/ policies in universities and HEIs
 - ✓ Pillars/ elements/ models/ frameworks/ patterns of internationalization
 - ✓ Development and implementation of internationalization
 - ✓ Internationalization of education and curricula
 - ✓ Internationalization of research
 - ✓ Original research articles
- The time span of 1 January 2017-16 July 2023
- Both English and Persian languages
- All countries/geographic regions

Exclusion Criteria

- Out of the study scope and focused on other issues of internationalization, including but not limited to:
 - ✓ Political theories/ colonialism and post-colonialism/ Westernization
 - ✓ Women's studies/gender studies
 - ✓ Intercultural competence/ sensitivity among students/ academic staff
 - ✓ Pedagogical aspects of English Language Teaching (ELT) and English as a Foreign Language (EFL)
- Systematic reviews, conference papers, book chapters, notes, editorials, book reviews

Screening and Data Extraction: In order to analyze data, retrieved papers were reviewed in terms of their

relevance to the research aim. The criteria for accepting the articles were to address at least one of the goals specified in this research. After reviewing the titles and abstracts of the articles, relevant items were extracted for full-text reading.

Quality Assessment

Quality assessment was undertaken focusing on the purpose of the review as explained earlier and on the following criteria: (a) The validity of the methods, (b) how far the specified outcomes were supported by the study findings, and (c) to what extent the content of the study described internationalization indicators/activities in universities and HEI.

Data Synthesis: The full text of the selected articles was analyzed and described using the qualitative content analysis method (20). In this method, concepts are classified in the form of analysis units, meaning units, codes, categories, and themes. The analysis unit is the smallest and most specific concept identified in the content and can be visual or verbal. Examples of analysis units include phrases, sentences, paragraphs, and images. All 37 articles underwent thorough quality assessment, and none were found to lack quality.

Results

Overall, 2086 article titles, 1102 article abstracts, and 731 full-text articles were reviewed, of which 37 articles were accepted for final analysis (Figure 1). A summary of the reviewed studies is presented in Table 1.

Content analysis and final synthesis of findings included the identification and extraction of six themes, 12 sub-themes, 38 groups, 11 subgroups, and 466 codes. The main themes included: Education, international relations, research, student welfare services, management and human resources, and healthcare services and treatment. The sub-themes and sample codes in each of the six themes are described in Table 2. In some themes and groups, due to the large number of codes, only examples have been mentioned.

Discussion

The field of education holds significant importance in the internationalization of universities and HEIs, with the highest number of indicators. Following that, the field of management and human resources comes into play, followed by the field of international relations, which exerts a great influence on the university's internationalization efforts. The field of healthcare and treatment, being a secondary focus for some universities and HEIs worldwide, possesses the fewest number of indicators and thus holds less significance in terms of the

internationalization of HEIs. While the attention and application of internationalization in universities and HEIs is increasing, there are many ambiguities about its meaning and application. There are several models for implementing internationalization in universities, and various measurement indicators for university internationalization have been proposed by various researchers, among which are the studies and indicators provided to serve universities in England (21), United States (22), Australia (23), Germany (24), Netherlands (25), Japan (26), Taiwan (27), and China (28).

In Iran, several studies have presented models of internationalization of higher education and highlighted significant indicators (2, 18, 29-31). There are various classifications available that help organize indicators into important groups based on the structure and functions of universities. In the literature, numerous dimensions and indicators of internationalization have been discussed. However, the most comprehensive collection of indicators was published in 2010 by the Indicators for Mapping and Profiling Internationalization (IMPI) report. This publication classified a comprehensive set of 489 indicators into nine distinct dimensions, including students, staff, administration, funding and finance, curricular and academic services, research, promotion and marketing, non-academic services, campus and community life, and others (26). In 2018, the United Nations Educational, Scientific and Cultural Organization (UNESCO) Bangkok proposed other dimensions, such as social participation and institutional networks. As all member states of the United Nations adopted the Sustainable Development Goals in 2015, the third mission of a university, social participation, was emphasized in the internationalization of higher education (32). In the present research, the common denominator of the reviewed studies showed that internationalization could be implemented in most of the five main dimensions of education, international relations, research, student welfare services, and management and human resources (33-35).

According to the results of this review, student/staff exchange, including virtual exchange or mobility, particularly during the coronavirus disease 2019 (COVID-19) pandemic and health emergencies (2, 17, 30, 36-48), use of virtual and online platforms for teaching (15, 19, 38, 39, 47-53), use of English language in teaching (18, 36, 40, 41, 51, 53-55), internationalization of curricula (15, 19, 37, 38, 41, 47, 55, 56), and admission of foreign students (2, 33, 36, 37, 40, 47, 49-51) are

frequent indicators in the internationalization of education, learning, and teaching.

During the COVID-19 pandemic, most of the articles in the field of internationalization of higher education have focused on using the capacities of virtual space and information and communication technologies (ICT) for internationalization, or have addressed educational challenges from the perspective of professors or students. The COVID-19 pandemic has disrupted many aspects of higher education, particularly the internationalization activities that involve the physical mobility of students and staff. To cope with this challenge, some universities have adopted virtual machine (VM) as an alternative way of providing international learning experiences to their students (39, 45, 48). While VM can offer benefits, including increased access, flexibility, diversity, and sustainability, it also faces challenges, such as quality assurance, recognition, equity, and inclusion. According to a recent report by UNESCO-International Institute for Higher Education in Latin America and the Caribbean (IESALC), VM has become more prevalent and diverse during the pandemic, but it still needs to be further integrated into the curriculum and supported by adequate policies and resources (32).

In the international relations field, most of the reviewed studies have focused on the importance of indicators, such as the active engagement of faculty members in international associations and forums (16, 18, 19, 30, 47, 57), academic development and joint and international capacity building projects (15, 38, 41, 43, 58), development of international cooperation (40, 43, 46, 54), signing memorandums of understanding (MoU) and memorandums of agreement (MoA) (18, 43, 44), and establishing international campuses/ branches (15, 18, 33, 35, 51).

While membership in international scientific associations is an important indicator, it has been less noticed by universities, particularly smaller universities with more limited financial resources, but considering its impact on networking, it plays an important role in creating international relations and its development. In the field of research, the results demonstrate that indicators, such as joint research projects (2, 15, 18, 30, 35, 37, 40, 45, 46, 49, 52, 55, 57, 58), organizing international/ joint workshops, seminars and conferences (2, 15, 17, 30, 35, 45, 47, 49, 50, 52), obtaining international research grants/ funds (15, 19, 33, 40, 47, 55), joint research with international organizations (37, 46, 49, 57), and publication of articles

in widely-recognized international journals (17, 33, 47, 53, 55), are among important indicators.

Joint research collaborations are a widely-defined indicator and is a portal for starting and implementing a variety of international activities, such as signing memorandums and research contracts, exchange of professors/ researchers, attracting research grants, cooperation with international research organizations, attracting postdoctoral researchers, and presenting research results in conferences and international events, and as a result, it is of great importance in the internationalization of research profile of universities.

In management and human resources, indicators, such as the inclusion of internationalization in the mission/ vision statement of the university (15, 18, 19, 35, 52, 58, 59), attracting guest/ visiting professors from international universities and institutions (33, 35, 40, 47, 50, 51, 55), developing the language skills of professors and staff (18, 36, 55), providing study opportunities for professors (15, 19, 30, 55) and developing a strategic plan for internationalization (15, 33, 58), are among the most frequent indicators. The importance of including internationalization in the mission/ vision statement of the university is so great that it was mentioned in almost all the reviewed studies.

In a study conducted in more than 100 universities in the United States, the researchers concluded that the importance of internationalization should be included in the statements, missions, and visions of the university, and a motivational and communication organizational structure should be provided to establish international communication (60). Another important indicator of this field is the attraction of international/ visiting professors, which seems to be the biggest weakness of Iranian universities. Due to legal restrictions and inadequate infrastructure, challenges in paying foreign professors, and financial transfer challenges, Iranian universities, in particular, are less willing to attract foreign professors/ employees (17).

Considering that government financial support is one of the most important factors affecting the attraction of international students and professors, it is necessary for universities to be financially supported by the government in order to be internationally competitive (61). In the student welfare services field, the most frequent indicators include developing intercultural communication skills (50), holding events inside/ outside the university for intercultural exchange (51), providing various services for international students (17), advising and guiding international

students (15), and increasing flexibility in facing different cultures (17). Internationalization has changed global platforms for education and connects three economic, political, and cultural dimensions with scientific and academic issues. In the cultural dimension, internationalization is an important factor in deep cultural influence, changing social views and cultural influence (62).

The articles reviewed in this study mainly focus on the internationalization of teaching and research missions of universities while neglecting service missions, such as providing healthcare services to society. This indicates a research gap in this area, particularly for countries like Iran, where such services are vital. Future research should address the internationalization of the services that universities offer to the public and citizens, for example, in the field of health tourism. Moreover, the new roles of universities as entrepreneurial institutions and the impact of internationalization on them are also underexplored and deserve more attention in future studies.

Conclusion

As shown by the results of this study, internationalization in universities and HEIs is a multifaceted and interdepartmental issue requiring the interaction and cooperation of all departments of a university and the integration of internationalization in all current processes of a university, such as educational services, research affairs, international affairs, student affairs, cultural and welfare services, management and human resources, and even healthcare services and treatment. While many dimensions and indicators of internationalization have been frequently discussed in the literature, the issue of using indicators to implement accreditation systems and evaluate the quality of internationalization in universities and HEIs and its effectiveness on quality improvement activities and processes has been less researched. The indicators identified in this research can be used in the establishment of such quality accreditation systems for the internationalization of universities. The results of this research help policymakers in the field of internationalization of higher education in evaluating the quality of processes and benchmarking activities.

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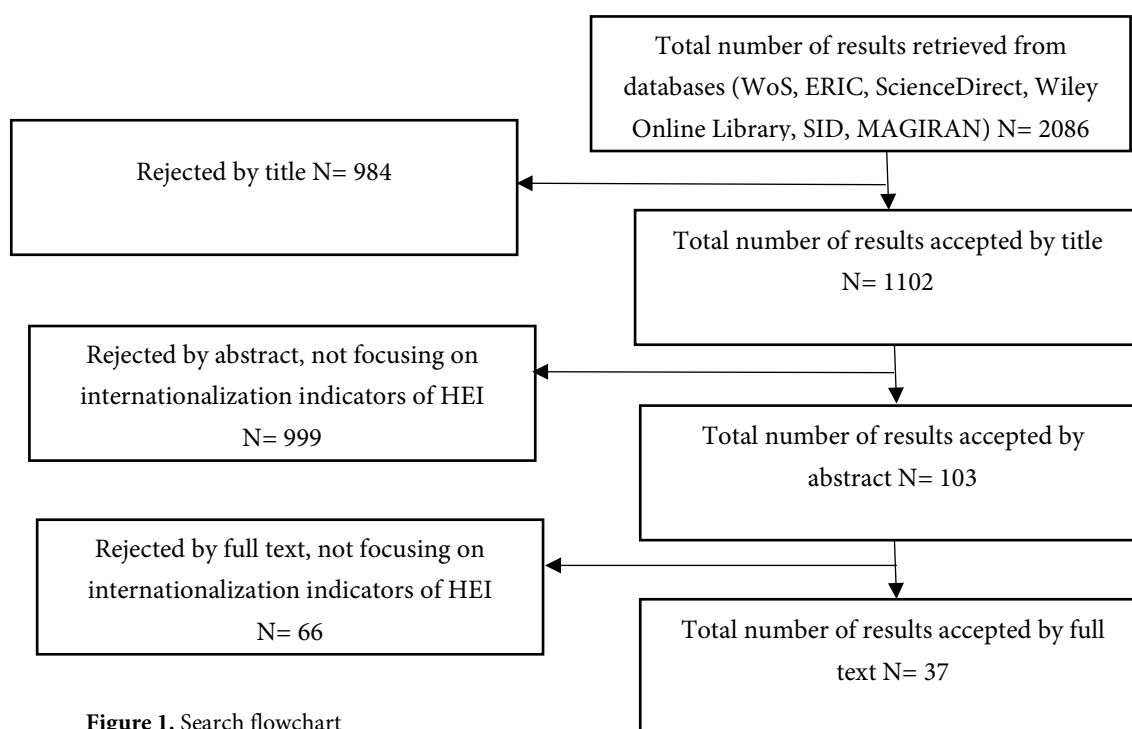


Figure 1. Search flowchart

Table 1. Summary of the reviewed studies

Author(s), Year	Study Type	Participants	Sample Key Findings
E. Movahed Kor, 2020 (43)	Interview	Internationalization executers, educational executers, and research executers	The interview content was categorized into 3 groups: SWOT analysis, subject/scopes (goals and preliminary actions), and actions/plans (development of academic affairs at the international level and explanation and development of international cooperation).
F. Hamidifar et al., 2017 (58)	Interview	International affairs directors and international branch deans	Internationalization of higher education and its distinction with globalization, effective management, and leadership, studying the environment and its impact on internationalization, program implementation, monitoring, and evaluation.
F. Behjati Ardakani et al., 2018 (56)	Documentary research	N/A	The model includes theoretical foundations, curriculum components, international research strategies, characteristics of internationalization factors (students and international faculty members), international infrastructure, implementation stages, and system evaluation.
H. Zamanimanesh et al., 2017 (17)	Interview	Academic experts	Infrastructure factors (global and regional conditions, cultural and economic conditions, and political and security conditions); superstructure factors (management and human resources, scientific cooperation, space and equipment, curricula, extracurricular activities, supervision and review, academic culture)
H. Zamanimanesh, 2017 (16)	Survey using questionnaire	Faculty members	Curriculum internationalization categories: Political/ diplomatic, structural/academic, sociocultural, information/ communication, content/educational, motivational/ humane, and equipment/ technological
S. Valimoghaddam Zanjani et al., 2020 (55)	Interview and survey	Faculty members and international relations staff	Components of faculty members role: Individual competence, educational-research activities, empowerment, and mobility
H. Zamanimanesh et al., 2018 (19)	Survey using questionnaire	Faculty members	Important fields: Political, financial, managerial, informational, academic, and cultural fields.
M. Pouratashi, 2018 (30)	Documentary research and AHP	Academic documents and academic experts	Physical feasibility, professional feasibility, institutional feasibility, promotion of university development, realization of upstream goals, and infrastructure feasibility.
S. Jafari et al., 2017 (2)	Interview	Faculty members and academic managers	Exchange of professors, students, and researchers, scientific and research interaction and cooperation, education and research and international services, exchange of knowledge and theory, creation of international culture, attraction of elites, income generation, and competition.
M. Arefi et al., 2018 (54)	Documentary research	N/A	New technologies, English language, international scientific-educational cooperation, and international research cooperation
F. Ghasemzadeh et al., 2019 (50)	Interview	Managers and students	Causal: Cultural, social, and economic; strategies: Academic and organizational; intervening: Administrative and support and service; background: Political and financial infrastructure, equipment and facilities; consequences: International communication and educational and teaching
G. Salimi et al., 2017 (53)	Interview	Faculty members	Teaching competencies: Up-to-date knowledge, English language, new technology in teaching, developing specialized knowledge, acquisition capabilities and improving, cyberspace in teaching, scientific motivation, specialized knowledge, professional development, time management, several languages, expert student, valid education, discipline

			in teaching, up-to-date resources, responsibility, and commitment. Research competence: Global knowledge, English scientific works, applied research findings, global research reputation, scientific cooperation, scientific and research ability, and the effectiveness of published works.
H. Zamanimesh et al., 2019 (15)	Interview and survey	Faculty members	International scientific cooperation; international extracurricular activities; organizational strategies; supportive strategies; human recourse development; internationalization of curricula; background conditions; monitoring and evaluation; and international opportunities.
M. Saniejlal, 2021 (59)	Documentary research	N/A	Internationalization in the institution's documents, the organization in charge of internationalization, internationalization budget line, and history of internationalization
H. Zamani et al., 2018 (18)	Interview	Academic experts	International curriculum, international human resources, international organizational structure, international extracurricular activities, international scientific cooperation, international opportunities, and process evaluation and review.
E. 29. Shamsi Gooshki et al., 2018 (29)	Review of literature	N/A	Education in the international arena (international students, international faculty, training graduates who have scientific, industrial and economic guidance, active participation in overseas education, establishment of international branches of universities abroad); scientific productions (writing articles, writing books, managing top global journals, translating knowledge, turning scientific findings into practical concepts); scientific leadership (new scientific concepts, scientific authority, scientific structures, guiding scientific associations and international companies)
J. Edalatian Shahriyari et al., 2021 (49)	Interview (faculty members) and survey (students)	Faculty members and students	Organizational: Strategic plans in higher education, resources to promote international activities and standards, accelerating international participation, university reputation, and the opportunity to attract international elites. Academic: Online and virtual education, up-to-date laboratory equipment, internationalization of higher education as a priority, international research collaborations, international conferences and seminars, and international scientific associations.
A. Khorsandi Taskoh et al., 2018 (36)	Survey and interview	Faculty members	Educational classes with group teaching method, student mobility, international students, joint courses, curriculum planning with the approach of developing citizenship behavior, curriculum planning with the approach of peace between nations and mutual understanding of nations, curriculum planning compatible with the social culture of international students, curriculum planning suited to the cultural needs of international students, teaching in English, educational resources and curriculum based on the development of intercultural understanding, sabbatical leave regulations, extra programs based on the interaction of local and international students, development of language and intercultural communication skills, communication and linguistic knowledge enhancement of academic staff, scientific and social life environment
T. Musavi et al., 2020 (47)	Interview	Academic experts and managers	Educational: International joint training courses; empowering professors and students for international activities; international professors and students; internal and external lectures and workshops; international educational and curriculum programs; international teaching and learning methods; up-to-date and international teaching and library resources; international virtual education; international schools. Research: International joint research projects; international scientific productions; publications with international citation, research grants; national and international conferences; international awards and recognitions, exchange of domestic and international postdoctoral students/researchers; research assistant; international research center; Service: Leadership development and international management; academic quality and performance in accordance with international standards; international communication and cooperation; active membership in international scientific associations; active membership in international scientific databases; international professors, Iranian professors living abroad;

			entrepreneurship and inventions, patents and international entrepreneurial companies; motivational mechanism of international activities
M. Romani-Dias et al., 2019 (57)	Review of literature and in-depth interviews	Permanent researchers from Brazilian master's and doctoral programs in Management	The researchers' international academic experience; insertion in international collaboration networks; international co-authorship and experience in international publications. Visiting professors, advisory positions, and examining boards in foreign institutions, international academic events, and academic awards obtained abroad. International study groups, editorial staff and reviewer of journals, scientific congresses
V. Rozhenkova et al., 2018 (46)	Documentary research	N/A	International scientific cooperation, international scientific community; international scientists and specialists; international collaboration in research, technology, and innovations; and joint research with international organizations, holding degrees from such distinguished Western universities; publishing in the leading international journals; an international advisory board, academic decisions, oversee the academic activities and responsible for all academic appointments and promotions, English language instruction, inter-institutional collaborations; joint research ventures and study courses; two-sided and multi-sided exchange programs; dual-degree programs, collective scholarly publications
MH. Komotar, 2019 (40)	Review of literature	N/A	THE ranking: International-to-domestic student ratio, international-to-domestic staff ratio, and international collaboration. QS ranking: International faculty ratio and international student ratio. U-MultiRank: International orientation of BA and MA programs, study abroad, international doctorate degrees, international joint publications, international research grants, foreign language BA programs, student mobility, international academic staff, international doctorate degrees, international joint publications, foreign language MA programs, and international orientation.
N. Markovic et al., 2021 (41)	Survey	Students and management	Study programs in English, joint study programs, internationalization of the curriculum, strategic partnership with foreign institutions, mobility of non-academic staff, international research activities, international networks of higher education, summer school, bilateral or multilateral international cooperation, international development projects, capacity building, mobility of student/ teaching staff.
E. Fleaca, 2017 (38)	Documentary research	N/A	International mobility of students/ staff, internationalization and improvement of curricula and new e-learning methods, strategic cooperation, partnerships and capacity building with stakeholders
V. Kurylo et al., 2021 (44)	Documentary research	N/A	MoU: Bilateral Memoranda of Understanding (MoU); student mobility, Quin Jadwiga Fund funding scheme, Erasmus / Erasmus+ Program, staff mobility
H. de Wit, 2019 (37)	Review of literature	N/A	International students, international faculty, international mobility of faculty, internationalization at home, internationalization of the curriculum, teaching and learning, learning outcomes and global citizenship development, internationalization of research, international co-authorship and other international research benchmarks, international rankings, international research funding, patents, publications and citations, scientific collaboration with the international scientific community, international branding, reputation, and rankings
S. Sahasrabudhe et al., 2020 (52)	Delphi	Experts	Online teaching, co-taught courses with international partners, policies for promoting internationalization, curriculum internationalization workshops, international seminars, collaborative joint research, virtual classrooms, incorporating international and comparative aspects into teaching, campus diversity, international faculty for academic engagement, agreements (MoU)

J. Mittelmeier et al., 2021 (42)	Review	N/A	Movement of education across national borders (students, staff, and programs), curriculum internationalization, various online communication platforms, online discussion forums, informal Facebook groups, language-learning partners in different countries, online group work tasks between campus-based students in different countries, and virtual teams among students in two different countries
Y. Watabe et al., 2021 (26)	Questionnaire and round table discussion	Academic and administrative staff at the International Affairs Office	Strategy and governance (SG), student and staff characteristics (SSC), education and learning (EL), student services (SS), research (R), and quality assurance (QA)
A. Salajegheh, 2017 (31)	Survey and questionnaire	Administrative staff and policymakers	Research, student, faculty, curriculum, engagement, and governance
S. Jafari et al., 2020 (51)	Interview and survey	Faculty members and students	Internationalization at home (awareness, formation of intercultural atmosphere, attraction of international professors and students); international curriculum (international curriculum content, curriculum in an international language); and internationalization abroad (establishing a university branch and offering virtual education)
B. Eriçok et al., 2022 (34)	Documentary research	N/A	Sub-dimensions of education/ training, institutional quality, research/ publication, and human resources; cultural meanings in the sub-dimensions of cultural ambassador, diversity, and integration; political meanings in foreign policy, soft power, political closeness sub-dimensions and, finally, economic meanings in the sub-dimensions of human resources, growth, global competition, and economic mobility
L. Neria-Piña, 2022 (45)	Semi-structured interviews	Staff at the International Affairs Office	Focusing on internationalization at home strategy through growing intercultural knowledge and competencies in students, mobility programs, organizing webinars and virtual conferences; collaboration through networking, leveraging strategic partners through student and faculty mobility, and joint research; tapping on technology to strengthen virtual mobility; and involving professors through guidelines for them to integrate an international component into their courses.
VG Woicolesco, et al., 2022 (48)	Semi-structured questionnaire	Brazilian HEIs	Virtualization will continue after the pandemic; virtualization of internationalization at home contributes to the sustainability of internationalization.
M. Giralt, et al., 2022 (39)	Documentary research and survey	Virtual exchange practitioners and coordinators	Virtual exchange as a preparatory or follow-up activity to physical mobility (blended mobility); virtual exchange as an intertwined component of physical mobility (blended mobility); virtual exchange as a stand-alone learning activity; virtual exchange as a component of a course.
DF Chang, et al., 2018 (33)	Survey and questionnaire	Faculty members and students	Indicators were classified into Context (international students), Input (setting up international affairs offices, investing in required staff in the international affairs offices, strategic plan for internationalization, monitoring the process of internationalization, funding for promoting internationalization), Process (establishing overseas branch campuses, establishing distance-learning programs, promoting international research cooperation, endorsing internationalization-related courses, promoting international learning activities, international student recruitment, and international internship accreditation); and Outcome (outbound students, international students on campus, foreign staff on campus, international cooperation programs, articles published in international journals, papers in international conference proceedings); dimensions according to CIPO model.

M. Maneshgar, et al., 2021 (35)	Semi-structured interviews	Faculty members and students	Management and human resource (recruitment of international students/ professors, exchange of students and professors, competent human resource, training international managers); structural and organizational (planning, organizational support, organizational structure); economic and financial (commercialization of education and research, generating income from the internationalization); cultural and social (global citizen training, intercultural understanding); educational and research (establishing joint universities & branches, holding international conferences and congresses, use of new educational technologies); communication and information (collaborative and joint research projects, educational interactions with foreign counterparts, publication and printing books and research articles in international languages); political and governmental (foreign policy and diplomatic relations); global and regional (strategy for internationalization, compliance with global standards).
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SWOT: Strengths, Weaknesses, Opportunities, and Threats; HEIs: Higher education institutions; QS: Quacquarelli Symonds; THE: Times higher education; BA: Bachelor; MA: Master; CIPQ: Context-Input-Process-Output

Table 2. Themes, sub-themes, and sample codes

Theme	Sub-themes	Sample Codes
Educational Affairs	Internationalization at a distance	Analysis and planning for internationalization at a distance, virtual and online teaching and training, using different online communication platforms, using discussion forums and informal social media groups, defining online group work assignments between students from different countries, forming virtual teams between students from different countries to implement joint educational activities, virtual exchange/ mobility, monitoring and promoting internationalization programs at a distance
	Quality assurance and continuous improvement of internationalization	Analysis and planning for quality assurance of internationalization activities, internal evaluation of the quality of university internationalization/ curriculums, external evaluation of the quality of university internationalization/ curriculums, getting advice from experts and continuous quality improvement, monitoring and promotion of internationalization quality assurance programs
	Internationalization of education, teaching, and learning outcomes	Analysis and planning for the internationalization of education, internationalization of the curriculum, providing study abroad opportunities, admission of international applicants, participation in exchange projects, creation of joint degrees/ courses, creation of international degrees/ courses, participation of international professors in academic activities, using new electronic methods in teaching and learning, learning foreign languages, international presence of graduates, monitoring and promotion of educational internationalization programs
International Relations	International public relations and communication	Analysis and planning for international networking, and international public relations and communications, developing a strategy for internationalization of public relations, creating/ updating the university website in English, active presence in common online social networks in English, marketing through advertising, online social networking, and brochures, promoting university branding program, introducing scientific capabilities of universities to other countries, introducing professors' ability and research interests to attract foreign postdoctoral students, notification of foreign opportunities, advertising in international educational magazines/ newsletters, monitoring and promotion of networking, international public relations and communication programs
	International cooperation and networking	Analysis and planning for internationalization of academic collaborations, the conclusion of a memorandum of understandings, performing international visits, networking and development of relations, formation of university/school internationalization committee, holding international events, the establishment of international campuses/branches, participation in international ranking systems, monitoring and promotion of international cooperation programs

Research Affairs	Internationalization of research	Analysis and planning for the internationalization of research, establishing an open research system, creating an attractive research system, creating new research capacities, conducting applied research, conducting international research benchmarks, authoring internationally cited research achievements, obtaining better understanding of indigenous knowledge and its introduction to the world, establishing joint research collaborations, creation of joint databases in research fields, compliance with international standards in joint research, compliance with international ethics in publishing articles, authoring international publications, obtaining international research grants/ funds, having international patents, holding international research events, providing access to bibliographic databases, publishing in reliable international publications and journals, having high quality and up-to-date resources in libraries, having internationally operated research centers, monitoring and promoting research internationalization programs
	Commercialization of ideas and innovations	Analysis and planning for commercialization of ideas/ innovations, increasing the university's dedicated income through commercialization, commercialization of education and research, launching knowledge-based companies and international start-ups, scientific and research marketing, considering higher education as an industry, monitoring and promoting commercialization of ideas and innovations
Student Affairs	Student welfare/support services	Analysis and planning for the internationalization of student welfare/support services, providing the information needed by foreign students before and immediately after arrival, providing a variety of services for registered international students, facilitating interaction between international and domestic students, monitoring and promotion of internationalization programs for student welfare/ support services
	Cultural/ social services	Analysis and planning for the internationalization of culture/ society in the university, spreading multiculturalism in the university, promoting the learning of social behaviors, promoting respect for cultural differences, developing intercultural communication skills, organizing international cultural festivals, providing an attractive and stimulating cultural and social environment for international students, expanding the culture of hospitality in the university to attract international students, increasing flexibility in facing other cultures in the university to attract international students, a positive view of the presence of foreign professors and international students in the university, the flexibility of professors to the teaching of foreign professors, monitoring and promotion of culture/ community internationalization programs
Management and Human Resources	Management	Analysis and planning for the internationalization of management, reflecting internationalization in the vision/ mission of the university, developing university internationalization strategy, reflecting internationalization in the leadership and management of the university, having a robust organizational structure for internationalization, developing strategic planning, having proper infrastructure based on international standards, having a dedicated budget for internationalization, monitoring, and promotion of management internationalization programs
	Human resources	Analysis and planning for the internationalization of human resources, recruitment and appointment of international staff (academic and administrative), empowering staff (academic and administrative) in terms of international competencies, monitoring, and promotion of human resources internationalization programs
Healthcare and Treatment	healthcare and treatment	Analysis and planning for the internationalization of healthcare services, establishing health/ medical tourism, equipping affiliated hospitals with modern medical equipment, monitoring, and promotion of internationalization programs of health and medical services