Mapping the Intellectual Structure of Studies on Internationalization of the Curriculum: A Bibliometric Analysis From the Scopus Database

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Abstract: The pervasive development and momentous changes of internationalization in higher education have led to the acceleration of research on its key component – the curriculum. However, there has not been any comprehensive analysis of the research status of the internationalization of the curriculum (IoC). To address the gap, this study employs the bibliometric method to construct an intellectual structure of research on the topic. The data, retrieved from the Scopus Database, consisted of 386 publications. The extracted data were then analyzed using citation, co-authorship, and keyword co-occurrence analysis. The results reveal a significant growth in research volume during the last ten years and the domination of Global North in the geographical distribution of publications. Besides, the most prominent authors include those who introduced fundamental knowledge on the topic. The most cited works and the most popular publishing sources focus on various aspects of internationalization of higher education. They also show a multidisciplinary interest in the topic. Finally, concerning newly emerged themes of studies on IoC, “cultural competence” and “internationalization at home” are outstanding keywords. The research findings emphasize IoC as a potential research matter. Hence, this study is recommended as a starting point for future researchers when examining related subjects.

Keywords: Bibliometrics, curriculum, internationalization of higher education, Scopus.


Introduction

Within the first two decades of the 21st century, the world has witnessed a drastic change in all aspects of life as a result of globalization. In particular, the increase in the flow of people, culture, ideas, values, knowledge, technology, and economy beyond all borders has led to an interconnected and interdependent world (Knight, 2007). These changes in the context of the modern world place demand on educational systems to strengthen international integration in training and scientific research (Hong & Xiao, 2023). Under these circumstances, for educational authorities at both national and institutional levels, the internationalization of higher education (IHE) is vital to increasing the quality and competitiveness of higher education (Knight, 2021).

From its marginal and ad hoc status, internationalization of higher education has now become the focus of development in education systems worldwide (De Wit & Altbach, 2021; Tran & Marginson, 2018). Accordingly, scientific studies related to this topic have also transformed. Analyzing results from about 2000 publications since the late 1990s, Kosmützky and Putty (2016) have shown that the pressure to internationalize is being placed on universities, including the increasing mobility of students, faculty, and learning sites, the emergence of global education markets, ranking and dominating, and growing integration in the regions. Similarly, results from a meta-analysis by Sá and Serpa (2020) show that studies on IHE focused mainly on the mobility of international staff, faculty, and students as well as the challenges brought about by diverse student communities.

Previous researchers have attempted to understand and analyze IoC from many perspectives (Fragouli, 2020; Ji, 2020; Kasenene, 2011; Leask, 2015; Montecinos, 2019; Sá & Serpa, 2020; Zapp & Lerch, 2020; Zelenková & Hanesová, 2019).
However, as the dynamics of IHE and its core strategy-IoC have constantly changed, a comprehensive overview of research status on this topic is vital for visualizing a research agenda in the coming time. To the best of our knowledge, there has not yet been a scientific overview of the existing intellectual structure of IoC. Therefore, to provide a comprehensive review of published works related to IoC in the world before 2021, this study employs the bibliographic analysis method based on the Scopus database - one of the largest academic databases worldwide.

Bibliometric research has been widely applied in many previous education studies (e.g., Cao et al., 2020; Do et al., 2021; Pham-Duc et al., 2020, 2021; Pham et al., 2021). This method will help describe the number and geographical distribution of published works, authors, universities/research institutes, and countries in which their research works have a profound impact on the research trend on IoC. In addition, this method helps explore trendy topics in the study of IoC. The current study is the first one that uses the quantitative research method on the system of published works on IoC.

Specifically, our research aims to answer the following questions:

RQ1: What are the volume, growth patterns, and geographical distribution of the IoC in the world?

RQ2: Who are the most influential authors, and what are the most influential papers studying IoC?

RQ3: What are the major publishers on the IoC?

RQ4: What key themes are found in the existing literature on IoC?

Literature Review

Driven by various forces in the era of globalization, IHE has been a prioritized educational strategy in many countries and one of the most prominent topics in higher education research in recent years (Bhambra et al., 2018). As the educational context changes, the conceptual and practical significance of the IHE has also adapted to it (Foster & Carver, 2018). From a process solely associated with international enrollment, this concept has now been expanded to many aspects with various implementation methods (Rumbley et al., 2012), aiming at providing learners with international experience and necessary competencies (Gallagher et al., 2021). This transformation emphasizes the importance of the IoC as a key (Sá & Serpa, 2020).

Curricula are considered the backbone, determining the existence and development of the school and thus, the educational system and the whole society. With a long history of research, the concept of a curriculum is defined differently. According to the synthesis by Ornstein and Hunkins (2016), one of the popular definitions of a curriculum is an action plan or a written document that includes strategies to achieve desired goals. It is also considered a development process, an experience that learners need to go through under the guidance of teachers or as a field of study.

As an element associated with IHE, IoC is perceived and implemented in various ways. Previously, according to Bremer and Van der Wende (1995), IoC was defined as the implementation of diverse educational activities such as accessing and importing teaching content from different cultures, instructing with foreign languages, promoting intercultural skills, offering joint training programs and dual degrees, or developing curricula aimed at international students. The output of this process, later explained by Organization for Economic Cooperation and Development (OECD as cited in Nilsson, 2000) was an internationally oriented curriculum expressed in structure and content, geared towards preparing both domestic and international students for living and working in the international and multicultural context.

More specifically describing the implementation methods, Schuerholz-Lehr et al. (2007) consider IoC as "the process of incorporating international elements into program content, using international learning resources for reading materials and exercises and applying suitable teaching methods to the student community with diverse cultural backgrounds" (p. 70). In some other studies, the concept of IoC was used as a synonym of the concept "internationalization at home" - in the sense that it is the process of purposefully integrating transnational, intercultural dimensions into formal and informal curricula for all students in a domestic learning environment (Beelen & Jones, 2015). Recently, a more widely accepted and comprehensive definition was suggested by Leask (2015), who describes IoC as "the incorporation of international, intercultural and/or global dimension into the curriculum content, learning outcome, testing and assessment, instructional methods, and support services of a program" (p. 9).

Various aspects of IoC have been explored in previous studies. Those include the incorporation of transnational and intercultural content (Zelenková & Hanesová, 2019), teaching methods (Fragouli, 2020; Kasenene, 2011), test and assessment, and learning outcomes (Gregersen-Hermans, 2011; Ji, 2020), accreditation (Montecinos, 2019), roles and requirements for teaching, operating, and managerial staff in universities (Fakhrutdinova et al., 2020). In another cross-country meta-analysis, Zapp and Lerch (2020) analyzed 442,283 curricula from 17,129 universities in 183 countries. They identified three patterns of IoC, including transnational models (common in business and political sciences), regional models (in law and political sciences), and global models (in natural sciences and development studies). The results of this study also show that IoC tends to be available in business schools, universities with international cooperation offices, universities with majors in social sciences, and members of associations of international universities (Zapp & Lerch, 2020).
Generally, it is seen that the conceptualization of IoC and its multiple components, strategies and approaches have been explored in previous studies. Despite rapidly growing interest in researching various components of the IoC in global higher education institutions, however, the overview of emerging trends in research topics, prominent authors and publications have not been comprehensively reviewed. Therefore, there exists a need to conduct a bibliometric analysis of global literature on the matter.

Methodology

Bibliometric Analysis

Bibliometric analysis is one of the research methods commonly applied to statistics, analysis, and general evaluation of scientific publications on the same topic or based on some specific characteristics (Hallinger & Kovačević, 2019; Kakouris & Georgiadis, 2016). It includes descriptive statistics about the network of authors, journals, universities, countries, and keywords through citation data and frequency analysis techniques (Munim et al., 2020). Within the scope of this study, using VOSviewer software as the main analyzing tool, the authors use citation analysis, co-authorship analysis and co-occurrence analysis of the research keywords. While citation analysis allows us to estimate the influence of documents, authors, or journals through citation rates of published studies on IoC, co-authorship analysis helps provide evidence of collaboration and produce the social structure of the field (Zupic & Čater, 2015). The analysis of the co-occurrence of keywords assumes the relevance of the topic and content if any two scientific documents have the occurrence of the same keyword (Hallinger & Kovačević, 2019; Liu & Mei, 2016). In this study, “co-occurrence” analysis was applied to show the most common keywords appearing in scientific publications on IoC (Callon et al., 1986; Do et al., 2021). In education, many researchers have used this method to conduct their research (Bui et al., 2020; Cao et al., 2020; Nguyen et al., 2020), especially in the field of higher education research (Brika et al., 2021; Pham-Duc et al., 2021). Besides, to explore the volume and geographical distribution of publication, Excel software is used for analysis.

Data

Our research uses data from scientific publications indexed on Scopus, one of the most reputable scientific databases, widely accepted and used by many researchers (Do et al., 2021; Pham-Duc et al., 2021). In addition, this is considered one of the significant scientific databases that use a consistent criterion in the selection of documents to include in its index (Hallinger & Nguyen, 2020). The Scopus database also has a wider range of literature than the Web of Science for evaluating research in education and social sciences (Mongeon & Paul-Hus, 2015). In addition, the Preferred Reporting Items for Systematic Reviews and Meta-Analysis system (PRISMA) with four steps was employed to ensure the quality of the resource searching process (Moher et al., 2009):

- **Step 1 - Identification**: The central keyword of this study is “internationalization of the curriculum”. Because of the characteristics of the English language, to cover all research publications on this topic, the research team paid attention to different spellings of the word "internationalization" (internationalization and internationalisation) as well as parts of speech and conjugations (internationalize, internationalized, internationalising). Some keywords of near or related meaning (such as “internationalization at home”) were also included. To sum up, the following search query was used to retrieve Scopus data:

  TITLE-ABS-KEY (“Internationalization of the curriculum” OR “Internationalisation of the curriculum” OR “internationalized curriculum” OR “internationalized curricula” OR “internationalised curriculum” OR “internationalised curricula” OR “internationalization at home” OR “internationalisation at home” OR “internationalizing curriculum” OR “internationalizing curricula” OR “curriculum internationalization” OR “curriculum internationalisation” OR “curricular internationalization” OR “curricular internationalisation” OR “internationalize curriculum” OR “internationalise curriculum” OR “internationalise curricula” OR “internationalise curricula” OR “Internationalise curricula”).

  With the above search syntax, we have obtained data from 445 documents (January 19th, 2022).

- **Step 2 - Screening**: To determine that the selected articles are suitable for the research objectives of the group, we conduct screening. At the first filtering stage, we excluded 17 works. The reason why we excluded these 17 articles was that they lacked summaries (Mace, 2020; Tudball & Henderson, 2013).

- **Step 3 - Eligibility**: After that, we continued to remove 42 articles. One of the reasons why articles are excluded at this stage is that some sections of the article contain keywords but the content is about unrelated fields or less relevant aspects (Gorges et al., 2012; Jaklič & Karageorgu, 2015; Vajargah & Khoshnoodifar, 2013). A total of 59 studies were eliminated after steps 2 and 3.

- **Step 4 - Included**: Finally, we compiled a list of 386 relevant scientific works, including articles, books, conference proceedings, and book chapters to serve the bibliometric analysis stage. These papers are eligible as they meet the content requirements related to the research topic.
Results

Quantity, Growth Pattern, and Geographical Distribution

This section presents our analysis results. To answer the first research question, we analyzed 386 scientific publications including articles, conference proceedings, books, and book chapters related to IoC from 1986 to 2021. The year to start this analysis is 1986 as this is the first time a document related to IoC was published. The publication is titled "Education in the World System: The Demand for Language and International Proficiencies in Economic Development and National Security" by Hoegl (1986).

![Figure 2. Annual Development of Publications on IoC From 1986 to 2021](image)

Based on the growth trends of scientific studies on IoC from 1986 to 2021 shown in Figure 2, we divide the knowledge base on IoC into three periods:

- **1986–2000: the period of low interest**, in which the topic of IoC received little attention from scholars, and only 12 works were published (accounting for about 3.3% of the total number of publications from 1986 to 2021).
- **2001–2010: the developing stage**, in which the topic of IoC began to attract the attention of scholars, and 70 studies were published (accounting for about 18.1% of the total number of publications during the whole period).
- **2011–2021: the developed stage**, in which the topic of IoC received considerable attention from scholars: a total of 304 works were published (accounting for about 78.6% of the total number of publications in the period from 1986 to 2021).

It can be seen that within 14 years of the first stage, the rate of IoC-related publications per year only reached an average of 0.85. The growing trend of research in this period was almost constant over the years. During the next ten years, the average annual publication rate increased to 7 publications. The number of published works also rose markedly year by year. For example, the number of studies published between 2009 and 2010 tripled in comparison with the previous ten years. During the last decade, the number of studies grew significantly, reaching an average of 30.4 publications per year. However, the publishing trend was not stable. For example, the number of published works in 2012 was 15, doubled in 2013 but then declined sharply to 17 in the following year. This trend almost repeated throughout the period in which 2021 was recorded as the year with the highest number of publications with 45 publications.
Table 1. Countries With the Highest Number of Publications and Total Citations on IoC for the Period 1986 -2021

<table>
<thead>
<tr>
<th>No</th>
<th>Countries</th>
<th>Documents</th>
<th>Link strength</th>
<th>Countries</th>
<th>Citation</th>
<th>Link strength</th>
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<td>Spain</td>
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<td>11</td>
<td>Israel</td>
<td>28</td>
<td>10</td>
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</tbody>
</table>

Table 1 illustrates the geographical distribution of publications by countries on IoC. Studies on this topic were conducted in 59 countries. In terms of the number of published works, among 20 countries with the highest number of publications on IoC, the most prominent ones include Australia (97 publications), the US (83 publications), and the UK (75 publications), accounting for about 66% of the total published works. In addition to other outstanding representatives in the Americas like Canada (North America), Brazil (South America), and Asia like Hong Kong, China, Japan, and Vietnam, a large number of publications come from other prominent European countries such as the Netherlands, Spain, Sweden, Finland, Germany, Portugal, Italy. Meanwhile, the highest number of publications in Africa are from South Africa with five publications.

As to the total number of citations, it is shown that Australia, the US, and the UK are still the leading ones. However, in this respect, although Great Britain has fewer publications, its total number of citations is higher than that of the United States. The majority of countries in all three regions, Europe, America, and Asia, with the highest number of publications continue to appear in this table. Besides, there are some new representatives with the most citations in all three regions, including Mexico, Croatia and Korea.

![Figure 3. Co-authorship Between Countries on IoC From 1986 to 2021 (Co-authorship Between Countries, Threshold: 1)](image)

To identify research collaboration, we conducted a co-authorship analysis between countries. The results in Figure 3 show that after selecting countries with one or more studies on IoC, 59 countries have significant co-authorship with others. The US is the country with the strongest link (total link strength: 43), followed by the UK (41), Australia (37),
Germany (20), Hong Kong (18), and the Netherlands (18). At the same time, the research collaboration through co-authoring between the UK and Australia has the strongest connection with eight publications, followed by that between Australia-US and Australia-Hong Kong with six publications, and collaborations between the UK-Netherlands and Sweden-Hong Kong both with five works.

The colors at the links in Figure 3 also indicate emerging countries in terms of publications related to IoC. The more colors of the nodes are in the bright yellow spectrum, the closer the time of the study's appearance is in the countries. Therefore, we can see some newly emergent countries like Austria (number of publications: 2, average publishing year: 2021:00), Mozambique (1, 2021:00), Colombia (5, 2019:80), Malaysia (2, 2020: 50), Brazil (11, 2018:73), Portugal (8, 2018: 62), Vietnam (5, 2018:60), South Africa (5, 2018:40) and Columbia (5, 2019: 80). Meanwhile, developed countries such as the US, Australia, and the UK all have an earlier history of research on IoC, with an average publishing year of 2011:84, 2013:32 and 2014:89.

The Most Influential Authors and Papers

Publications on IoC were completed by researchers from all over the world. Table 2 lists 20 authors whose studies are most cited, ranked by the total number of publications and citations on the Scopus database. Of the 20 most prominent authors, three have more than 1000 citations, and twelve have more than 100 citations.

Table 2. The 20 Most Cited Authors on IoC for the Period 1986-2021

<table>
<thead>
<tr>
<th>Rank</th>
<th>Author</th>
<th>Organization</th>
<th>Nationality</th>
<th>Scopus H-index</th>
<th>TC</th>
<th>LC</th>
<th>NP</th>
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</tr>
</tbody>
</table>

Note: LC: number of citations calculated separately in the data set analysis; TC: number of citations in Scopus database; PY: Year of publication of the first work; NP: Number of published works

In terms of the H-Index, Simon Marginson (Australia) and Mak, Anita S (Australia) own the highest H-index. Their H-index numbers are 39 and 24, respectively. They are among the pioneering researchers of IoC; Mak, Anita S (Australia) published the first work on this topic in 1987, and Simon Marginson (Australia) published his research three years later. In addition, Betty Leask (Australia) shows her profound influence in this field. Specifically, she has 1183 citations according to the Scopus database and 809 citations in the data set alone. Elspeth Jones (UK) is the second most cited author with 194 citations in the analytical dataset alone. Notably, two out of three works by the third author in terms of citations - Killick David (UK), co-author with Elspeth Jones, including the articles “Graduate attributes and the internationalized curriculum: embedding a global outlook in disciplinary learning outcomes” (Jones, 2013) and “Internationalisation of the curriculum” (Jones & Killick, 2007).

Next, we tried to identify the most influential publications in the field. Table 3 presents 20 studies with the highest number of citations from 1986 to 2021, including 15 articles, four book chapters and one book. As pointed out, these studies were all published from 2003 onwards. 2013 has the highest number of cited works (4 articles). Regarding the number of citations in the analytical data set alone, Leask Betty (Australia) and Neil Harrison (UK) own the most cited publications. However, in terms of the number of citations calculated according to the Scopus database, the article...
"Internationalization of the curriculum: designing inclusive education for a small world" by Martin Haigh (UK) is the one with the highest number of citations.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Author</th>
<th>Title</th>
<th>Source</th>
<th>Document Type</th>
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<th>TC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Leask (2015)</td>
<td>Internationalization, the Curriculum and the Disciplines</td>
<td>International Higher Education</td>
<td>Article</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>De Vita and Case (2003)</td>
<td>Rethinking the internationalisation agenda in UK higher education</td>
<td>Journal of Further and Higher Education</td>
<td>Article</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Soria and Troisi (2014)</td>
<td>Internationalization at home alternatives to study abroad: Implications for students' development of global, international, and intercultural competencies</td>
<td>JSIE</td>
<td>Article</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>De Wit et al. (2005)</td>
<td>Educación Superior en América Latina La dimensión internacional</td>
<td></td>
<td>Book</td>
<td>2</td>
<td>7</td>
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<tr>
<td>9</td>
<td>Leask (2013a)</td>
<td>Internationalization of the curriculum: international approaches and perspectives</td>
<td>JSIE</td>
<td>Article</td>
<td>1</td>
<td>14</td>
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<td>11</td>
<td>Leask (2013b)</td>
<td>Internationalising the curriculum in the disciplines: Imagining new possibilities</td>
<td>Possible futures: The next 25 years of the internationalisation of higher education</td>
<td>Book chapter</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>Jones and Killick (2013)</td>
<td>Graduate Attributes and the Internationalized Curriculum: Embedding a Global Outlook in Disciplinary Learning Outcomes</td>
<td>JSIE</td>
<td>Article</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>16</td>
<td>Leask (2001)</td>
<td>Bridging the gap: Internationalizing university curricula</td>
<td>JSIE</td>
<td>Article</td>
<td>5</td>
<td>66</td>
</tr>
<tr>
<td>17</td>
<td>Jones (2013)</td>
<td>Internationalization and employability: the role of intercultural experiences in the development of transferable skills</td>
<td>Public Money &amp; Management</td>
<td>Article</td>
<td>79</td>
<td>87</td>
</tr>
<tr>
<td>18</td>
<td>Huang (2006)</td>
<td>Internationalization of curricula in higher education institutions in comparative perspectives: Case studies of China, Japan and the Netherlands</td>
<td>Higher Education</td>
<td>Article</td>
<td>57</td>
<td>49</td>
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</tbody>
</table>


Table 3. Continued

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<tr>
<th>Rank</th>
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<th>Title</th>
<th>Source</th>
<th>Document Type</th>
<th>LC</th>
<th>TC</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Ng (2012)</td>
<td>Rethinking the mission of internationalization of higher education in the Asia-Pacific region</td>
<td>Compare</td>
<td>Article</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Harrison (2015)</td>
<td>Practice, problems and power in ‘internationalisation at home’: critical reflections on recent research evidence</td>
<td>Teaching in Higher Education</td>
<td>Article</td>
<td>61</td>
<td></td>
</tr>
</tbody>
</table>

Note: LC: number of citations in the analytical dataset; TC: Scopus citation count

The Most Prominent Journals

Table 4 lists 12 journals (edited books/book series) with the highest number of articles related to IoC. The institution with the highest number of publications (64) is the Journal of Studies in International Education. It is also one of the oldest journals related to international education publishing, with its first work published in 1997. Publications from this journal focus on various aspects of IHE and international cooperation in higher education. 8/20 publications on the topic of IoC among the most cited ones are from this journal.

The second notable publication source related to IoC is the Journal of Teaching International Business, which was established to guide international business educators, curriculum developers, and higher education institutions worldwide on methods and techniques for better teaching to ensure global thinking and optimal, cost-effective learning fees in international business.

Among the most outstanding journals/publishers on IoC, 6/12 journals are ranked Q1 (2020) by Scimago, and all are from reputable publishers in the world. Most publishers are topic-oriented on different aspects of higher education and international education. Several publishers specialize in international business, health, and nursing.

Table 4. The Most Influential Publication Sources on IoC for the Period 1986-2021

<table>
<thead>
<tr>
<th>No.</th>
<th>Source</th>
<th>Publisher</th>
<th>Scope</th>
<th>ISSN</th>
<th>H-Index</th>
<th>TC</th>
<th>NP</th>
<th>Scopus Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Journal of Studies in International Education</td>
<td>SAGE Publications Inc.</td>
<td>Education</td>
<td>10283153</td>
<td>61</td>
<td>1710</td>
<td>64</td>
<td>Q1</td>
</tr>
<tr>
<td>2</td>
<td>Journal of Teaching International Business</td>
<td>Routledge</td>
<td>Business, Management and Accounting; Education</td>
<td>8975930</td>
<td>24</td>
<td>88</td>
<td>14</td>
<td>Q3</td>
</tr>
<tr>
<td>3</td>
<td>Critical Perspectives on Internationalising the Curriculum in Disciplines: Reflective Narrative Accounts From Business, Education and Health</td>
<td>Sense Publishers</td>
<td>Business, Education and Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Higher Education Research and Development</td>
<td>Routledge</td>
<td>Education</td>
<td>7294360</td>
<td>70</td>
<td>160</td>
<td>9</td>
<td>Q1</td>
</tr>
<tr>
<td>5</td>
<td>Higher Education</td>
<td>Springer Netherlands</td>
<td>Education</td>
<td>181560</td>
<td>99</td>
<td>139</td>
<td>8</td>
<td>Q1</td>
</tr>
<tr>
<td>6</td>
<td>Nurse Education Today</td>
<td>Churchill Livingstone</td>
<td>Nursing, Education</td>
<td>2606917</td>
<td>78</td>
<td>48</td>
<td>7</td>
<td>Q1</td>
</tr>
<tr>
<td>7</td>
<td>Compare</td>
<td>Routledge</td>
<td>Education</td>
<td>3057925</td>
<td>38</td>
<td>164</td>
<td>4</td>
<td>Q2</td>
</tr>
<tr>
<td>8</td>
<td>Journal of Further and Higher Education</td>
<td>Routledge</td>
<td>Education</td>
<td>14699486</td>
<td>41</td>
<td>148</td>
<td>4</td>
<td>Q2</td>
</tr>
<tr>
<td>9</td>
<td>Teaching in Higher Education</td>
<td>Routledge</td>
<td>Education</td>
<td>13562517</td>
<td>57</td>
<td>141</td>
<td>4</td>
<td>Q1</td>
</tr>
<tr>
<td>10</td>
<td>Higher Education Dynamics</td>
<td>Springer Science and Business Media B.V.</td>
<td>Education</td>
<td>2215-1923</td>
<td>46</td>
<td>4</td>
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<td>11</td>
<td>Research in Comparative and International Education</td>
<td>SAGE Publications Inc.</td>
<td>Education</td>
<td>17454999</td>
<td>18</td>
<td>20</td>
<td>4</td>
<td>Q2</td>
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<tr>
<td>12</td>
<td>Innovations in Education and Teaching International</td>
<td>Taylor and Francis Ltd.</td>
<td>Education</td>
<td>14703297</td>
<td>51</td>
<td>10</td>
<td>4</td>
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</table>
Main Topics in Current Research on the Internationalization of the Curriculum

To discover core themes in current research and predict future research trends on IoC, we employed co-occurrence analysis. Figure 4 shows the results of keyword co-occurrence analysis using VOSviewer software. In this map, the size of the nodes represents the number of occurrences of the keywords in the database, and the links between the two nodes represent the relationship between them. In total, 1246 keywords appeared in 386 publications. To establish a relationship between them, only keywords that appear more than three times are selected. With this criterion, 128 keywords emerge in the result map. The most common ones include “internationalization of curriculum”, “internationalization, training programs”, “internationalization at home”, “higher education”. However, the keywords "people", "curriculum", "teaching" and "learning" have the strongest links.

There are six sub-clusters shown in Figure 4. The sub-clusters represent the most relevant and popular keywords in research about IoC. In cluster 1 with the sub-topic "internationalization", the most common keywords are curriculum, teaching, internationalization at home, higher education, international education, intercultural competence, global citizen, international students, and study abroad. In cluster 2, the keywords cultural competence, quantitative research, nursing education, learning, Australia, Hong Kong, and Sweden are related to the sub-topic "international cooperation". In the sub-topic "students" in cluster 3, the keywords education, curriculum, globalization, cultural difference, engineer training, and international business are popular keywords. The sub-topic on “internationalization of curriculum” in cluster 4 includes keywords such as globalization and internationalization of higher education, internationalization of teaching activities, strategic institutional management of internationalization of education, learning and research, cross-border education, and international cooperation. In cluster 5 with the sub-topic "human", the outstanding keywords are human experiment, medical education, US, animals, and veterinary medicine. In cluster 6 on the sub-topic "female", the prominent keywords are male, adult, awareness, cultural diversity, and cultural anthropology.

Figure. 4. Keywords by Co-occurrence Analysis for the Period 1986-2021 (128 Keywords, Threshold: 3)
Figure 5 shows the most prevalent research topics and trends on IoC over the past ten years (2011-2021). The lighter yellow keywords represent the more recent appearing time. The results indicate that research on IoC has recently addressed issues of internationalization at home and cultural competence. For the sub-topic on internationalization at home, the related keywords are international students and students. The keywords nursing education, E-learning, Australia, and interpersonal communication represent elements of interest in the sub-topic of cultural competence.

Discussion

This is the first study to apply bibliometric analysis and scientific mapping to illustrate the knowledge of IoC. Based on data collected from the Scopus database and screening methods, we analyzed 386 studies relevant to our research scope.

For the growth rate of publications, since the first related work in 1986, the number of studies on IoC seems to have received little attention during the next 15 years. By the beginning of the 21st century, policies on IHE were promoted in many countries (Scott, 2006), resulting in the development of specific strategies, which include IoC. Despite this, IoC is still among the under-researched topics (Leask, 2015). During the past ten years, the number of published works has increased significantly. This figure partly reflects a change in the role and strategic focus of internationalization: from a marginal and ad hoc role to a core dimension in higher education system (Knight, 2012), from strategies focused solely on study abroad activities (Brewer & Leask, 2012) to intentional approaches aiming at developing intercultural competencies and a global perspective for all students, where IoC is considered a key (Beelen, 2007).

The results on the geographic distribution of research works show that developed countries in Europe, America, and Australia (Global North) own the most publications and citations. These are reputable countries in educational development with long traditions in attracting international students and exporting education. For example, in Australia, to build an international education system for commercializing education, the government has issued many policies and programs to promote international education and encourage initiatives on IoC (Harman, 2005) such as Australia’s Global Education Policy in 2013, the New Colombo Plan in 2014, National Strategy on International Education by 2025 in 2016 (Fischer & Green, 2018), which contribute to an increase in the number of publications in this area. In the United States, IoC is viewed as a core component of a comprehensive internationalization policy (Hudzik, 2011). The internationalization of higher education, which includes IoC, is also a prioritized activity of the education system in European countries. It was considered a strategic process in Europe since the joint training program ERASMUS and accelerated after the approval of the Bologna Process by 29 European countries (De Wit & Hunter, 2015). The dominance of developed countries in IoC research reflects the general trend of IHE summarized by De Wit (2020) that it is of little importance in developing and emerging economies but a specific strategic concern in advanced economies.

The relatively limited number of publications and citations from Asian and African countries also partly reflects the nature of IHE in these countries: being influenced by Western educational thought (De Wit, 2019). It is demonstrated through borrowing and importing training programs (Tran et al., 2018) or using English as the language of instruction (Jon & Kim, 2011). This presents a challenge to developing countries in cultivating learners’ knowledge, skills, and attitudes to ensure a balance between global integration and national identity development (De Wit & Leask, 2015).
However, the map analyzing recent research studies shows that some newly emergent countries are developing ones, such as South Africa, Malaysia, and Vietnam. This is a positive signal, which expresses the spread of IHE, including IoC, to these countries. It also reflects the international feature in IoC with the diversity of global culture rather than the dominant Western one.

The list of 20 most cited authors identifies Betty Leask and Elspeth Jones as the two most prominent scholars. The research works of these authors include articles, book chapters and books introducing knowledge synthesis, proposed definitions, and theoretical models, which are fundamental for IoC studies. The best-known author, Betty Leask, is a core member of the Australian Learning and Teaching Council National Teaching Fellowship. Meanwhile, Elspeth Jones from the UK is the principal editorial member of the research series on IHE under Routledge (UK). Both authors were collaborators on several studies, together with other well-known authors in the field. These are also the two authors of a total of 7/20 works with the most citations on IoC.

The data on 20 most cited works shows that the studies were all published in 2003 or later. 2013 is the year with the highest number of cited documents. Journal of Studies in International Education has the highest number of citations, with eight articles out of 20. In addition, most of the studies on IoC with the most attention (in terms of the number of citations) chose research sites in Western countries, including the United States, the United Kingdom, Australia, and some other European countries. Meanwhile, the outstanding research on internationalization in Asian countries accounts for a limited proportion.

According to the ranking at https://www.scimagojr.com, the prominent journals of publications related to IoC are all reputable ones. Most journals have major research topics on higher education and international education. Besides, IoC is also a topic of interest in several specialized journals on management, business, health, and nursing, demonstrating the interest in internationalized curricula from various disciplines.

The analysis of keywords’ co-occurrence over time from the data set indicates that issues of growing interest in recent times are internationalization at home and cultural competence. The keyword “internationalization at home” is interpreted differently and used synonymously with “internationalization of curriculum” in some cases. However, while IoC has the geospatial implicit both at home and abroad (Green & Mertova, 2009), internationalization at home emphasizes the “on-the-spot” element and is defined as “the integration of transnational, intercultural dimensions into both formal and informal curricula for all students in the domestic learning environment” (Beelen & Jones, 2015, p. 11). This result shows a new trend in the current research which is different from De Wit’s (2020) assessment of higher education internationalization in the past 30 years: focus more on internationalization abroad than at home. In fact, according to an analysis of the number of international students based on 2017 data by the Organization for Economic Cooperation and Development (OECD), only about 12% of the total number of students have the opportunity to study at institutions of higher education abroad (OECD, 2019), while the demand for high-quality training and the development of intercultural and global knowledge, skills, and attitudes is growing. In addition, the Covid-19 pandemic, with its profound impact on about 1.6 billion learners, has posed many challenges to global education. Therefore, the focus on internationalization at home with a digital strategy to create virtual mobility or exchange programs will lead to a change in the trend of internationalization of education, which previously concerned a small group of elite students and faculty (De Wit, 2020). Accordingly, internationalization at home, its implementation models, and strategies should continue to be studied in the field of IoC.

Another group of sub-themes that were mentioned with high frequency in recent studies is cultural competence. This is one of the targeted competencies in higher education to educate learners to become global citizens (Ji, 2020). According to Gregersen-Hermans (2017), in recent years, the need to verify the effectiveness of internationalization strategies has prompted a growth in studies on the development of cultural competence, including intercultural competence. Consequently, IoC is considered a core strategy to make learners aware of their own culture and others (Green & Whitsed, 2015). However, the evaluation of students’ cultural competence in different fields and levels of education is complex. Therefore, from our perspective, cultural competence and innovative solutions to develop it will continue to be a topic of interest among scholars in the coming time. Other stakeholders should also consider this as an essential element when planning and implementing IoC.

**Conclusion**

In this research, we provide the first systematic scientific information for an overview of research related to the internationalization of curriculum. The results show that the number of publications on the IoC has increased significantly over the past decade. These findings may reflect the importance of IoC in educational policies and strategies in countries to provide quality education services to larger student communities, aiming to meet the needs of training global citizens who are capable of living and working in a constantly changing international environment.

Figures and tables depicting the number of publications, total citations, influential authors, works and publishing sources indicate the preponderance of countries with developed education systems such as Australia, the United States, and the United Kingdom. This situation reflects the tradition of international enrollment, education export, and the significant influence of the Global North on the process of internationalization. However, the emergence of published works in
developing countries in recent years shows the global popularity of the internationalization of curriculum and the balance between the education systems in other regions than the Western ones that prevail in this process.

The results of the co-citation analysis also show diverse topics related to IoC from many aspects such as internationalization, international cooperation, and students. Our analysis presents the most popular research areas and reflects changing trends in the field according to keyword citation analysis. Newly emerging topics in recent years are internationalization at home and cultural competence.

In summary, although IoC is one of the least examined topics in the field of IHE, the results of this study suggest that with the increasingly powerful influence of globalization and the disruptive changes in the political, economic, cultural, and social environments in many regions of the world, the process will accelerate. There is a robust call for future researchers on IoC to broaden their scope to a large geopolitical context, examine more stakeholders from various perspectives to gain a more comprehensive view of both theory and practice of IoC. In that case, results from this research which describe the existing research system on this topic can be a starting point, promoting research on new and more up-to-date matters.

Recommendations

Results from this research provide some suggestions for scholars who wish to conduct further examinations on IoC. In terms of geographical distribution, it appears that most publications come from Global North countries with a long tradition of international education such as Australia, the United States, and the United Kingdom. However, new emergent countries such as Austria, Mozambique, Colombia, Malaysia, Brazil, Portugal, Vietnam, South Africa and Columbia are from various continents, which shows the international feature of IoC and the spread of this key strategy in the internationalization of higher education to these parts of the world. As the implementation of IoC is diverse and contextual-based, more studies are needed to investigate its dynamic in developing countries.

Also from the keyword co-occurrence analysis, the appearance of recent keywords suggest much room for future research. Notably, the sub-topics related to internationalization at home and cultural competence with their belonging keywords should be further examined, so as to contribute to a firmer knowledge base on the matter.

For practitioners, the findings from this study suggest an acceleration of IoC in the upcoming time, especially after the profound impact of the Covid-19 pandemic on students and staff mobility. Therefore, institutional leaders, administrators and teachers are recommended to reconceptualize IoC by questioning their previous assumptions about the value of IoC initiatives in the new changing world. It is advisable for them to review current approaches to internationalize the curriculum as well as redesign policies, strategies and actions toward more effective implementation of IoC in their own context.

Limitations

This study has some limitations that need addressing in future research. One drawback of the bibliometric analysis is that it provides only general descriptions of the intellectual structure of the research topic (Kakouris & Georgiadis, 2016). Our research describes in part the emerging themes and contributions of previous studies on the development of IoC. It cannot provide the details of a sub-topic of IoC and assess the quality of each piece of research. Therefore, further studies are needed to overcome this limitation.

Besides, the database used in our study was incomplete since we used the dataset from Scopus for analysis only. Although Scopus is one of the largest scientific databases globally, many influential scientific documents related to IoC are not indexed there. Therefore, analysis of co-citations and analysis of references located in the database can partially address this problem.

The use of keywords in English also leads to the limitation of the research data system published only in English and the exclusion of works on the topic of IoC in other languages (Thiesen, 2019). Therefore, further studies which include works published in languages other than English will provide a more comprehensive perspective on the matter in the world.

Finally, bibliometric analysis cannot satisfy the conceptualization of IoC. The selection of the database for analysis and interpretation of results is based on the authors’ subjective opinions (Hallinger & Nguyen, 2020; Zupic & Čater, 2015). Thus, it requires a broader background in the field and diverse perspectives to provide a more holistic view of the research topic.

Ethics Statement

The authors assure that this research paper was done in compliance with ethical standards.

Acknowledgments

This article is the outcome of independent scientific research. The authors wish to express their gratitude to our fellow researchers for their invaluable comments and suggestion for this study.
Declaration of Interest Statement
The authors declare that they have no conflict of interest in this research.

Authorship Contribution Statement
Tien-Trung, Nguyen and Do Thi Hong Lien conceptualized the article, checked the database and contributed to writing the manuscript. All other authors collected the data, ran some data analyses and assisted in data analysis and writing.

References


