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## Higher education in Latin American academic literature: characteristics of a multidisciplinary field

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### ABSTRACT

**Introduction:** Higher education is a developing field worldwide and in Latin America. **Objective:** This article analyzes the development of the field in the region from the academic literature. **Methodology:** With a scientometric approach, based on publication data, it analyzes the growth, language, journals, geographical, thematic and citations distribution, co-authorship and international collaboration in the Latin American articles on higher education of regional and international circulation. **Results/Conclusion:** The results show a multidisciplinary field, which grows and develops around debates and research on higher education and university in a multiplicity of topics and approaches.

### KEYWORDS

Higher education. University. Scientific production. Latin America.

## La educación superior en la literatura académica de América Latina: características de un campo multidisciplinario

### RESUMEM

**Introducción:** La educación superior es un campo en desarrollo a nivel mundial y en América Latina.

**Objetivo:** Este artículo analiza el desarrollo del campo en la región a partir de la literatura académica.

**Metodología:** Con un enfoque cuantitativo, basado en datos de publicación, analiza el crecimiento, el idioma, las revistas, la distribución geográfica, temática y de citas, la coautoría y la colaboración internacional en los artículos latinoamericanos sobre educación superior con circulación regional e internacional. **Resultados/Conclusión:** Los resultados muestran un campo multidisciplinario, que crece y se desarrolla en torno a debates e investigaciones sobre la educación superior y la universidad en una multiplicidad de temas y enfoques.

### PALABRASCLAVE

Educación superior. Universidad. Producción científica. América Latina.

## A educação superior na literatura acadêmica da América Latina: características de um campo multidisciplinar

### RESUMO

**Introdução:** A educação superior é um campo em desenvolvimento no mundo todo e na América Latina.

**Objetivo:** Este artigo analisa o desenvolvimento do campo na região a partir da literatura acadêmica.

**Metodologia:** Com um enfoque quantitativo, baseado em dados de publicação, analisa o crescimento, o idioma, as revistas de publicação, a distribuição geográfica, temática e de citações, a cooperação e a colaboração internacional nos artigos latinoamericanos sobre educação superior com circulação regional e internacional. **Resultados/Conclusão:** Os resultados mostram um campo multidisciplinar, que cresce e se desenvolve em torno de debates e investigações sobre educação superior e universidade em uma multiplicidade de temas e enfoques.

### PALAVRAS-CHAVE

Educação superior. Universidade. Produção científica. América Latina.

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## 1 Introduction

The 2018 Regional Conference on Higher Education (CRES) is a capstone for Latin America. It represents an effort of dialogue between diverse actors involved in the educational sectors of the multiple countries of the region, seeking common directions for this decade's developments. Its guidelines include "higher education, internationalization and integration in Latin America and the Caribbean" and "scientific and technological research and innovation as engines of human, social and economic development for Latin America and the Caribbean. This article explores one of their interfaces, scientific research on higher education in Latin America, in order to construct a panorama that contributes to its integration.

The field of research on higher education in Latin America is developing, with a significant expansion in recent decades. Scholarly literature, as one of the products of science and scientific fields, favors knowledge of the structures and dynamics of science and scientific fields in different contexts. In this perspective, we ask: how can the field of higher education in Latin America be characterized based on its literature?

Higher education, as a research topic, forms a field by socially organizing and consolidating research processes and structures that involve researchers from different disciplines. These actors, among other activities, produce knowledge that circulates in journals and conferences. The perception of higher education as a field is addressed by Krotsch (2005), Brunner (2009b), Macfarlane (2012), Horta and Jung (2013), Teixeira (2013), Altbach (2014), Tight (2014, 2019), Kehm (2015), Teichler (2015), Neves, Sampaio and Heringer (2018), and others. The diversity of theories, methods and disciplinary approaches generates controversies about its character as a field of study (CLEGG, 2012; TIGHT, 2013) beyond a research topic.

Teichler (1996) points out other aspects of the complexity of research in higher education beyond multidisciplinary, such as the social relevance of its central theme, the demand for great knowledge on the area, and the combination of efforts by scholars and practitioners who contribute to research in the field. Higher education studies are also linked to problem solving, and it is not always possible to distinguish between researchers and practitioners, who often combine these functions. Terenzini (1996) suggests the need for a closer link between research and the problems universities face.

From a sociological point of view, we assume in this study that higher education research constitutes a field, understood as a structured space with positions and a place where a struggle for hegemony is carried out and admission criteria are constructed (KROTSCH, 2005). Higher education is a heterogeneous and multidisciplinary field, with contributions from disciplines such as Education, Philosophy, Psychology, Sociology and Administration (BRUNNER, 2009b; TEICHLER, 2015).

The field's configurations bring together multiple agencies and, in the

international context, are the subject of several studies, such as those by Clark (1996), Altbach (2002), Tight (2004, 2014), Välimaa and Hoffman (2008), and Teichler (2015), among others. In Latin America, research on the development of the field in recent decades includes studies by Krotsch (2005), Brunner (2009b), Neves, Sampaio and Heringer (2018), Guzmán-Valenzuela and Gómez (2019), Muñoz-García *et al.* (2019), and Guzmán-Valenzuela, Tagle and Gómez-González (2020), as well as studies on the university, such as those by Bernasconi (2008), Didriksson *et al.* (2017), Balbachevsky and Bernasconi (2018).

Some authors point out that the construction of the higher education studies field is advancing in Latin America, although unevenly among countries, being more developed in Mexico, Brazil, Argentina and Chile, and initial or incipient in other countries (KROTSCH, 2005; BRUNNER, 2009b; NEVES; SAMPAIO; HERINGER, 2018). García Guadilla (2003) indicates that it is important to create research spaces to produce knowledge that enables critical-reflective constructions with endogenous references to interpret the specificities of Latin American countries. The regional peculiarities are also related to the political struggles for higher education and university. Both characteristics sometimes contribute to compromise the field's autonomy by making its borders more diffuse. This breadth can lead to a measure of improvisation, with researchers entering and leaving the field, and to the absence of an ongoing debate on modes of research (KROTSCH, 2005).

The gaps in research on higher education in the region create an opportunity to analyze regional science and broaden the landscape of the field with the debate on Latin American science. At the same time, they imply challenges to contemplate aspects of pluralism and different circuits of regional science, traditionally underrepresented in international indices (GARFIELD, 1995; SANTIN; CAREGNATO, 2019). This article seeks to give visibility to scientific production as a component of the field of higher education in Latin America and to overcome, however partially, the barriers of international science, in a broader, more diverse and inclusive view of regional science.

This study aims to obtain a field overview through the analysis of Latin American countries' scholarly literature published in articles indexed in the Web of Science and SciELO databases. The research underpinning it had a scientometric approach, based on publication data, and sought to identify patterns and trends in scholarly literature of regional and international circulation. It analyzed the evolution of output, languages, journals of regional and international circulation, geographical and thematic distribution, and collaboration in the co-authorship of articles, among other aspects. The results may favor the understanding of the development of the field of higher education in Latin America, as seen from its academic literature.

## 2 The field of higher education in Latin America

Studies on higher education are unevenly distributed throughout the world, reflecting the structure of the international scientific system, the field's developmental phases, and the ways of disseminating science in the circuits of regional or global science.

Characteristics such as language, journals, and publication strategies generate different conditions of visibility, with losses for countries in Latin America, Asia, and Africa, and also for other non-English-speaking nations (BEIGEL, 2014; TEICHLER, 2015). In addition to the stratification between regions, knowledge heterogeneity and concentration is also observed within the regions themselves, as is the case of Latin American countries (GARCÍA GUADILLA, 2013; SANTIN; CAREGNATO, 2020).

At the beginning of this century, Krotsch and Suasnábar (2002) noted an incipient institutionalization of higher education research as a field in Latin America. Applied knowledge was produced for decision-making, without more advanced theoretical formulations dedicated to the specificities of the higher education phenomenon, hindering the consolidation of an interpretative community based on common references. Years later, Brunner (2009b) recognized the peripheral insertion of Latin American research in the global field, linked to its low-visibility publication strategies and the transience of connections between groups of researchers. In the last decade, Guzmán-Valenzuela and Gómez (2019) perceived an approximation to more established literature in the extra-regional space. However, characteristics such as disciplinary dispersion persist in the approach to regional problems, although in a varied way between newspapers and countries (GUZMÁN-VALENZUELA, 2017; MUÑOZ-GARCÍA *et al.*, 2019).

### 3 Methodology

This is a macro-level scientometric study, dedicated to the analysis of the field of higher education in Latin America from its scientific output. The approach is quantitative, based on bibliometric indicators. The data sources are two databases: Web of Science (Science Citation Index - SCI, Social Science Citation Index - SSCI, Arts & Humanities Citation Index - A&HCI, Emerging Sources Citation Index - ESCI), with international science coverage, except for the last index, which has a wider coverage of regional journals; and the SciELO Citation Index/SciELO, covering literature of regional circulation. The study includes original and review articles.

Data collection was performed in May 2020 and the search strategy combined the fields country (CU), topic (TS), title (TI), document type (DT) and year published (no start and end date in 2019). Search strategies included articles from Latin American countries listed in the *Standard Country or Area Codes for Statistics Use* (UNITED NATIONS, 2021), based on country information and author affiliation. Search strategies were similar for the two databases (Table 1). In SciELO, the combination of search terms allowed to collect publications issued until 2001, not available in the SciELO Citation Index, where data from 2002 to 2019 were collected.

Data were downloaded with the full log, in tab-separated format (UTF-8), in sets of 500 records. Data were then combined into unique files for each database using BibExcel software. Data cleansing ensured the exclusion of articles that did not deal with higher education and/or university as research objects and/or topics, as well as of

duplicate publications. The procedure turned out to be of great relevance to avoid a significant plot of spurious results, as the search terms appear in works that are not dedicated to investigating the higher education phenomenon. The research corpus consists of 7,396 Web of Science articles and 8,093 SciELO (SciELO and SciELO Citation Index) articles. In addition to BibExcel, the software Microsoft Excel, VOSviewer, and Infogram were employed.

**Table 1.** Search strategy for Latin American scholarship on higher education

Source	Search strategy	N articles
Web of Science	<b>CU</b> =(Belize OR "Costa Rica" OR "El Salvador" OR Guatemala OR Honduras OR Mexico OR México OR Nicaragua OR Panama OR Argentina OR Bolivia OR Brazil OR Brasil or Bresil OR Chile OR Colombia OR Ecuador OR Equador OR "Falkland Islands" OR "Falkland Isl" OR "French Guiana" OR "Guyane Française" OR Guyana OR Paraguay OR Paraguai OR Peru OR Suriname OR Surinam OR Uruguay OR Uruguai OR Venezuela OR Venez) AND ( <b>TS</b> =(“higher Education” OR “educação superior” OR “ensino superior” OR “educación universitaria” OR “enseñanza superior” OR “postsecondary education” OR “educação pós-secundária” OR “educación post secundaria” OR “educación universitaria” OR “educação universitária” OR “tertiary education” OR “educação terciária” OR “educación terciaria”) OR <b>TI</b> =(university OR universities OR universidade OR universidades OR universidad)) AND <b>DT</b> =(article OR review) AND <b>PY</b> =(1945-2019)	Initial: 10,220
		Excluded: 2,824 Final: 7,396
SciELO Citation Index	<b>CU</b> =(Belize OR "Costa Rica" OR "El Salvador" OR Guatemala OR Honduras OR Mexico OR México OR Nicaragua OR Panama OR Argentina OR Bolivia OR Brazil OR Brasil or Bresil OR Chile OR Colombia OR Ecuador OR Equador OR "Falkland Islands" OR "Falkland Isl" OR "French Guiana" OR "Guyane Française" OR Guyana OR Paraguay OR Paraguai OR Peru OR Suriname OR Surinam OR Uruguay OR Uruguai OR Venezuela OR Venez) AND ( <b>TS</b> =(“higher Education” OR “educação superior” OR “ensino superior” OR “educación universitaria” OR “enseñanza superior” OR “postsecondary education” OR “educação pós-secundária” OR “educación post secundaria” OR “educación universitaria” OR “educação universitária” OR “tertiary education” OR “educação terciária” OR “educación terciaria”) OR <b>TI</b> =(university OR universities OR universidade OR universidades OR universidad)) AND <b>DT</b> =(research-article OR review-article) AND <b>PY</b> =(2002-2019)	Initial: 11,280
		Excluded: 3,407 Final: 7,825
SciELO	Search terms and filters (country and year published): “higher Education” OR “educação superior” OR “ensino superior” OR “educación universitaria” OR “enseñanza superior” OR “postsecondary education” OR “educação pós-secundária” OR “educación post secundaria” OR “educación universitaria” OR “educação universitária” OR “tertiary education” OR “educação terciária” OR “educación terciaria”	Initial: 2,151 Excluded: 1,883 Final: 268

The research used the bibliometric method of complete counting, attributing an article to each country or discipline involved in the publication. The thematic classification is based on the 151 research areas of Web of Science and SciELO Citation



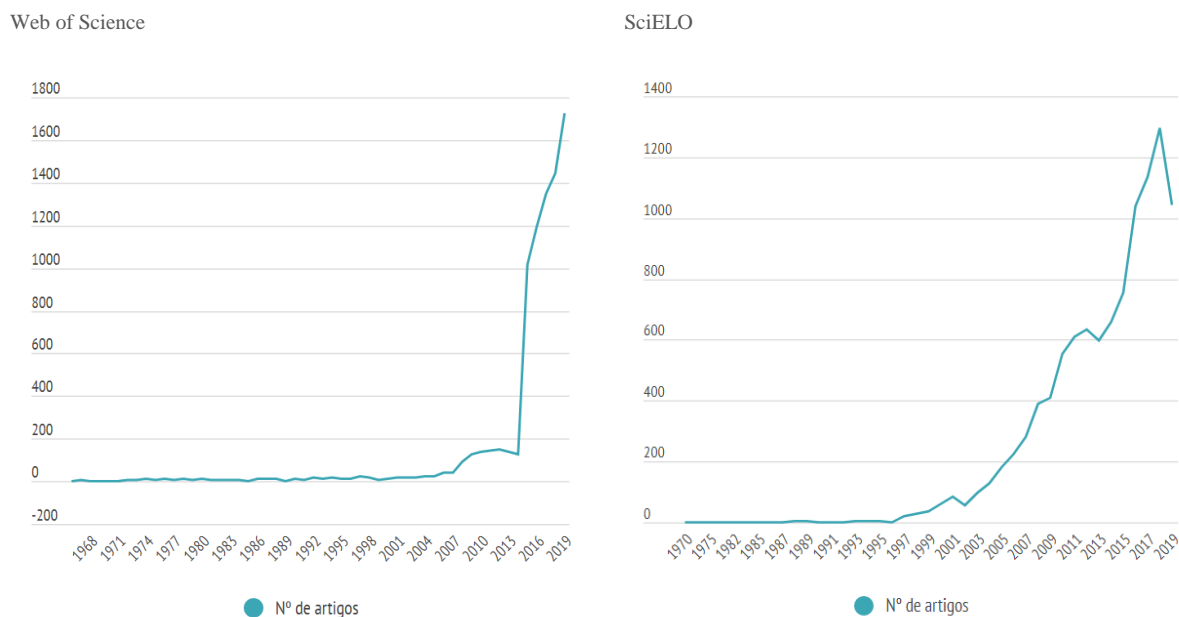
Index (meso level), which are transposed to the six main fields of science and technology of the Frascati Manual (macro level) (OECD, 2002), a comprehensive classification for the Social Sciences and Humanities. The classification of articles by discipline in SciELO (1970-2001) was carried out by the authors in the research areas.

## 4 Results and discussion

### 4.1 Evolution, language, and geographical distribution

The first Latin American articles on higher education date from the late 1960s and focus on the theme of university. The 1970s and 1980s constitute the initial phase of field studies in the region, still incipient and carried out mainly by individual researchers, much of it with ideas and concerns about university and higher education. In the 1980s and 1990s, there was further growth, with field development, thematic diversification, and the creation of graduate programs and research groups (BRUNNER, 2009b; NEVES; SAMPAIO; HERINGER, 2018). However, the field's output only reaches a more expressive growth at the beginning of the twenty-first century, as revealed in Figure 1, below.

**Figure 1.** Evolution of articles on higher education in Latin America, Web of Science and SciELO (1970-2019)



**Source:** elaborated by the authors based on data from Web of Science and SciELO.

This growth in output results from a combination of factors, including field development and the training of human resources in the region, the greater scholarly output in the countries, and the expansion of databases' coverage of regional journals (LETA, 2012, COLLAZO-REYES, 2014; SANTIN, 2019). In Web of Science, recent growth is also associated to the creation of a new index, ESCI, created in 2015, which indexes a part of Latin American journals in Social Sciences, Humanities, and other areas.

The region's leading journals addressing higher education reflect this reality, with more than 60% of the titles in Table 4 (which will be seen in the next section) forming part of the ESCI, and not being present in other traditional Web of Science indexes, such as SCI and SSCI. Output growth also occurred in SciELO in the same period, doubling the results of the previous five-year period, indicating a real increase.

The publishing behavior differs between the areas of knowledge, as the Social Sciences and Humanities traditionally publish more books and chapters than journal articles (BRUNNER, 2009b; CABALLERO-RIVERO; SANTOS; TRZESNIAK, 2019). It is important to consider, therefore, that much of Latin American production in higher education remains “invisible” in regional and international bases.

Another noticeable feature of higher education studies is the language of publications. In Web of Science, known for its bias in favor of central countries and English language, 47.6% of the articles from the region in the field were published in Spanish, followed by English, 26.8%, and by Portuguese, 25.2%. In SciELO, Spanish maintains the hegemony, with 55.5%, followed by Portuguese, 37.6%, and with a low presence of English, 6.8%. The situation indicates a distinctive feature of regional articles, with the predominance of Spanish in both publication circuits, as seen in Table 2, below.

**Table 2.** Language of articles on higher education by timeframe, Web of Science and SciELO

Language	1968-79	1980-89	1990-99	2000-09	2010-14	2015-19	Total	%
<b>Web of Science</b>								
Spanish	36	34	47	108	181	3,114	<b>3,520</b>	47.6
English	24	25	50	135	219	1,529	<b>1,982</b>	26.8
Portuguese	6	8	7	87	160	1,597	<b>1,865</b>	25.2
Other	1	2	1	2	2	17	<b>29</b>	0.4
Total	59	69	105	332	562	3,143	<b>7,396</b>	100.0
<b>SciELO</b>								
Spanish	0	2	18	746	1,270	2,451	<b>4,490</b>	55.5
Portuguese	1	15	83	748	948	1,248	<b>3,044</b>	37.6
English	2	0	2	37	136	376	<b>553</b>	6.8
Other	0	0	1	0	2	3	<b>6</b>	0.1
Total	3	17	104	1,531	2,356	4,078	<b>8,093</b>	100.0

**Source:** elaborated by the authors based on data from Web of Science and SciELO.

Language is a relevant characteristic for visibility and citation impact. Although more than 80% of the articles from Latin America and the Caribbean at the beginning of the 21st century indexed in the Web of Science were published in English (SANTIN, 2019), less than 30% of the articles on higher education were written in this language, with a trend for growth in recent years. In SciELO, percentages also differ: about 25% of general production and less than 7% of articles on higher education in English. The situation reflects characteristics of the field and disciplines that make up most of its substrate, as well as of the circuits of regional science. Local languages are relevant to



knowledge and debate about higher education in Latin America, which does not have a long tradition of using English.

The geographical distribution of articles and citations is shown in Table 3, below. Brazil leads production in the field, with more than twice as many publications as Mexico, the runner-up. Brazil and Mexico also occupy the first and second positions, respectively, in Latin American scholarly output in general (SANTIN, 2019). With just over 30% of the population and 60% of the human resources in science and technology in the region, Brazil, the country that invests the most in science in the region, stands out in regional scientific output, at least in terms of quantity, with more than 50% of the articles in the Web of Science and more than 60% in SciELO (SANTIN, 2019; RICyT, 2020). In higher education, the country amasses 37.4% and 40.8% of the region's articles in both databases, respectively, indicating a lower relative participation in the field. On the other hand, it overmatches its neighbors in the percentage of citations, with most citations received by articles (69.8% in Web of Science and 62.4% in SciELO), which translates into one of the highest citation averages among the most productive countries in the region.

**Table 3.** Articles and citations in higher education by Latin American country, Web of Science and SciELO

Country	Web of Science					SciELO				
	n. art	%	n. cit	□	%	n. art	%	n. cit	□	%
Brazil	2,768	37.4	9,538	3.4	69.8	3,356	41.5	8,239	2.4	62.4
Mexico	1,066	14.4	3,448	3.2	25.2	1,206	14.9	1,427	1.2	11.3
Colombia	869	11.7	1,850	2.1	13.5	1,217	15.0	1,280	1.1	9.8
Ecuador	793	10.7	429	0.5	3.1	291	3.6	1,372	1.9	10.9
Chile	743	10.0	3,573	4.8	26.2	785	9.7	668	1.4	5.0
Argentina	488	6.6	1,115	2.3	8.2	508	6.3	328	1.1	2.4
Venezuela	288	3.9	314	1.1	2.3	304	3.8	94	0.4	0.7
Peru	207	2.8	340	1.6	2.5	148	1.8	64	0.4	0.5
Costa Rica	151	2.0	121	0.8	0.9	169	2.1	189	1.4	1.5
Uruguay	85	1.1	303	3.6	2.2	58	0.7	24	0.5	0.2
Nicaragua	18	0.2	6	0.3	0	2	0.0	4	0.2	0.0
Bolivia	11	0.1	28	2.5	0.2	16	0.2	25	2.3	0.1
Paraguay	11	0.1	16	1.4	0.1	28	0.3	0	0	0
Guatemala	7	0.1	6	0.9	0	4	0.0	10	2.5	0.1
Panama	7	0.1	26	3.7	0.2	2	0.0	2	1	0.0
El Salvador	6	0.1	75	12.5	0.5	1	0.0	0	0	0
Guyana	3	0.0	0	0	0.0	0	0.0	9	9	0.1
Honduras	3	0.0	0	0	0.0	4	0.0	0	0	0.0
Belize	1	0.0	1	1	0.0	--	--	--	--	--
Puerto Rico	--	--	--	--	--	1	0.0	0	0	0.0

**Source:** elaborated by the authors based on data from Web of Science and SciELO.

In the general output of Latin America, the first positions are occupied by Brazil, Mexico, Argentina, Chile, and Colombia (SANTIN, 2019). In higher education articles, Brazil and Mexico hold positions, while Colombia, Ecuador and Chile surpass Argentina, despite extensive debates on the subject in the country (CAREGNATO *et al.*, 2020). It is possible that much of Argentina's production is published in books, particularly in works linked to work at the Latin American Council of Social Sciences (CLACSO) and UNESCO's International Institute of Higher Education in Latin America and the Caribbean (IESALC). Ecuador takes up a relevant position, both regionally and internationally, and publishes three journals in Table 4, although none of them is specialized in higher education.

The impact of citations of articles on higher education is below that of the general scientific production of the region. In addition to the different publication patterns of areas and disciplines, the field's trajectory, regional approach and scarce international collaboration can contribute to the situation. The average of 1.8 citations per higher education article indicates a low impact on the Web of Science, where the overall average for the region is around 12 citations per article, and 7 in the Social Sciences (SANTIN, 2019). In SciELO, the average is close to the general standard (1.9 citations per article) and exceeds the Social Sciences average (1.2). In terms of country production, the highest averages of citations per article are from Chile (4.8), Uruguay (3.6), Panama (3.7), and El Salvador (12.5), followed by Brazil (3.4) and Mexico (3.2) in Web of Science; and Brazil (2.4), Bolivia (2.3), and Guatemala (2.5) in SciELO.

#### 4.2 Journals

Regional journals are important for the dissemination of research and debates on higher education, reinforcing the importance of the regional publication circuit. Even in the Web of Science, whose focus is on global science, regional journals stand out, particularly those indexed in ESCI. The pattern is clear among major journals (Table 4, below) and in other publications. In addition to international journals being almost absent among the main titles, except for *Higher Education*, recognized in the field, and the *Journal of Cleaner Production*, with a focus on Environment and Sustainability, there are Brazilian, Mexican, and Chilean journals, along with others published in other countries of the region, including Cuba, indicating its participation in the debate on the subject.

The multidisciplinary nature of the field is also reflected on journals, however with an emphasis on Education and Social Sciences, as well as titles on university and higher education. The existence of specialized journals indicates a body of publications in the field, especially in Mexico, contrasting with the scarcity of dedicated Brazilian journals considering this country's profusion of journals. As for the distribution of articles, there are 1,583 journals with Latin American articles in Web of Science, with a wide dispersion, and 742 journals with a single article. In SciELO, the volume of journals and the dispersion is lower, totaling 759 journals and 238 with a single article.

**Table 4.** Journals with more articles published on higher education in Latin America, Web of Science and SciELO

Web of Science				SciELO			
Journal	Country	n. art	%	Journal	Country	n. art	%
Dilemas Contemporaneos-Educacion Politica y Valores	Mexico	191	2.6	Avaliação: Revista Avaliação da Educação Superior	Brasil	312	3.8
Revista Conrado	Cuba	130	1.8	Formación Universitaria	Chile	192	2.4
Revista Universidad y Sociedad	Cuba	115	1.5	Revista Brasileira de Educação Médica	Brazil	158	1.9
Revista Ibero-Americana de Estudos em Educação	Brasil	96	1.3	Perfiles Educativos	Mexico	153	1.9
Humanidades & Inovação	Brasil	85	1.1	Interface - Comunicação, Saúde, Educação	Brazil	136	1.7
Revista Inclusiones	Chile	78	1.0	Revista de la Educación Superior	Mexico	132	1.6
Revista Publicando	Ecuador	75	1.0	Revista Mexicana de Investigación Educativa	Mexico	121	1.5
Interciencia	Venezuela	68	0.9	Revista Iberoamericana de Educación Superior	Mexico	120	1.5
Revista Medica de Chile	Chile	65	0.9	Ensaio: Avaliação e Políticas Públicas em Educação	Brazil	116	1.4
Higher Education	Netherlands	59	0.8	Educar em Revista	Brazil	114	1.4
Química Nova	Brazil	57	0.8	Educação & Sociedade	Brazil	113	1.4
Interface - Comunicação, Saúde, Educação	Brazil	54	0.7	Revista Electrónica Educare	Costa Rica	109	1.3
Educar em Revista	Brazil	53	0.7	Educação e Pesquisa	Brazil	107	1.3
Revista Educación	Costa Rica	51	0.7	Revista Electrónica de Investigación Educativa	Mexico	99	1.2
Revista Electrónica Calidad en la Educación Superior	Costa Rica	50	0.7	Revista Brasileira de Enfermagem	Brazil	94	1.1
Journal of Cleaner Production	Netherlands	49	0.7	Actualidades Investigativas en Educación	Costa Rica	91	1.1
Revista Praxis Educacional	Brazil	45	0.6	Educación y Educadores	Colombia	87	1.1
Holos	Brazil	44	0.6	Psicología Escolar e Educacional	Brazil	87	1.1
Eccos-Revista Científica	Brazil	44	0.6	Estudios Pedagógicos (Valdivia)	Chile	84	1.0
Propósitos y Representaciones	Peru	43	0.6	Revista Universidad y Sociedad	Cuba	83	1.0
Informação & Sociedade-Estudos	Brazil	41	0.5	Ciência & Educação	Mexico	80	1.0
Revista on line de Política e Gestão Educacional	Brazil	40	0.5	Educere	Brazil	79	1.0
Ciencia & Saúde Coletiva	Brazil	39	0.5	RIDE. Revista Iberoamericana para la Investigación y el Desarrollo Educativo	Mexico	78	1.0
Atenas	Brazil	38	0.5	Cadernos de Pesquisa	Brazil	76	0.9
Revista Ciencias Pedagógicas e Innovación	Ecuador	38	0.5	Revista Brasileira de Educação	Brazil	69	0.8
Universitas Psychologica	Colombia	38	0.5	Educação em Revista	Brazil	65	0.8
Revista Brasileira de Enfermagem	Brazil	36	0.5	Calidad en la Educación	Chile	63	0.8
Revista Electrónica de Investigación Educativa	Mexico	36	0.5	Química Nova	Brazil	59	0.7
Revista San Gregorio	Ecuador	36	0.5	Revista Cubana de Educación Superior	Cuba	55	0.7
Debate Universitario	Argentina	34	0.5	Revista da Escola de Enfermagem da USP	Brazil	55	0.7
Perspectivas em Ciências da Informação	Brazil	34	0.5	Revista Historia de la Educación Latinoamericana	Colombia	54	0.7
Innovacion Educativa	Mexico	33	0.4	Perspectivas em Ciência da Informação	Brazil	51	0.6
Revista Virtual Universidad Católica del Norte	Colombia	32	0.4	Revista da Escola de Enfermagem da USP	Brazil	48	0.6
Administração – Ensino e Pesquisa	Brazil	32	0.4	Psicologia: Ciência e Profissão	Brazil	47	0.6
Revista Iberoamericana de Educacion	Spain	32	0.4	Revista Educación	Argentina	45	0.6
Other	--	5,405	73.1	Other	--	4,384	56.1

Source: elaborated by the authors based on data from Web of Science and SciELO.

The low proportion of Latin American articles in the field in international journals was also observed by Guzmán-Valenzuela and Gomez (2019). Language issues contribute to the situation, also in higher education studies (MARGINSON; ORDORIKA, 2011; ORTIZ, 2004), as well as the tendency of the Social Sciences and Humanities to publish in other outlets and in local journals (BRUNNER; SALAZAR, 2009). Spanish and Portuguese are the predominant languages, although some disciplines have a high rate of English use in scientific output. The regional configuration of research communities, topics of local interest and geographical proximity also contribute to the choice of regional journals to publish of articles and debates on university and higher education.

#### 4.3 Thematic areas and disciplines

The distribution of articles by subject areas and disciplines reflects the breadth of topics and perspectives of analysis in the field. The evolution of articles by broad fields highlights the Social Sciences, which include Education, Sociology, Management, and others, according to the classification of the fields of Science and Technology by the *Frascati Manual* (OECD, 2002). The classification may differ from national standards, as is the case with Brazil, where Education is classified in the Human Sciences<sup>1</sup>. Nevertheless, it does not prevent understanding the contribution of areas and disciplines to higher education studies in the region (Table 5, below).

**Table 5.** Latin American articles on higher education according to timeframe and broad field, Web of Science and SciELO

Timeframe	Social Sciences	Medical and Health Sciences	Engineering and Technology	Humanities	Natural Sciences	Agrarian Sciences
<b>Web of Science</b>						
1966-79	66	15	6	2	2	0
1980-89	33	28	5	11	8	0
1990-99	65	27	11	12	20	5
2000-09	195	80	40	28	54	6
2010-14	363	147	76	39	59	11
2015-19	4,983	465	548	463	228	27
<b>SciELO</b>						
1971-79	1	2	0	1	0	0
1980-89	9	5	0	0	0	0
1990-99	63	11	3	7	4	1
2000-09	1,194	411	45	167	76	7
2010-14	1,753	880	144	150	111	14
2015-19	3,384	978	328	426	112	38

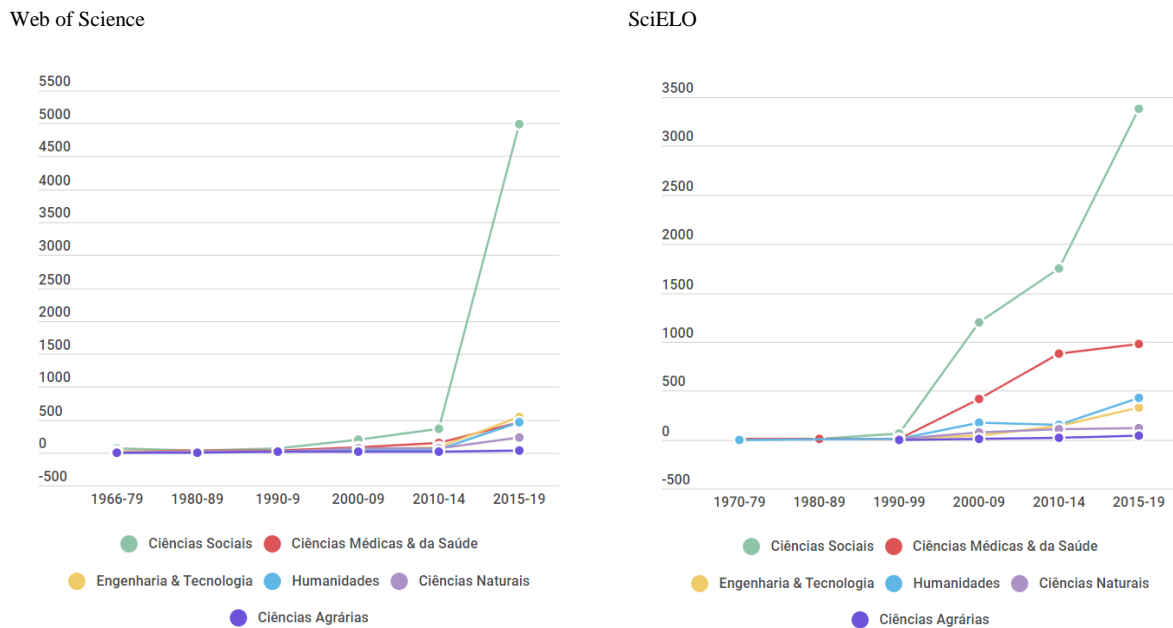
Note: The same item can be categorized into more than one area, so the total count may not match the total items.

**Source:** elaborated by the authors based on data from Web of Science and SciELO.

<sup>1</sup> The Brazilian definition of Human Sciences encompasses the disciplines of Anthropology, Archaeology, Political Science, Education, Philosophy, Geography, History, Psychology, Sociology and Theology. The *Frascati Manual*, on the other hand, includes in Humanities History (including Archaeology), Language and Literature, and Other Human Sciences (including Arts, Philosophy, Theology).

There are important contributions from Medical and Health Sciences, Natural Sciences and Agricultural Sciences, where studies are especially dedicated to the knowledge of their own fields and professional training in disciplines such as Medicine, Nursing, Chemistry, Physics, and Agronomy, among others. Engineering and Technologies combine the focus on professional training with the approach to universities' physical infrastructure and technologies for teaching and learning, while the Humanities excel in the historical studies of programs and universities, and in training in Linguistics and Arts, for example.

**Figure 2.** Evolution of Latin American article publication on higher education according to broad field and timeframe, Web of Science and SciELO



**Source:** elaborated by the authors based on data from Web of Science and SciELO.

Although the Social Sciences have a greater tradition in the field and provide the main theoretical and methodological bases for higher education research, in addition to being the basis of much of the reflections and debates on the subject (KROTSCH, 2005; BRUNNER, 2009b, TEICHLER, 2015), they do not stand out in quantitative terms in Latin American scholarly output according to the adopted thematic classification (Table 6, below). There are also differences within the Social Sciences group. Not even the sum of the different areas (Sociology, Social Sciences – Other Topics - OT, Social Issues, Social Work and Mathematical Methods in Social Sciences, among others) exceeds or approaches the number of articles of Education and Educational Research. The same is reflected to a lesser extent in the journals of publication (as seen in Table 4), where titles related to Education predominate, even with greater thematic diversity.

**Table 6.** Research areas in which Latin American articles on higher education in Latin America are published, Web of Science and SciELO

Web of Science				SciELO			
Research area	Broad field	n. art	%	Research area	Broad field	n. art	%
Education & Educational Research	SS	2,953	39.9	Education & Educational Research	SS	3,307	40.7
Business & Economics	SS	697	9.4	Business & Economics	SS	579	7.1
Social Sciences - OT	SS	591	8	Social Sciences - OT	Hum	549	6.8
Psychology	SS	390	5.3	Arts & Humanities	SS	538	6.6
Information Science & Library Science	SS	345	4.7	Psychology	SS	474	6.0
Engineering	ET	261	3.5	Engineering	ET	434	5.5
Arts & Humanities - OT	Hum	238	3.2	Public, Environmental & Occupational Health	MHS	415	5.2
Environmental Sciences & Ecology	NS	232	3.1	Nursing	MHS	434	5.2
Science and Technology - OT	ET	220	3	Health Care Sciences & Services	MHS	383	4.8
Public, Environmental & Occupational Health	MHS	197	2.7	Sociology	SS	292	3.7
Nursing	MHS	150	2	Social Issues	SS	226	2.9
General & Internal Medicine	MHS	144	1.95	Information Science & Library Science	SS	217	2.9
Communication	SS	131	1.8	Linguistics	SS	207	2.6
Linguistics	SS	130	1.8	General & Internal Medicine	MHS	227	2.3
Computer Science	ET	129	1.8	Life Sciences Biomedicine - OT	MHS	146	1.8
History	Hum	103	1.4	Chemistry	NS	103	1.3
Government & Law	SS	101	1.4	Physics	NS	102	1.3
Chemistry	NS	75	1.0	Chemistry	NS	99	1.3
Sociology	SS	73	1.0	Communication	SS	76	1.0
Literature	Hum	61	0.8	Medical Ethics	MHS	74	0.9
Other areas	--	923	12.5	Other areas	--	1,197	15.3

Note: Web of Science and SciELO Citation Index research areas according to the databases' classifications. SS: Social Sciences; ET: Engineering and Technology; Hum: Humanities; NS: Natural Sciences; MHS: Medical and Health Sciences. Articles may be classified in more than one research area, so the total count may not match the total items.

**Source:** elaborated by the authors based on data from Web of Science and SciELO.

While some areas bear predominance over others, such as Education, Economics and Business, and Social Sciences, there is a clear multidisciplinary pattern. Besides the fact that the theme is subject to multiple interests, higher education studies involve other aspects that contribute to the complexity and diversity of research, such as the combination of efforts in basic research, improvement of theories, methodologies, and understanding of the theme, and applied research, with systematic knowledge for problem solving (TEICHLER, 2015).

The themes and thematic clusters of Latin American higher education research reveal a multiplicity of approaches, without very significant differences between the articles of regional and international circulation. The most frequent keywords in both



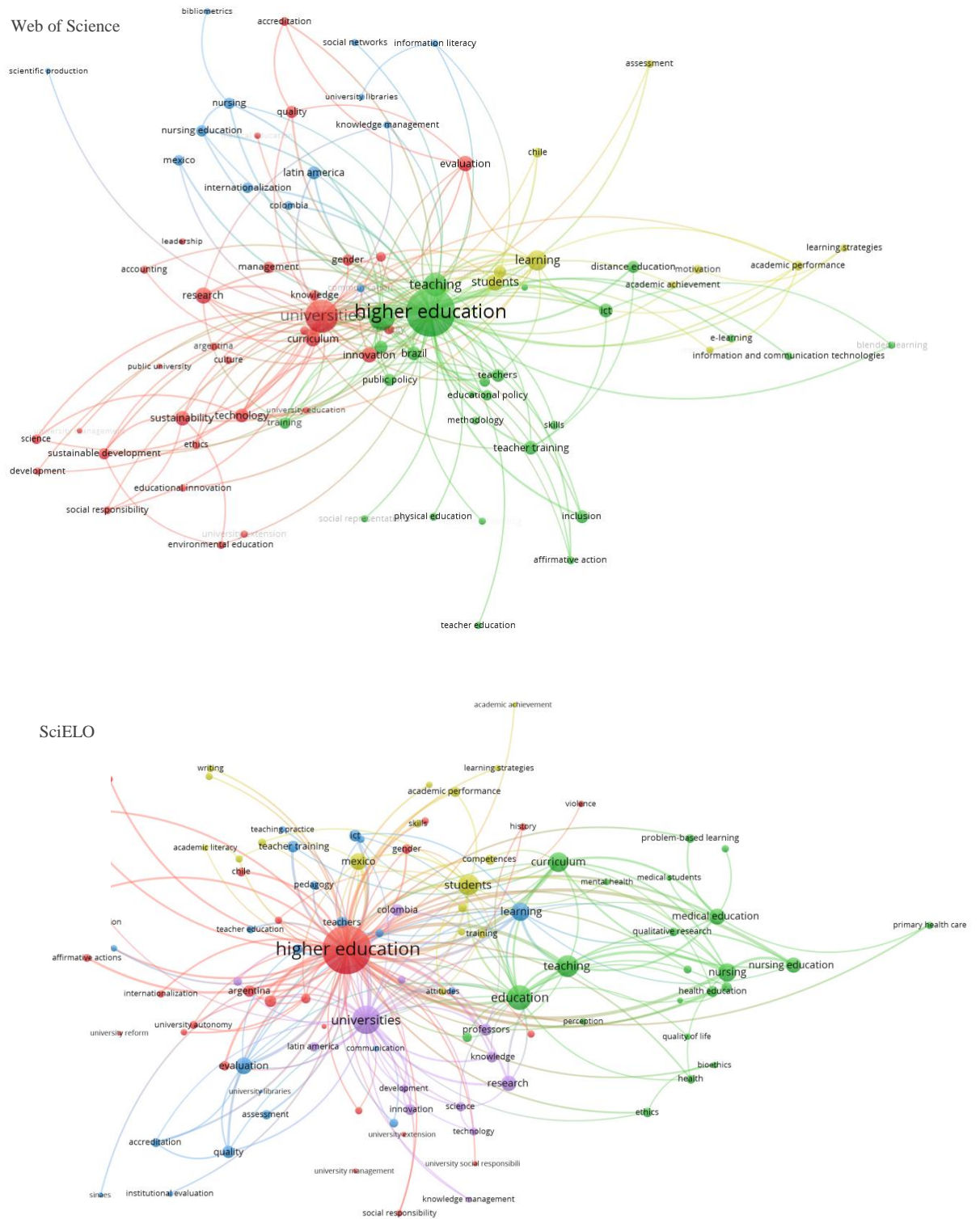
databases, with some reversal of positions, are: *Higher Education, Universities, Students, Teaching, Teacher Training, Curriculum, Learning, Research, Information and Communication Technologies, Quality, Academic Performance, Competences, Inclusion, Gender, Innovation, and Management*. Some topics receive greater attention in Web of Science, such as *Evaluation, Distance Education, Public Policy, Educational Policies, Sustainability, Internationalization, and Social Responsibility*, although they also occur in regional production. In SciELO, there is greater relative emphasis on *University Autonomy, Access to Higher Education, Affirmative Action, Ethics, and Health Education*, including *Medical Education and Nursing Education*.

Figure 3 (below) shows the co-occurrence graphs for keywords assigned by the authors, revealing the thematic clusters in the field. After normalization of terms based on *Thesaurus ERIC - Education Resources Information Center*, keywords that reached the minimum criterion of 30 occurrences were considered, resulting in 82 terms in Web of Science and 101 in SciELO groups of articles. The clusters were defined by the association method and with the minimum criterion of 10 keywords per cluster in each of the databases, in order to allow a comparative look at the two datasets.

The four clusters in Web of Science are: a) in red, the largest cluster, with 32 terms around the term universities and topics such as management, curriculum, research, innovation, quality, evaluation, sustainability, development, social responsibility, ethics, public university, university extension, culture, and gender; b) in green, the cluster with 26 terms such as education, distance education, teaching, public/educational policies, inclusion, affirmative action, and information and communication technologies; (c) in blue, with 13 terms, topics such as internationalization, scientific production, bibliometrics, social networks, university libraries, and information literacy; d) in yellow, the smallest cluster, with 11 terms, such as students, learning styles and strategies, motivation, academic performance, among others.

In SciELO, five clusters are formed: a) in red, the largest cluster, 28 terms associated with political processes of higher education on issues such as inclusion, public/educational policies, access to higher education, affirmative action, public university, university autonomy, internationalization, gender, and social responsibility; b) in green, with 22 terms, the cluster focused on education, teaching, curriculum, ethics, and health education; c) in blue, with 21 terms, the cluster on assessment, learning, quality, and teacher training; d) in yellow, with 17 items, the cluster that associates topics such as students, academic performance, skills, motivation, learning styles and strategies, and motivation; e) in purple, the smallest cluster, 13 terms associated with universities, research, science, innovation, development, globalization, among others.

**Figure 3.** Co-occurrence of keywords in Latin American articles on higher education, Web of Science and SciELO



Source: elaborated by the authors based on data from Web of Science and SciELO.

#### 4.4 Collaboration and international collaboration

Another important aspect is collaboration in higher education studies. An indicator commonly used to measure collaboration in scientific production is the co-authorship index, represented by the average number of authors per publication. In higher education, the value is similar in both data sources, with 2.73 authors per article in Web of Science and 2.57 in SciELO (Table 7, below). The standard is lower than the international collaboration of different countries in the region, which varies, also between areas (UNESCO, 2015). Another relevant indicator is the degree of collaboration, represented by the proportion of works with more than one author. The rate is similar, with 76.8% of co-authored articles in Web of Science and 72.3% in SciELO. Again, higher education rates are below the average found in the total regional output. As a result, the percentage of single-authored articles is relatively high, exceeding the rate of 20%.

**Table 7.** Co-authorship and international collaboration in higher education in Latin America, Web of Science and SciELO

	n. art.	n. art. single author	%	n. art. co-authorship	%	Mean authors per article	n. art. international collaboration	%
Web of Science	7,396	1,719	23.2	5,677	76.8	2.73	1,429	19.3
SciELO	8,093	2,241	27.7	5,852	72.3	2.57	634	8.1

**Source:** elaborated by the authors based on data from Web of Science and SciELO.

Latin American studies on higher education register low international collaboration, even when compared to the different areas of knowledge in the region (UNESCO, 2015). With 19.3% of international collaboration in Web of Science articles and only 8.4% of SciELO articles, there is low internationalization in terms of co-authorship (as seen in Table 8, below). This can result in lower global dissemination, like the observed low publication rate in international and English-language journals. Considering that international co-authorship tends to generate greater visibility and impact of citations in scientific production (ROYAL SOCIETY, 2011), this trait can reduce the potential impact of articles on regional and international science.

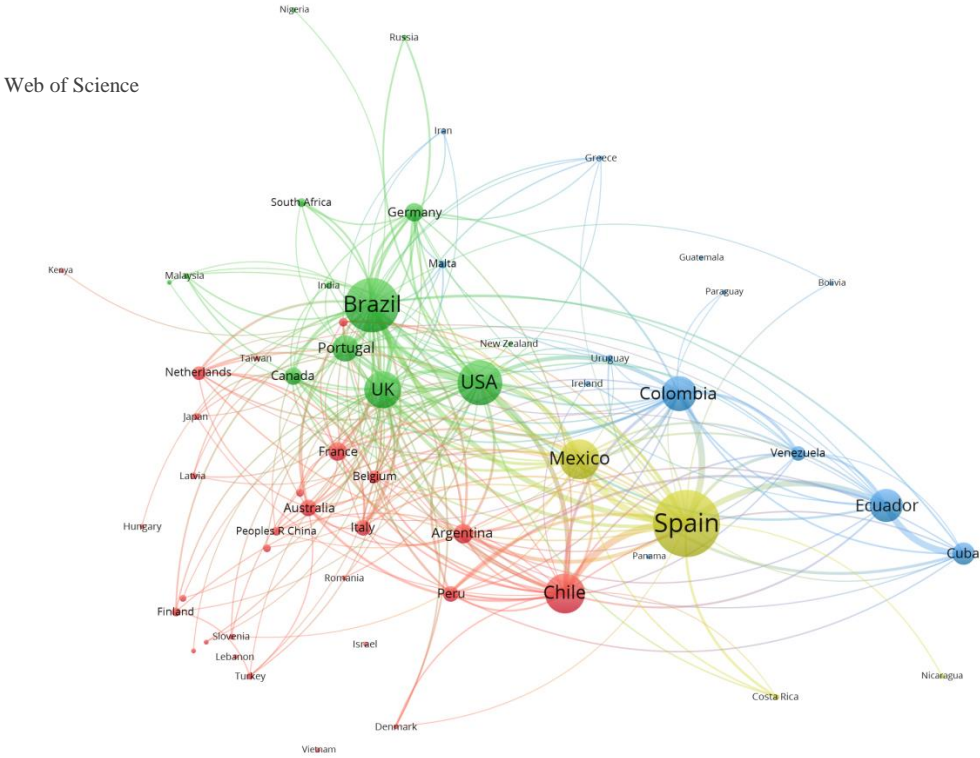
**Table 8.** Latin American articles on higher education by collaboration type, Web of Science and SciELO

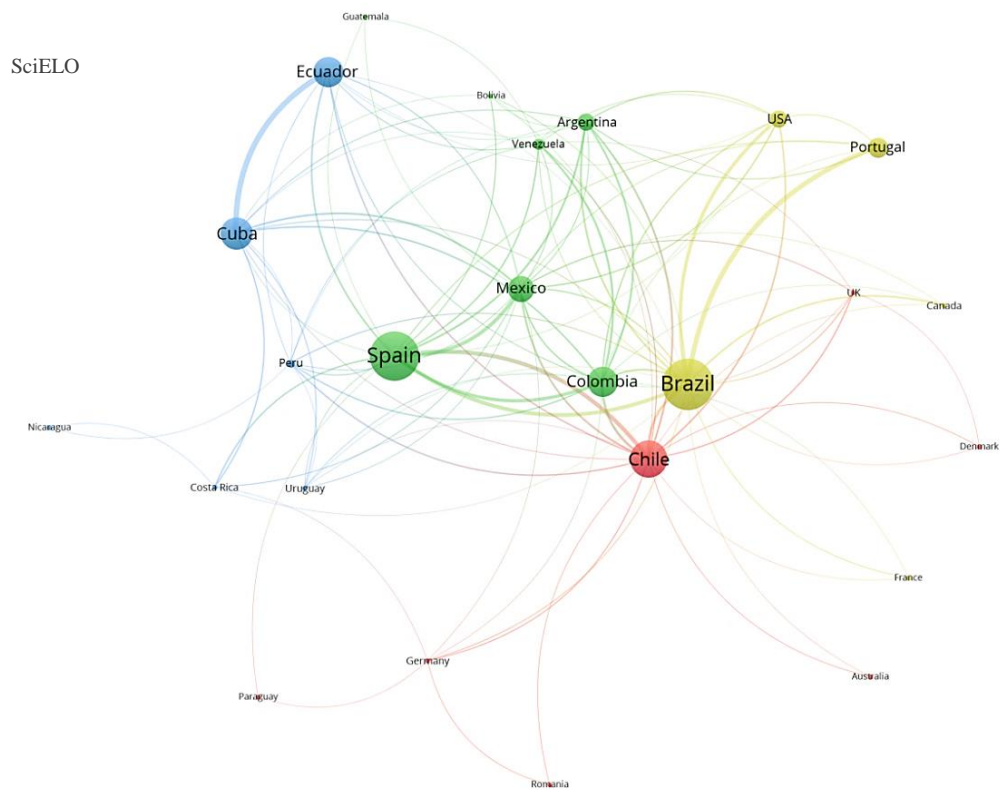
Collaboration type	Web of Science		SciELO	
	n. art.	%	n. art.	%
Unilateral, no international collaboration	5,967	80.7	7,414	91.5
Bilateral	1,131	15.3	659	8.1
Trilateral	209	2.8	15	0.2
Multilateral	89	1.2	5	0.1
<b>Total</b>	<b>7,396</b>	<b>100</b>	<b>8,093</b>	<b>100</b>

**Source:** elaborated by the authors based on data from Web of Science and SciELO.

Beyond the aspects related to the reach of scientific output, there is concern about the low integration between the countries of the region and the world in establishing alliances for the development of the field, comparative studies, and solutions to common problems. In the international co-authorship, bilateral collaboration stands out in 15.3% of the articles in Web of Science and 8.1% in SciELO. In the Web of Science, there is a greater number of articles in trilateral collaboration, and multilateral arrangements, in alliances of four or more countries, following the trend of greater collaboration in articles of international circulation.

**Figure 4.** International collaboration in Latin American articles on higher education, Web of Science and SciELO





**Source:** elaborated by the authors based on data from Web of Science and SciELO.

Regional integration, a central theme in contemporary debates on Latin American higher education, has little presence as a practice in co-authored publications. Among the articles with international co-authorship in Web of Science (1,429), about 25% refer only to intraregional collaboration, while the rest occurred with other regions, although they include more than one country in the region. In SciELO, the rate increases, approaching 40%.

There is a greater association between Spanish-speaking countries in intraregional collaboration, while in collaboration with other regions the United States and Europe stand out, especially Spain, the United Kingdom and Portugal. The most productive countries occupy a central role in collaboration networks, particularly Brazil, Mexico, Chile, and Colombia (Figure 4). Brazil, the only Portuguese-speaking country in Latin America and the one with the largest scientific production, does not play a leading role in the intraregional collaboration of higher education studies, although it does play a leading role in international collaboration. The same trend, albeit less pronounced, is observed with Chile and Argentina. Mexico and Colombia show a greater balance in intraregional and extra-regional collaboration, while Ecuador stands out in intraregional collaboration, especially with Cuba.

## 5 Conclusions

The growth of publications on higher education expresses recent developments, especially since the 1990s, and with greater impetus in the twenty-first century. Such



advances entail the establishment of research groups and centers, as well as the development of regional science itself, and external factors, linked to policies and reach of databases. The Latin American field is characterized by the greater use of regional journals and local languages, which gives a local character to its scientific output. The differences between data sources are significant in terms of the regional or international character of articles, collaboration and citation impact. On the other hand, there are similarities in outlets and languages, themes and thematic groupings, among other aspects, indicating the existence of central axes on which the field focuses and develops in Latin America.

Despite its growth, the field still requires consolidation in debates and research, as well as expansion in collaboration and citation impact. Integration among Latin American countries is low and occurs to a greater degree among Spanish-speaking countries. Not all countries have articles in the field and relatively few collaborate with each other. Gaps in intraregional collaboration reinforce the need for greater cooperation to solve common problems, expand the internationalization of higher education, and develop the field in the region. In the international context, collaboration can be strengthened and expanded to other nations, in order to enhance the role of the region, avoid dependence on key countries, and seek greater integration with international science.

Intraregional collaboration seems to have received momentum in recent years with the realization of CRES, as well as in several collaborative documents produced before and after the Conference. Part of these contributions were published in books, which are not in Web of Science and SciELO and, therefore, were “invisible” to this research. Collaboration with other countries has also been encouraged by internationalization programs in several countries in the region, although not homogeneously across nations and disciplines, and may result in greater international collaboration in Latin American studies on higher education.

In this sense, to meet the guidelines of the CRES, it would be necessary to instrumentalize scientific publication to cultivate an inclusive multilingual environment, advancing in the identification of possibilities for joint action and the socialization of cooperation experiences. Therefore, the construction of common platforms is a topic for debate that can benefit from the recognition of possible convergences between research topics and publication practices, seeking approximations between the global and regional circuits of knowledge circulation. The cultivation of forms of concerted action from institutional spaces would favor the common Latin American goals of political strengthening of the region in the global disputes around higher education to defend the public character and universal access to tertiary education.

New studies and research can devote themselves to the analysis of research groups, institutions and centers, aiming to map the structure and dynamics of the field in Latin America, as well as broaden the observation of scholarly literature through the



inclusion of books and other publications. Articles' citations and references, in turn, can evidence the intellectual influences of Latin American production. Comparative research on higher education and publication in the countries of the region is also important and can reveal approaches, specificities and new possibilities for collaboration and development of the field in the region. Besides, other perspectives by the very actors of the field can reveal other aspects about its distinctive structure, development and dynamics in the region.

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