
BILINGUAL EDUCATION RESEARCH: A BIBLIOMETRIC STUDY

LA INVESTIGACIÓN EN EDUCACIÓN BILINGÜE: UN ESTUDIO BIBLIOMÉTRICO

Joan Aleixandre Agulló

Universitat de València, Spain

ajo7@alumni.uv.es

Enrique Cerezo Herrero

Universitat Politècnica de València, Spain

ecerher@upv.es

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The aim of this paper is to analyze through bibliometric indicators the scientific literature related to bilingual education published between 1968 and September 2018. Bilingual education is shaping current educational systems all around the world. Bilingualism is thus a latent phenomenon in today's society and the number of educational practices including at least two languages in the teaching process is on the increase. Hence, the need to conduct a study with the objective of knowing where we stand as far as research is concerned and where it is headed for.

For the sake of this study, the research corpus was obtained in the Science Citation Index and in the Social Science Citation Index. 1,725 articles were retrieved, which have been published in journals of various thematic

areas. The results show a sharp increase in scientific production. 37 annual papers have been published on average since 1968 and about 128 annual papers if only the last decade is taken into consideration. Additionally, a high degree of multidisciplinary and participation has been noticed in different areas such as education, linguistics or humanities.

Key words: Bilingual education, bilingualism, CLIL, research, bibliometric study

El objetivo de este artículo es analizar a través de indicadores bibliométricos la literatura científica relacionada con la educación bilingüe publicada entre 1968 y septiembre de 2018. La educación bilingüe moldea los sistemas educativos actuales en todo el mundo. El bilingüismo es, por lo tanto, un fenómeno latente en la sociedad actual y el número de prácticas educativas que incluyen al menos dos lenguas en el proceso de aprendizaje va en aumento. De ahí la necesidad de llevar a cabo un estudio con el objeto de conocer donde nos encontramos en cuanto a investigación se refiere y hacia dónde esta se dirige.

En cuanto al estudio que aquí se presenta, el corpus de investigación se obtuvo en el Science Citation Index y en el Social Science Citation Index. Se obtuvieron 1.725 artículos, los cuales han sido publicados en revistas de varios ámbitos temáticos. Los resultados muestran un pronunciado aumento en la producción científica. Se ha publicado una media de 37 artículos anuales desde 1968 y alrededor de 128 en la última década. Además, los resultados dan cuenta de un alto grado de multidisciplinariedad y participación en áreas distintas como la educación, la lingüística y las humanidades.

Palabras clave: Educación bilingüe, bilingüismo, AICLE, investigación, estudio bibliométrico

1. Introduction

The emergence of new technologies and, as a result, the unstoppable process of globalization is making it possible for societies to tear down barriers and understand the world from a joint perspective. As Angelelli (2016, p. 34) puts it, “we have moved from the ideology of one language

one nation to a concept of bi/multilingualism as representing the diversity of the world in which we live today". But this new perspective would not be possible if we did not share common linguistic codes through which we could communicate. This new reality calls for new education systems that have foreign languages at their core. Specialization in one area of expertise is not sufficient if access to the globalized job market is to be guaranteed. It has to be complemented with a sound knowledge of not only the students' mother tongue, but also additional languages. Consequently, bilingualism is an increasing phenomenon in current educational systems and research into the effects of such practice has been one of main areas of interest at national and international level in educational matter.

Such has been the extent and impact of bilingualism that Grosjean (2010) estimates that more than half the world's population is bilingual. The ability to speak other languages apart from the mother tongue is thus a powerful tool and a must in our ever-increasing globalized world. Bilingualism does not only broaden our horizons and grant us access to a greater and larger labor market (European Commission, 2012), but it has also proven to have positive cognitive benefits on the brain such as a greater bilingual language and reading mastery when simultaneous exposure to two languages takes place at an early age (Petitto, 2009; Bialystok et al. 2007), a delay on the onset of dementia (Alladi et al. 2013) or higher gray matter volume in the inferior parietal cortex (Mecheli et al. 2004).

As a matter of fact, empirical findings highlight that the effects of bilingualism on cognition lead to enhanced executive control in bilingual speakers (Christoffels et al. 2013; Bialystok et al. 2004). Positive effects have been found in infancy (Agnes & Mehler, 2009; Kovács, 2009), toddlerhood (Poulin-Dubois et al. 2011; Bialystok & Senman, 2004), continuing through young (Siegal et al. 2009; Carlson & Meltzoff, 2008) and middle childhood (Bialystok, 2011), young adulthood (Costa et al. 2008) and older age (Bialystok et al. 2004). The bulk of investigations published serves to explain that the interest in bilingual education has grown exponentially in the last decades, justifying thus the need to carry out studies with a view to ascertaining where we stand in terms of research. On this basis, the aim of the study is to conduct a bibliometric analysis that lets scholars be cognizant of the current state of research into bilingual education and anticipate future research trends.

2. Literature Review: Bilingual Education Practices

As Baker and Wright (2017, p. 197) put it, “bilingual education is a simplistic label for a complex phenomenon”. The term bilingual education is commonly used to refer to the education of students who are already speakers in two languages and whose efforts are geared toward the acquisition of academic content. However, foreign language teaching is oftentimes regarded as a form of bilingual education, even though the learning of the language is prized over the acquisition of content. Notwithstanding this, a distinction must be made between education using and promoting two languages and monolingual education in a second language. Whereas the goal in foreign language or second language education is to achieve a high competence in an additional language, the aim of bilingual education is to educate meaningfully and bilingually and help the students to function across cultures. Bilingual education has thus taken different shapes and, consequently, it can be considered a *hazy concept* (Halbach, 2008) which seeks to define a form of education in which languages constitute a means to achieve a further goal.

Bilingual education calls for a change in the way that teachers conduct their classes. Pavón and Rubio (2010) have referred to this new educational perspective as a *methodological revolution* which challenges different aspects surrounding the curriculum, e.g. the role of both teachers and students, evaluation and assessment principles, materials development, etc. This type of education promotes the understanding and assimilation of new content through heuristic activities in which students take center stage. All efforts will come to nothing if the way of teaching is not adapted to the principles that govern this form of education, especially when the curricular content is taught through the means of a foreign language that the students do not master. Therefore, there is an impending need to re-evaluate old methods and seek new solutions to the challenges posed by bilingualism in mainstream education.

Bilingual education has drawn a great deal of attention to it worldwide. Anglophone Canadian parents fought hard in the 1970s in order for their children to receive tuition in French through immersion programs and have the same opportunities as their French counterparts (Cummins, 1979; Wesche, 2002). As a result of the great benefits that immersion programs have produced in the Canadian context (Turnbull et

al. 2003; Turnbull et al. 2001; Halsall, 1998; Lapkin et al. 1990; Genesee, 1987; Holobow et al. 1987; Genesee et al. 1986; Swain & Lapkin, 1981), these programs have set a precedent in the bilingual education arena and have laid the ground for many other bilingual and plurilingual programs subsequently developed on a global scale.

On the other hand, despite the complexities derived from political, sociological, linguistic or identity issues, among others (Salomone, 2010), the road toward bilingual education in the United States has been a bumpy one due to the English-only language ideology that characterized American education at the beginning of the 20th century so that immigrant students could be “Americanized” (Flores & García, 2017; Bybee, Henderson & Hinojosa, 2014). However, the ever-increasing great influx of immigrants arriving at their schools has led to the blossoming of different bilingual programs in the American society such as submersion, heritage or transitional programs, among others (Baker & Wright, 2017; García, 2009), especially for students whose native or home language is not English and who are learning English as a second language (Gándara & Escamilla, 2017).

Nevertheless, over the past two decades, new types of bilingual educational programs referred to as dual language education or two-way immersion have emerged (Bybee, Henderson & Hinojosa, 2014) with a view to granting both immigrant and American students access to this form of education. Based on Canadian French immersion programs (Flores & García, 2017), these programs are geared toward developing not only bilingualism, but also biliteracy and cross-cultural competence (Gándara & Escamilla, 2017). The great number of foreign-born individuals in the United States and the academic, linguistic and cognitive benefits that these programs offer (García, 2018; Spies et al. 2018; Borrow & Markman-Pithers, 2016; Umansky & Reardon, 2014; Verde-Peleato, 2011; Goldenberg, 2008; Barnett et al. 2007; Genesee et al. 2006; Lindholm-Leary, 2005; Howard, Christian & Genesee, 2004; Thomas & Collier, 2002, 2000; Bialystock, 2001; Alanis, 2000) have prompted the creation of bilingual schools all over the country, especially Spanish/English programs in states with a higher number of immigrant students. Content-Based Instruction is another common approach used in the United States. Instead of drawing attention to the foreign language (English) per se, the students access new academic content through the means of the foreign language

(Stryker & Leaver, 1997; Snow, 1998). This is thought to be a more natural and effective way of developing competency in English.

In Europe, the EU policy of ‘mother tongue plus two other languages for all’ agreed in 2002 (European Commission, 2004) has also propelled a great deal of bilingual and plurilingual programs all around the continent following an approach globally known as CLIL (Content and Language Integrated Learning). CLIL is an umbrella term used to refer to “any dual-focused educational context in which an additional language, thus not usually the first language of the learners involved, is used as a medium in the teaching and learning of non-language content” (Marsh, 2002, p. 15). This European linguistic policy is set to tear down barriers in the euro area and help strengthen bonds and mutual understanding among its member states. Despite there being different ways of approaching CLIL (Coyle, Hood & Marsh, 2010), all programs have as a main priority to extend the students’ time of exposure to the L2 so that they can improve their language skills.

Along with the United States and Canada, Europe is one of the most active continents when it comes to research. Since the 1990s, conspicuous strides have been taken in order to define current practices and help improve the quality of bilingual education. Numerous studies have been published on teachers, students and parents’ views on bilingual education (Pérez Cañado, 2017; Pena & Porto, 2008), learning and acquisition of vocabulary and lexicon (Jiménez Catalán & Agustín, 2017; Tragant et al. 2016; Sylvén & Ohlander, 2014; Jiménez, Ruiz de Zarobe & Cenoz, 2006), students’ L2 proficiency (Pérez Cañado, 2018; Merino & Lasagabaster, 2018; Ackerl, 2007; Mewald, 2007; Serra, 2007; Admiraal et al. 2006) and L1 proficiency (Merisuo-Storm, 2007), students’ cognitive development (Jäppinen, 2005), teachers’ linguistic and methodological training needs (Pérez Cañado, 2016; Fernández & Halbach, 2011; Martín del Pozo, 2011; Rubio Mostacero, 2009), students’ starting age (Van de Craen et al. 2007; Lorenzo et al. 2009), motivation (Lasagabaster & López Belouqui, 2015), amongst others.

A perusal of all the main studies published evinces that, despite there having been a lot of research and discussion in the last two decades, the results deriving from empirical data are at variance when it comes to laying the foundations of bilingual education (Broca, 2016). This lack of

agreement has led the scientific community to conduct unparalleled research with a view to achieving some common ground that help us fully fathom the intricacies of bilingual education. The large number of publications inundating the research arena are proof of this new trend. Therefore, a bibliometric study on bilingualism seems to be much-needed and welcome, as it can help understand how research into bilingual education is developing and where it is headed for.

3. The Bibliometric Study: Defining the Basics

Bibliometrics is a discipline that deals mainly with the application of statistical techniques to the study of scientific publications and the bibliographic elements that this area of study contains in order to obtain information about the behavior followed by science and scientists (Zulueta, 2002). Therefore, as Van Doorslaer (2016, p. 168) puts it, “bibliometric methods offer tools for measuring, quantifying, quantitatively analyzing, and exploring academic literature and its impact”.

Bibliometrics has become a standard tool of science policy and research management in the last decades. All significant compilations of science indicators heavily rely on publication and citation statistics and other more sophisticated bibliometric techniques. Furthermore, bibliometric or scientific studies are currently an essential tool for the analysis and evaluation of research carried out worldwide (Bordons, 2004). Bibliometrics has become a generic term for a whole range of specific measurements and indicators.

3.1. Bibliometric Indicators

Bibliometric indicators are used, on the one hand, to analyze the size, growth and distribution of scientific literature (books, journals, patents, etc.) and, on the other hand, to analyze the processes of generation, propagation and use of the scientific literature (Sancho, 1990). The main and best-known bibliometric indicators can be grouped into two different categories: (a) quantitative indicators of scientific activity, which offer the number of publications and is one of the most useful indicators; and (b) impact indicators, based on the number of citations obtained by the research

unit (organization, group, investigator, country, etc.) and characterizing the impact of this production based on the recognition granted by other researchers (Bordons & Zulueta, 1999).

3.2. Quantitative Indicators of Science Activity

Quantitative indicators are obtained from the count of the bibliographic elements contained in the records, their description and the information provided. These indicators include:

- Number of papers per country, institution, research group, author or discipline within a given period.
- Coefficient of productivity of the author.
- Temporal evolution of scientific production.
- Analysis of the thematic research areas.

3.3. Impact Indicators

Impact indicators measure the effect of a publication on subsequent studies and are calculated from the analysis of citations received in journals included in the Science Citation Index and Scopus (Glänzel & Moed, 2002). The most common indicators are:

- Impact factor.
- Indicators based on citations: total number of citations, average citations by author, institutions and countries and most cited articles.

3.4. Collaboration Indicators

Social Network Analysis (SNA) studies the relationship between a number of elements (individuals, groups, organizations, countries, etc.) (Molina,

2001). This type of analysis allows for quantifying how many members make up a network, what is the intensity of the relationships between its members and who are the most relevant of them (González-Alcaide et al. 2008). This section analyzes the following items:

- Index of collaboration or co-author index.
- Collaboration coefficient.
- Index of signatures per work.
- Index of authors per work.
- Total number of signatures in the works.
- Total number of different authors with whom a researcher has collaborated.
- Order of the author's signature in the works.
- Number of works as sole signer and percentage value over total scientific output.
- Index of institutional collaboration.
- Analysis of the personal network, that is, co-authorship and collaboration networks based on the quantification of signatures in the works.
- Analysis of the institutions network.

3.5. Methodology and Materials

For the sake of this research, papers published in the Science Citation Index Expanded (SCIE) and Social Science Citation Index (SSCI) have been taken into consideration. Both indexes were accessed from the Web of Science (WOS) database. The bibliographic search was carried out during the month of September 2018 through a search profile implemented

in four command search equations in order to retrieve papers on bilingual education until the 20th of September 2018, discarding other documentary typologies such as proceeding papers, abstracts and reviews.

The search terms linked to bilingual education used in this investigation were the following: ‘bilingual educat*’; ‘multilingual educat*’; ‘immersion education’; ‘plurilingual educat*’; ‘CLIL’; ‘Content and Language Integrated Learning’; ‘Content-based instruction’; ‘Communicative Language Teaching’. The asterisk determines the word lexemes and includes all the terms derived from it, such as plurals (educations, educators) or others (educative). Despite English as a Medium of Instruction (EMI) being a very habitual term in the literature, it has been discarded for being more commonly linked to tertiary education. Due to space limitations, only articles written in English were accessed, discarding, thus, articles written in additional languages.

The search strategy was implemented in two equations or search lines, which were combined into a final search line so as to discard possible duplicates. Likewise, the scientific content fields of the bibliographic records that were included in the topic query field were: title, author keywords, keywords plus and abstract.

Based on the retrieved bibliographic records, a relational database was created with information related to authors, articles (title, abstract and keywords), year of publication, institutional affiliation, countries and number of citations received. In addition, in order to grant reliability to the study, a screening process was carried out to discard papers that do not match the search equation. Additionally, an analysis of all the abstracts was performed in order to guarantee that all papers not belonging to bilingual education research were excluded, insuring thus the reliability of the evidence reviewed. Consequently, of the 1,840 articles retrieved, 115 were deleted.

One of the limitations in the Web of Science is the lack of uniformity in the name of authors, institutions and countries. As a result, it is essential to normalize the information before carrying out the bibliometric study. This lack of uniformity is usually due to the authors themselves not always signing in the same form and errors in the processing of information. Normalization thus helps unify the different variants of the names of the

same author or institution under a common denomination. For the normalization of the authors, the criterion that was followed before two or further variants of the same name and surname consisted in choosing the one that yielded more information. In case of doubt, the coincidence was verified in the work places of the variants available.

4. Results of the Study

During the period of analysis, 1,725 published papers were collected. The first article registered in the WOS dates back to 1968. As shown in Figure 1, the number of published papers has grown exponentially since the 2004-2008 period, when 116 articles were published. The greatest growth, however, has occurred in the last five-year period (2014-2018), when 44.23% of the articles have been published. Also, the highest peak in the number of citations can be found between 2009-2013, which runs parallel to the number of papers being published regarding bilingual education and, therefore, shows an increasing growth in scientific research.

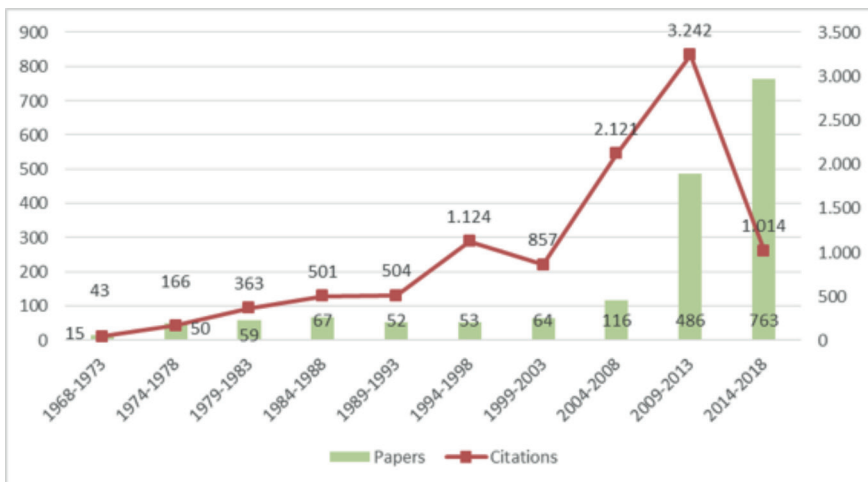


Figure 1. Temporal evolution of published papers

The papers were published in 940 different journals. The journals publishing 10 or more papers are shown in Table 1, along with the country,

the number of published papers, the citation index and the 5-year impact factor. As can be observed, with the exception of 4 journals, all the rest are British and American journals. This could be due to the fact that the search terms used in this paper have been in English, discarding thus terms in other languages.

Journals	Country	No. of papers	Citations	Citations per paper	5-Year Impact Factor
International Journal of Bilingual Education and Bilingualism	England	396	1,525	3.85	2.128
Language and Education	England	55	172	3.13	1.487
Journal of Multilingual and Multicultural Development	England	45	126	2.80	1.273
Porta Linguarum	Spain	43	49	1.14	0.559
Foreign Language Annals	United States	43	285	6.63	1.286
Language Culture and Curriculum	England	42	110	2.62	1.316
TESOL Quarterly	United States	40	1,163	29.08	2.828
Canadian Modern Language Review- <i>Revue Canadienne Des Langues Vivantes</i>	Canada	31	201	6.48	1.000
Modern Language Journal	United States	28	415	14.82	2.578
System	England	25	182	7.28	1.826
Language Policy	Netherlands	21	115	5.48	1.554
Educational Policy	United States	18	273	15.17	1.648

Journals	Country	No. of papers	Citations	Citations per paper	5-Year Impact Factor
International Journal of Educational Development	England	17	141	8.29	1.677
Teaching and Teacher Education	England	15	103	6.87	3.335
Journal of Language Identity and Education	United States	14	12	0.86	0.721
Applied Linguistics	England	14	378	27.00	3.899
Language Teaching	England	13	49	3.77	3.215
Anthropology & Education Quarterly	United States	13	76	5.85	1.183
International Journal of the Sociology of Language		12	2	0.17	
Hispania - AATSP	United States	12	10	0.83	0.289
Educational Leadership	United States	12	40	3.33	0.465
Linguistics and Education	Netherlands	12	20	1.67	
Hispanic Journal of Behavioral Sciences	United States	11	88	8.00	1.144
Comparative Education	England	11	71	6.45	2.034

Table 1. Journals with most published papers

The institutions with 10 or more published papers, along with the country, the total number of citations that these papers have received and the average number of citations received per published article, are presented in Table 2. In line with the journals publishing more papers, English-speaking universities are among the most productive, which can be attributed once again to the fact that the key words utilized in our

search have all been in English. Nevertheless, it is worthwhile noting that the University of the Basque Country in Spain appears first in the ranking. Three other Spanish universities are included in the list, two of them belonging to bilingual regions (the Basque Country and Catalonia). The United States is the country with more universities publishing research papers regarding bilingual education (n=11). Additionally, the number of publications is not proportional to the citations received and, as a result, the average number of citations per published article can vary greatly.

Institution	Country	No. of papers	No. of citations	Average of citations per work
Universidad del País Vasco	Spain	41	166	4.05
Arizona State University	United States	25	338	13.52
University of Texas at Austin	United States	23	171	7.43
University of Hong Kong	China	22	69	3.14
University of Pennsylvania	United States	22	364	16.55
McGill University	Canada	18	267	14.83
Universitat Autònoma de Barcelona	Spain	18	52	2.89
Texas A&M University	United States	18	54	3.00
University of Texas at San Antonio	United States	18	76	4.22
University of Colorado Boulder	United States	15	89	5.93
Nanyang Technological University	Singapore	15	160	10.67
Bangor University	United Kingdom	15	77	5.13

Institution	Country	No. of papers	No. of citations	Average of citations per work
University of Toronto	Canada	15	126	8.40
Hunter College	United States	14	83	5.93
Pennsylvania State University	United States	13	129	9.92
Washington State University	United States	13	138	10.62
Oranim Academic College	Israel	12	23	1.92
University of Edinburgh	United Kingdom	12	52	4.33
Universitat de Lleida	Spain	12	34	2.83
Universidad Autónoma de Madrid	Spain	12	51	4.25
University of Jyväskylä	Finland	12	17	1.42
University of Haifa	Israel	12	66	5.50
Radboud University Nijmegen	The Netherlands	11	146	13.27
CUNY Graduate Center	United States	11	44	4.00
York University	Canada	11	108	9.82
Michigan State University	United States	11	88	8.00

Table 2. Institutions with 10 or more published papers

Regarding the distribution of papers by country (Table 3), the country with the highest number of publications is the United States ($n=534$), followed by Spain ($n=229$), the United Kingdom ($n=143$) and Canada ($n=99$). For citations, the United States is in the top position ($n=4.231$), followed by Canada ($n=815$), Spain ($n=632$) and the United Kingdom ($n=595$). The average of citations per paper is higher for Austria ($n=9.59$), Canada ($n=8.23$) and Singapore ($n=8.05$).

Country	Papers	Citations	Average of citations per work
United States	534	4,231	7.92
Spain	229	632	2.76
United Kingdom	143	595	4.16
Canada	99	815	8.23
China	79	432	5.47
Australia	69	374	5.42
Germany	38	169	4.45
Sweden	36	161	4.47
South Africa	34	105	3.09
The Netherlands	33	205	6.21
Israel	27	107	3.96
Finland	24	65	2.71
Japan	22	82	3.73
Singapore	20	161	8.05
New Zealand	18	62	3.44
Belgium	18	68	3.78
South Korea	18	53	2.94
Ireland	18	71	3.94
Austria	17	163	9.59
Taiwan	16	44	2.75
Italy	16	34	2.13
Poland	16	40	2.50
France	15	40	2.67

Malta	11	19	1.73
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Table 3. Countries with more publications

The most common key words found in the papers that make up our corpus of analysis and the total percentages are presented in Table 4. The key phrase *bilingual education* appears in 425 papers, followed by *language* with 287 and *Content and Language Integrated Learning (CLIL)* with 265. The following is the general term *education* (n=218) and the next one is *English* (n=152). The other terms which follow with 100 or more correspondences are: *bilingualism* (n=150), *students* (n=141), *children* (n=127) and *second language* (102). The use of terms such as *language* or *children* may be striking; however, the close relationship between second language practice and early stages of education may explain the use of the terms in some of the articles analyzed. As regards languages, both *English* (n=152) and *Spanish* (n=58) appear to be the most recurring words.

Key words	Papers	% total
Bilingual education	425	3.44%
Language	287	2.32%
Content and language integrated learning (CLIL)	265	2.14%
Education	218	1.76%
English	152	1.23%
Bilingualism	150	1.21%
Students	141	1.14%
Children	127	1.03%
Second language	102	0.83%
Language policy	96	0.78%
Classroom	94	0.76%
School	89	0.72%

Acquisition	89	0.72%
Instruction	79	0.64%
Literacy	79	0.64%
Immersion	74	0.60%
Learners	73	0.59%
Policy	67	0.54%
Multilingualism	67	0.54%
Teachers	66	0.53%
Identity	60	0.49%
Spanish	58	0.47%
English Language Learner (ELL)	58	0.47%
Bilingual	57	0.46%
Content-based instruction (CBI)	56	0.45%
Second Language Acquisition (SLA)	54	0.44%
Foreign Language (FL)	53	0.43%
Achievement	51	0.41%

Table 4. Key word analysis

Table 5 shows research areas with more than 10 articles published, the total number of citations received and the average number of citations per published article. As shown, bilingual education seems to be present in various areas of expertise, which shows that bilingual education has gained ground in diverse disciplines other than Education, Linguistics and Psychology.

Figure 2 shows the network of co-words in which the diameter of the spheres is proportional to the frequency of keywords in the set of articles. The thickness of the lines connecting the key words is proportional to the number of times that two words coincide in the set of articles. The

Research area	No. of papers	No. of citations	Average of citations per work
Education & Educational Research	1,084	6,762	6.24
Linguistics	1,005	5,872	5.84
Psychology. Educational	48	343	7.15
Education. Special	23	242	10.52
Psychology. Experimental	23	437	19.00
Rehabilitation	22	250	11.36
Anthropology	21	107	5.10
Social Sciences. Interdisciplinary	21	49	2.33
Political Science	19	132	6.95
Psychology. Multidisciplinary	18	120	6.67
Psychology. Developmental	17	165	9.71
Sociology	14	60	4.29
Economics	12	44	3.67

Table 5. Research areas analysis

threshold applied is more than 10 co-occurrences in common. The total number of key words drawn in the network was 46.

Not surprisingly, at the center of the keyword network can be found the word *bilingual education* connected with a thick line with *language*, *bilingualism*, *students*, *children*, *education* or *CLIL*. All of these words are at the same time interconnected. The word *English* can also be considered interrelated with the most repeated words in the articles. The word *Spanish* is not represented because the threshold of co-occurrences in common was fixed in 10 and Spanish has lower common occurrences. Thus, Spanish becomes the second most used language. Other related terms can also be



Figure 2. Network of co-words.

found on the periphery such as *English as a Foreign Language (EFL)*, *Foreign Language (FL)*, *Content-Based Instruction (CBI)*, *Second Language Acquisition (SLA)*, *English as a Medium of Instruction (EMI)*, *English Language Learner (ELL)*, *multilingualism*, *code-switching* and *language policy*, among others.

As regards the collaboration index, it has been studied from three different perspectives: collaboration among authors, institutions and countries. First, in terms of collaboration between authors, it can be seen that the average index is approximately two, meaning that most published works are signed by two authors. Then, in relation to collaboration between institutions, we notice an increase over time going from an index of 1.18 institutions per paper at the beginning of the analyzed period to 1.52 at the end of the period. Finally, regarding the collaboration between countries, the relationship between them does not seem very significant since the average of the analyzed period is only 1.15 countries per paper.

Figure 4 shows the network of collaboration between institutions. The size of the spheres is proportional to the total number of collaborations

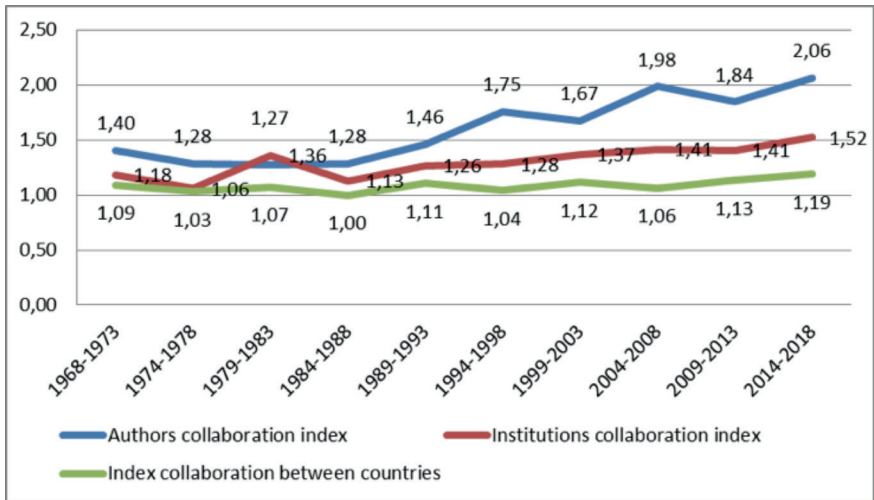


Figure 3. Collaboration index

by each institution. As can be observed, the results point to a weak collaboration index among institutions. In connection with previous data, American universities are the ones establishing a higher rate of cooperation among themselves.

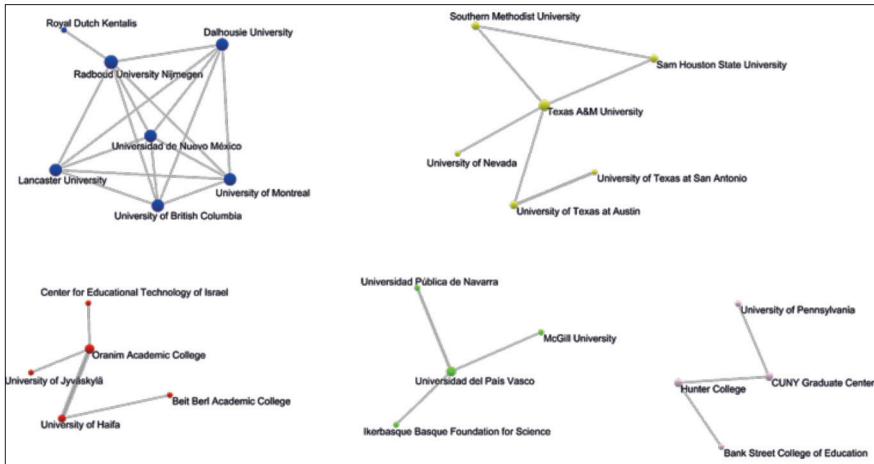


Figure 4. Collaboration between institutions



Figure 5. Collaboration between countries

The country collaboration network is presented in Figure 5 and includes 62 countries, highlighting the most intense collaboration between the United States and Canada, with 14 collaborations in common, followed by The United Kingdom and Spain with 8 collaborations. In addition, China and the United States have 7 collaborations, the same as the United States and Spain.

Finally, Table 6 shows the papers that have received 100 or more citations between 1968 and 2018.

Authors	Title	Source	Citations ISI
Willig, A.C.	A meta-analysis of selected studies on the effectiveness of bilingual education	Review of Educational Research 1985; 55 (3): 269-317	191
Li, D.	“It’s always more difficult than you plan and imagine”: Teacher’s perceived difficulties in introducing the communicative approach in South Korea	TESOL Quarterly 1998; 32 (4): 677-703	135

Authors	Title	Source	Citations ISI
Slavin, R.E.; Cheung, A.	A synthesis of research on language of reading instruction for English language learners	Review of Educational Research 2005; 75 (2): 247-284	133
Ricento, T.K.; Hornberger, N.H.	Unpeeling the onion: Language planning and policy and the ELT professional	TESOL Quarterly 1996; 30 (3): 401-427	127
Cummins, J.	The cross-lingual dimensions of language proficiency: Implications for bilingual education and the optimal age issue	TESOL Quarterly 1980; 14 (2): 175-187	121
Rolstad, K.; Mahoney, K.; Glass, G.V.	The big picture: A meta-analysis of program effectiveness research on English language learners	Educational Policy 2005; 19 (4): 572-594	120
Spelke, ES; Tsvinkin, S.	Language and number: a bilingual training study	Cognition 2001; 78 (1): 45-88	119
Kumaravadivelu, B.	TESOL methods: Changing tracks, challenging trends	TESOL Quarterly 2006; 40 (1): 59-81	118
Auerbach, E.R.	Reexamining English only in the ESL classroom	TESOL Quarterly 1993; 27 (1): 9-32	103
Schleppegrell, M.J.; Achugar, M.; Oteiza, T.	The grammar of history: Enhancing content-based instruction through a functional focus on language	TESOL Quarterly 2004; 38 (1): 67-93	99
Bankston, C.L.; Zhou, M.	Effects of minority-language literacy on the academic-achievement of Vietnamese youth in New-Orleans	Sociology of Education 1995; 68 (1): 1-17	96

Authors	Title	Source	Citations ISI
Rossell, C.H.; Baker, K.	The educational effectiveness of bilingual education	Research in the Teaching of English 1996; 30 (1): 7-74	93
Kramersch, C.	Teaching Foreign Languages in an Era of Globalization: Introduction	Modern Language Journal 2014; 98 (1): 296-311	90
Valdes, G.	Dual-language immersion programs: A cautionary note concerning the education of language-minority students	Harvard Educational Review 1997; 67 (3): 391-429	82
Dalton-Puffer, C.	Content-and-Language Integrated Learning: From Practice to Principles?	Annual Review of Applied Linguistics 2011: 182-204	76
Spada, N.; Lightbown, P.M.	Form-focused instruction: Isolated or integrated?	TESOL Quarterly 2008; 42 (2): 181-208	71
Savignon, S.J.	Communicative language teaching: State of the art	TESOL Quarterly 1991; 25 (2): 261-277	70
Hu, G.W.	Contextual influences on instructional practices: A Chinese case for an ecological approach to ELT	TESOL Quarterly 2005; 39 (4): 635-660	65
Gorsuch, G.J.	EFL educational policies and educational cultures: Influences on teachers' approval of communicative activities	TESOL Quarterly 2000; 34 (4): 675-710	64

Authors	Title	Source	Citations ISI
Gatbonton, E; Segalowitz, N.	Rethinking communicative language teaching: A focus on access to fluency	Canadian Modern Language Review Revue Canadienne Des Langues Vivantes 2005; 61 (3): 325-353	64
Musumeci, D.	Teacher-learner negotiation in content-based instruction: Communication at cross- purposes?	Applied Linguistics 1996; 17 (3): 286-325	62
Barnett, W.S.; Yarosz, D.J.; Thomas, J.; Jung, K.; Blanco, D.	Two-way and monolingual English immersion in preschool education: An experimental comparison	Early Childhood Research Quarterly 2007; 22 (3): 277-293	62
Sato, K.; Kleinsasser, R.C.	Communicative language teaching (CLT): Practical understandings	Modern Language Journal 1999; 83 (4): 494-517	62

Table 6. Number of citations per paper

5. Conclusions

This study has provided helpful insights into the current state of bilingual education research. Many aspects, including the most productive journals, institutions, countries, subject areas and collaboration rates, have been addressed. On the basis of the research findings, we can conclude that research into bilingual education has grown constantly and exponentially. Most of the papers used in this analysis have been published in the last decade, especially since 2012. This may suggest a steady growth in this field of research in the years to come. This growth seems to be in line with

the international outlook that has more recently shaped global education. What is more, considering the body of literature analyzed, we can state that the study of foreign languages can be found in a wider range of educational stages, ranging from pre-primary schools to university education. This makes thus bilingual education a common practice involving a greater number of both practitioners and researchers.

Although American universities stand among the most productive in bilingual education research, the institution that has contributed the most to research is the University of the Basque Country in Spain. The papers coming from universities mainly located in the United States are the ones which receive the highest number of citations, and Spain is in the second position surpassing other countries such as the United Kingdom, Canada or Australia. It is thus the only non-English speaking country among the leading countries in terms of scientific production. Spanish is also the language with the greatest presence in keywords after English.

This analysis has also brought to the fore the multidisciplinary nature that characterizes this field of research. Although the majority of articles have been published in linguistics and education journals, we can also find articles published in journals linked to disciplines such as psychology, law, anthropology, social sciences, etc. As far as collaboration is concerned, cooperation among institutions seems to have increased over time, but collaboration among countries needs to be strengthened. The network of collaboration would definitely allow countries to benefit from each other by carrying out joint research projects.

Finally, it is necessary to highlight some limitations that this study presents. On the one hand, the databases selected for the research corpus in this study, SCIE and SSCI, have a linguistic and geographical bias in favor of English-language journals, especially those in the United States. Nevertheless, these are the databases most commonly employed in bibliometric studies since they include journals with the greatest international impact and provide data and indicators that other databases do not offer. On the other hand, for an article to receive diverse citations, it needs to be published for a certain period of time. Therefore, it would be interesting to discern between the body of articles that have been published recently and those published some years ago. It is also likely that many articles may not have chosen any of the search terms employed as key

words, excluding thus other articles that could have played a part in this study. Likewise, this is not an all-inclusive review, as book chapters, anthologies and encyclopedias have not been included. Only articles written in English have been reviewed, therefore articles written in additional languages have not been considered in this study.

We can conclude by saying that this study has allowed us to see where we stand when it comes to research into bilingual education and anticipate some future research needs such as joint collaboration among both institutions and countries through research practices and the inclusion of students with special educational needs, as none of the key words gathered refer to these students. As Okubo (1997, p. 8) puts it, “the essence of scientific research is the production of knowledge and that scientific literature is the constituent manifestation of that knowledge”. Hence, the necessity to review the published literature with a view to qualifying and quantifying the research available.

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