

Original Research

Heritage and minority languages, and their learning: A general bibliometric approach and content analysis

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The cultural and linguistic diversity that characterises our current society has led to different ways of considering languages and their status in their respective communities of use. Nowadays, not only the dominant language prevails, but other languages that characterise any social group are also increasingly taken into account, and there are studies on how they can influence the learning of the set of languages that a person uses in his or her context, and even in the teaching and learning process in general. Among these languages that represent the identity of that individual, we can find those of heritage. This paper represents the first bibliometric study on heritage and minority languages, and their connection with learning. The study period spans from the first paper published in 1989 until today, using SciMAT, software developed for longitudinal scientific mapping analysis, so this research contributes to reduce the existing gap in the scientific literature, and offers a starting point for the study of this topic. As much as 1341 research publications from the Web of Science dealing with this issue were processed and analysed. Following a bibliometric analysis, as well as the thematic and conceptual evolution of these publications, the results show a growing scientific interest in the topic from 2018, with the USA being the country with the highest production. Research was mainly carried out at universities, and the predominant research areas are Linguistics, Education and Psychology. Likewise, among the most productive authors, Silvina Montrul stands out. Finally, the main topics of interest for the scientific community are bilingualism and multilingualism, followed by maintenance of heritage languages and their speakers.

KEYWORDS: heritage language, minority language, content analysis, bibliometric study, bilingualism, multilingualism



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1. INTRODUCTION

As a consequence of migratory movements and the awareness of what a multifaceted contact involves, encompassing different cultures, languages, ways of think-

ing, etc., the interest in bilingualism first, and then in multilingualism, has grown considerably. From this, heritage and minority languages have also been the focus of multiple studies, especially in the field of educa-

tion in the area of language teaching (Gómez García, 2022; Henderson Lee, 2018). The heritage language is a minority language acquired as a first language (L1) in a context of early bilingualism or multilingualism, where it has a very reduced use compared to the majority language, in addition to a low cultural, educational, and socio-political status, which causes its linguistic attrition and an incomplete acquisition of its morphosyntax. Consequently, its speakers cannot be considered fully multilingual (Montrul, 2022).

Cummins and Danesi (1990) are among the first authors to investigate these languages in Canada – excluding native languages and the two official languages of the country, French and English – as well as the consequences in the educational context. They point to Canada as a pioneer, followed by the United States, in studies on the incorporation of these languages in elementary education, which go back to the 1970s, and highlight the positive results they have in language learning (Danesi, 1991).

In addition to cognitive and educational benefits, Feuerverger (1991), another of the first authors to work on this topic, points out the identity benefits, exemplifying them with the research participants, university learners of their own heritage languages in Canada, who emphasise the importance of literacy in these languages both at school and at home, the role they represent as an element of cohesion with their own cultural group, and in their identification with their home country.

The language acquisition of bi-/multilingual children depends on several elements, among them the onset age of acquisition, the structural relationship of the languages they know, their quantity and frequency of use at home and, as noted above, the socio-political consideration of these languages (Montrul, 2022). Studies such as those of Deuchar and Quay (2000), Paradis (2007) or Montanari (2013), among others, demonstrated the ability that multilingual children may have in establishing an early differentiation between their languages if these are developed in a satisfactory way, so that their linguistic competences may be enriched during schooling if they receive a similar input in all their languages and thus form themselves as balanced multilinguals. However, this is not the usual situation, rather, the majority language is the one most worked on school and the one with the most contexts of use inside and outside home, so that, in general terms, the degree of competence among a speaker's languages differs greatly, occurring as subtractive bilingualism with in-

complete acquisition (Montrul & Silva-Corvalán, 2019; Silva-Corvalán, 2018) or, even, the attrition of previously acquired elements of their own heritage language.

As this topic is so important for the development of multilingualism in our society, where heritage languages play, and must play, an indisputable role, this paper presents the first scientific map of the heritage/minority language-learning binomial, by the analysis, using intelligent bibliometric tools such as SciMAT (Cobo et al., 2012), of the academic bibliographic production at different levels and according to different criteria: diachronic evolution, geographical distribution, main languages, research areas and predominant Web of Science (WoS) categories, most productive authors, and most highly cited papers.

The complete bibliometric analysis thus becomes a key tool for evaluating ongoing actions and research and, thus, disseminating their results. In this context, the main objective of this paper is to present a bibliometric analysis of the heritage/minority language-learning relationship, covering authorship, production and thematic analysis, as well as a scientific mapping analysis with the aim of covering the main and secondary research topics related to this issue since there is evidence of these studies in WoS. To this end, this research first quantifies the main performance-related indicators to continue with the use of SciMAT as a computer-based science mapping tool, in order to analyse the areas of development of scientific knowledge associated with the thematic binomial mentioned above, in a defined period of time (Cobo et al., 2012; López-Robles et al., 2020). The result will be bibliometric information and scientific maps useful for the continuation and promotion of research policies on heritage languages and for scholars interested in linguistic diversity, language teaching, sociolinguistics and psycholinguistics, as well as ethnographic or anthropological studies.

This paper aims to establish the evolution of the concept of heritage languages in relation to learning, by addressing the following research questions.

1. What bibliometric indicators exist around publications on heritage, minority languages and learning?
2. What are the main research topics related to heritage and minority languages and learning?
3. What is the centrality and development of these topics?
4. What are the most important topics in terms of production and impact?
5. How have these topics evolved since the beginning of their publication in WoS?

2. METHODOLOGY AND DATASET

2.1. Research design

In this study, an approach to analysis based on the principles of classical and current bibliometrics is used. Among the advantages of such techniques is the search, registration and analysis of great amount of information with the aim of studying and predicting the evolution of the scientific literature (Martínez et al., 2015). In order to implement the study, the procedures and standards set by experts in this type of research were followed (Moral-Muñoz et al., 2020). Specifically, for the development of the analysis we focused on the study of keywords and the h indicator (Hirsch, 2005). For the selection of these indicators, various studies of similar impact and multidisciplinary fields are used as a basis (Cobo et al., 2011b; Parra-González & Segura-Robles, 2019).

On the other hand, this type of design allows us to graphically obtain different maps with nodes to delimit the performance and positioning of localised topics and subtopics related to heritage and minority languages and learning. Similarly, these analytical actions led to the thematic development of the terms listed in WoS publications for the period under analysis.

2.2. Analysis procedure

In order to reduce possible biases in the study, the analysis was carried out following a series of steps outlined in the scientific literature.

1. Choice of the database provider of documents: Web of Science, as it is considered to be the best by the scientific community.

2. Selection of keywords: *Heritage Languages*, *Minority Languages*, and *Learning*.

3. Development of the search equation: 'TS = ('heritage language*' OR 'minority language*') AND (learn*).

4. Search in the metadata of title, abstract and keywords of the documents registered in WoS.

This first search generated a total of 1386 raw results, later reduced to 1341 sources. To refine the search process and further analysis of documents, various criteria were used to include and exclude publications. The exclusion criteria used were documents expected to be published in the year 2023 and repeated or poorly indexed documents in WoS. This procedure is reflected in the following flow chart based on the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) matrix (Figure 1).

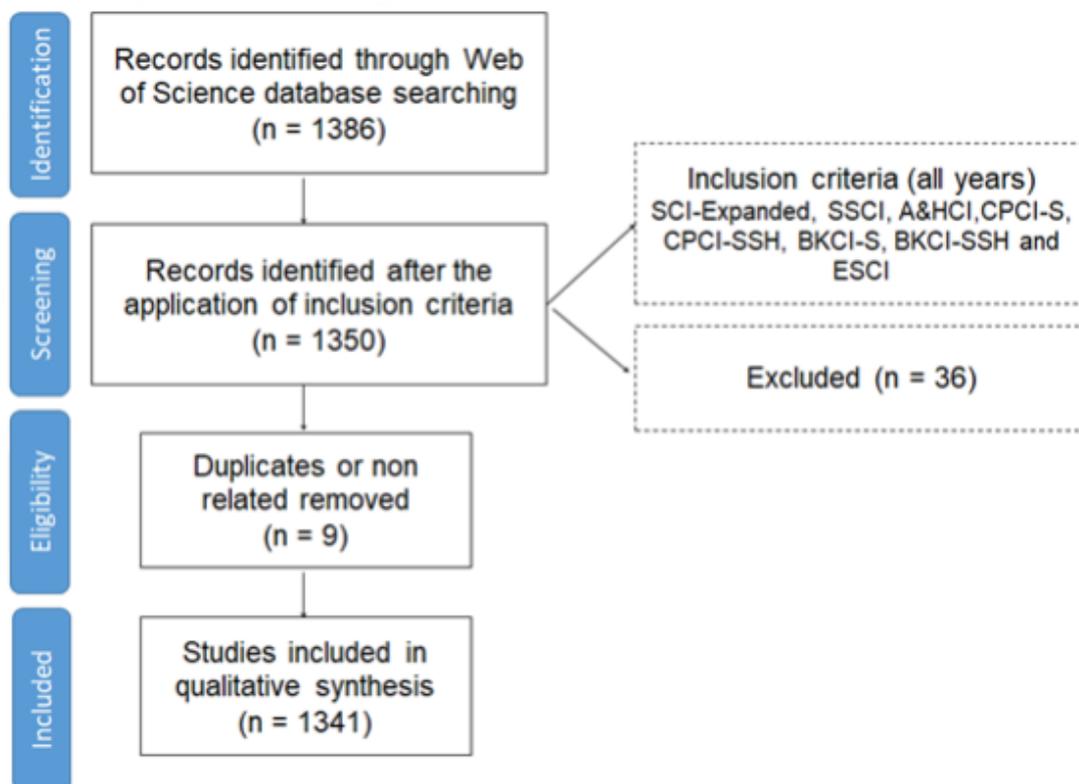


Figure 1. Flowchart based on the PRISMA-P protocol

The document analysis was carried out using two main applications. Specifically, *Analyse Results* and *Creation Citation Report* (tools integrated in the WoS platform) were used to collect and analyse data related to the selected vectors and SciMAT was used to analyse the conceptual evolution. In this case, SciMAT was chosen for its deduplication and visualisation process based on strategic diagrams and thematic areas, making it easier to understand and interpret the results. The applied bibliometric methodology identifies four phases of analysis within a specific period (Cobo et al., 2011a; López-Robles et al., 2019a; López-Robles et al., 2019b).

1. Detection of research topics on heritage and minority languages and learning. This is carried out by applying a clustering algorithm (Coulter et al., 1998) on a standardised co-word network (Callon et al., 1983).

2. Visualisation of the research topics and the thematic network. The detected research topics are classified according to their centrality values and density range in a strategic diagram (Callon et al., 1991; He, 1999). Centrality measures the degree of interaction between networks, while density measures the internal strength of the network. According to both types of measures, a research field can be visualised as a set of research themes and represented in a two-dimensional strategic diagram. In this way, themes can be classified into four categories (Cobo et al., 2011b) (see Figure 2).

A. Motor themes (quadrant Q1): this quadrant collects the relevant themes in order to develop and organise the research field. They are known as the motor themes for the field, given that they present a robust centrality and high density.

B. Highly developed and isolated themes (quadrant Q2): these are the ones that, despite being strongly related and highly specialised, are peripheral, i.e., they do not have the appropriate background or importance for the field.

C. Emerging or declining themes (quadrant Q3): this quadrant collects relatively weak topics that low density and centrality. They are mostly emerging or disappearing themes.

D. Basic and transversal themes (quadrant Q4): they are relevant themes for the research field but are not well developed.

3. Discovery of thematic areas. Research topics are analysed by means of an evolution map, which relates those maintaining a conceptual nexus throughout consecutive periods.

4. Performance analysis. It is necessary to analyse both quantitatively and qualitatively the relative contribution of the research topics and thematic areas to the entire field of research. This way, it is possible to identify the most productive and relevant areas within the field (Table 1).

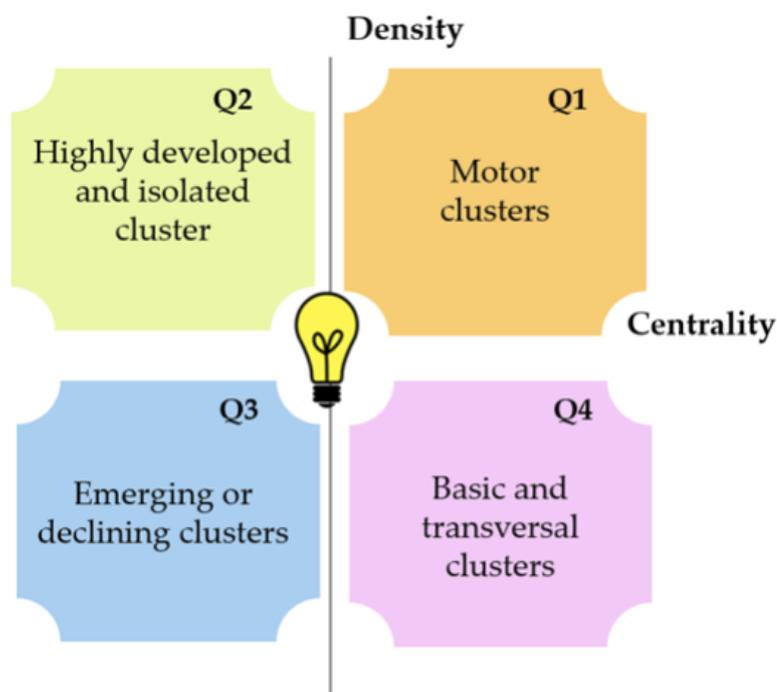


Figure 2. Categories of thematic analysis according to SciMAT

Table 1
SciMAT configuration indicators

CONFIGURATION	VALUES
Analysis unit	Keywords authors, keywords WoS
Frequency threshold	Keywords: P1 = (2), P2 = (2), P3 = (2)
Network type	Co-occurrence
Co-occurrence union value threshold	Keywords: P1 = (2), P2 = (2), P3 = (2)
Normalisation measure	Equivalence index
Clustering algorithm	Maximum size: 7; Minimum size: 3
Evolutionary measure	Jaccard index
Overlapping measure	Inclusion Index

3. RESULTS

3.1. Bibliometric analysis

This section deals with the evolution of the heritage/minority language-learning binomial in terms of publications, citations and impact, analysing the following bibliometric indicators: diachronic evolution, geographical distribution, main languages, research areas and predominant WoS categories, most productive authors, and most cited papers, since publications on the matter have been found up to the present, this is, between 1989 and 2022.

Regarding the growth of the literature, it is observed that it has followed an increasing pattern during the study period (see Figure 3a). This type of trend is common in thematic analyses of the literature, verified by the $r^2=0.90$ value, which shows a positive current growth rate. In the 2017-2018 period, the year-on-year growth percentage is 52.33%, this being the most marked growth. We should obviously be cautious when interpreting the 2021-2022 period as papers are still being added to WoS, and this change is not yet interpretable.

In relation to the geographical distribution of the publications, these studies traditionally point to the United States and Canada as the first countries to address this topic and, particularly in this study, those with the highest scientific production (see Figure 3f), with the United States being far ahead (42.73%, 573 publications). It is followed by Canada, which accounts for 9.09% with 122 publications. The rest of the papers are distributed among a wide variety of countries.

Figure 3g also shows that North American universities are the organisations with most publishing in this matter in the period 1989-2022, especially in the United States, with a total of 253 publications, 18.86% of the total production. The University of Toronto (Canada) contributes 1.86% with 25 scientific papers, and the University of the Basque Country (Spain) with 24 productions (1.78%).

Scientific dissemination depends to a large extent on its vehicular language. Among the languages of publication, English stands out far above the rest (95.37% of the total production). In the 1341 references found, three languages of dissemination were preferentially used, as shown in Figure 3b, only 30 papers were written in different languages (2.23% of the production analysed). Moreover, it can be noted that, both for the areas of knowledge (Figure 3d) and the general WoS categories (Figure 3e), Linguistics stands out in the first place with 950 articles and 58.46% respectively.

Along with the organisations endorsing the articles, and the areas and categories in which they fall, it is essential to determine the most productive authors and the most cited papers in the period 1989-2022, which can support an evaluation of the evolution of the research field. Figure 3c shows the most productive authors, where equivalent figures are observed; Silvina Montrul (University of Illinois, USA) stands out with 16 papers (1.19%), followed by four authors with the same number of publications; and closing the group is the Spanish author Jasone Cenoz (University of the Basque Country, Spain) with 10 articles (0.74%).

Finally, as shown in Figure 3h, there is a paper that stands out in citations compared to the others, the contribution by Flores and Rosa, *Undoing appropriateness*:

Raciolinguistic ideologies and language diversity in Education (2015), published in the *Harvard Educational Review*.

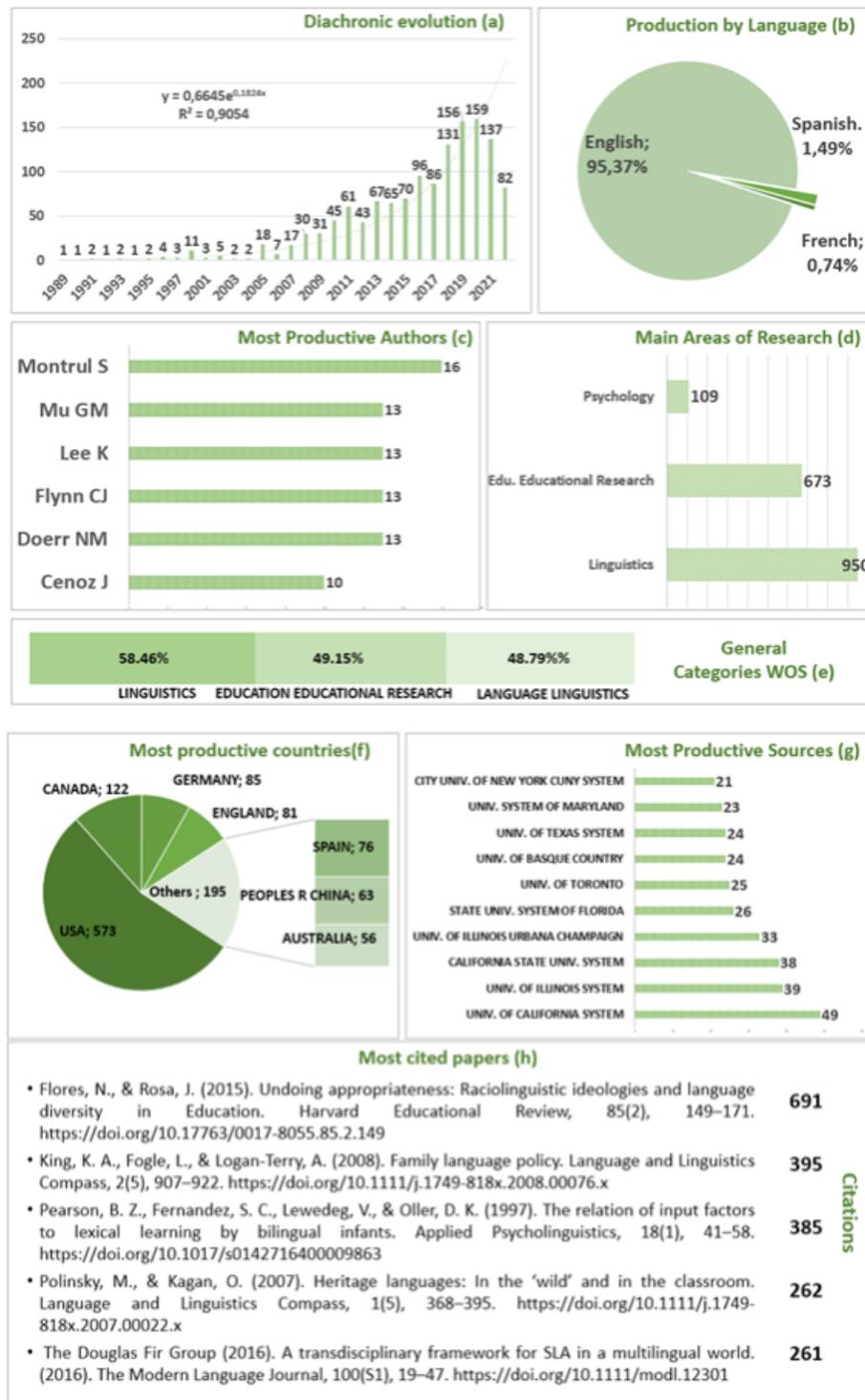
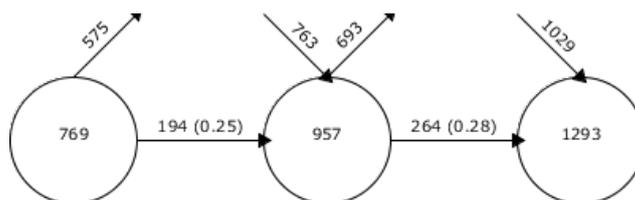


Figure 3. Diachronic evolution of production (a), production by language (b), the most productive authors (c), main areas of research (d), general categories in Web of Science (WoS) (e), most productive countries (f), most productive sources (g), and most cited papers (h)

3.2. Thematic evolution analysis

For this analysis, the documents were classified into three main blocks: P1 (1989-2013), P2 (2014-2018) and P3 (2019-2022). The criterion used to divide these periods is the number of documents published for each one, trying to be consistent with their growth for the total period. The outward arrow indicates the number of keywords that are maintained in the next period,

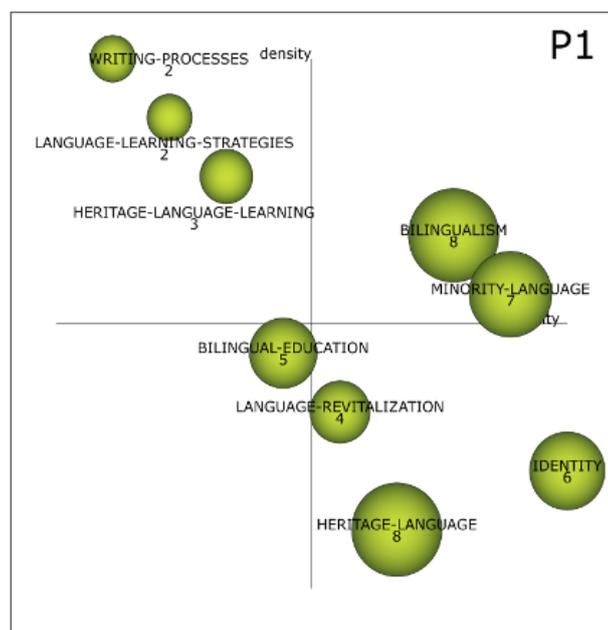
while the inward arrow indicates the new words included for the period. Between periods there is a keyword consistency of 0.25 and 0.28, indicating that there has been significant variability in topics across periods. In addition, the growth of keywords from 575 to 1029 shows that the research field is evolving and is attracting the attention of researchers who are trying to work with and relate new concepts or perspectives (Figure 4).



Throughout this section, we show three compositions, following the established periods and the strategic diagram mentioned above (based on the values of centrality and density obtained). Moreover, the images and their size represent the reference proportional value, calculated according to the h-index.

During the period from 1989 to 2013, nine research topics related to heritage and minority languages were identified, as shown in the strategic diagram P1 (Figure 5). Five of them are considered key (motor

themes, and basic and transversal themes): *Bilingualism*, *Minority Language*, *Language Revitalisation*, *Heritage Language*, and *Identity*. Based on the h-index, the following topics stand out: *Heritage Language*, *Bilingualism*, *Minority Language*, and *Identity*. It is important to mention that the main research topics identified are included in the key themes (motor themes, and basic and transversal themes), i.e., none of them falls in a different sector from these. In addition, *Bilingual Education* stands out as the only emerging theme.



Temática	Cuadrante	Documentos	G-Index	H-index
MINORITY-LANGUAGE	Q1	11	10	8.37
BILINGUALISM	Q1	9	9	8.49
WRITING-PROCESSES	Q2	2	2	2
LANGUAGE-LEARNING-STRATEGIES	Q2	2	2	2
HERITAGE-LANGUAGE-LEARNING	Q2	3	3	3
BILINGUAL-EDUCATION	Q3	7	6	5.48
HERITAGE-LANGUAGE	Q4	18	12	9.8
IDENTITY	Q4	11	11	8.12
LANGUAGE-REVITALIZATION	Q4	4	4	4

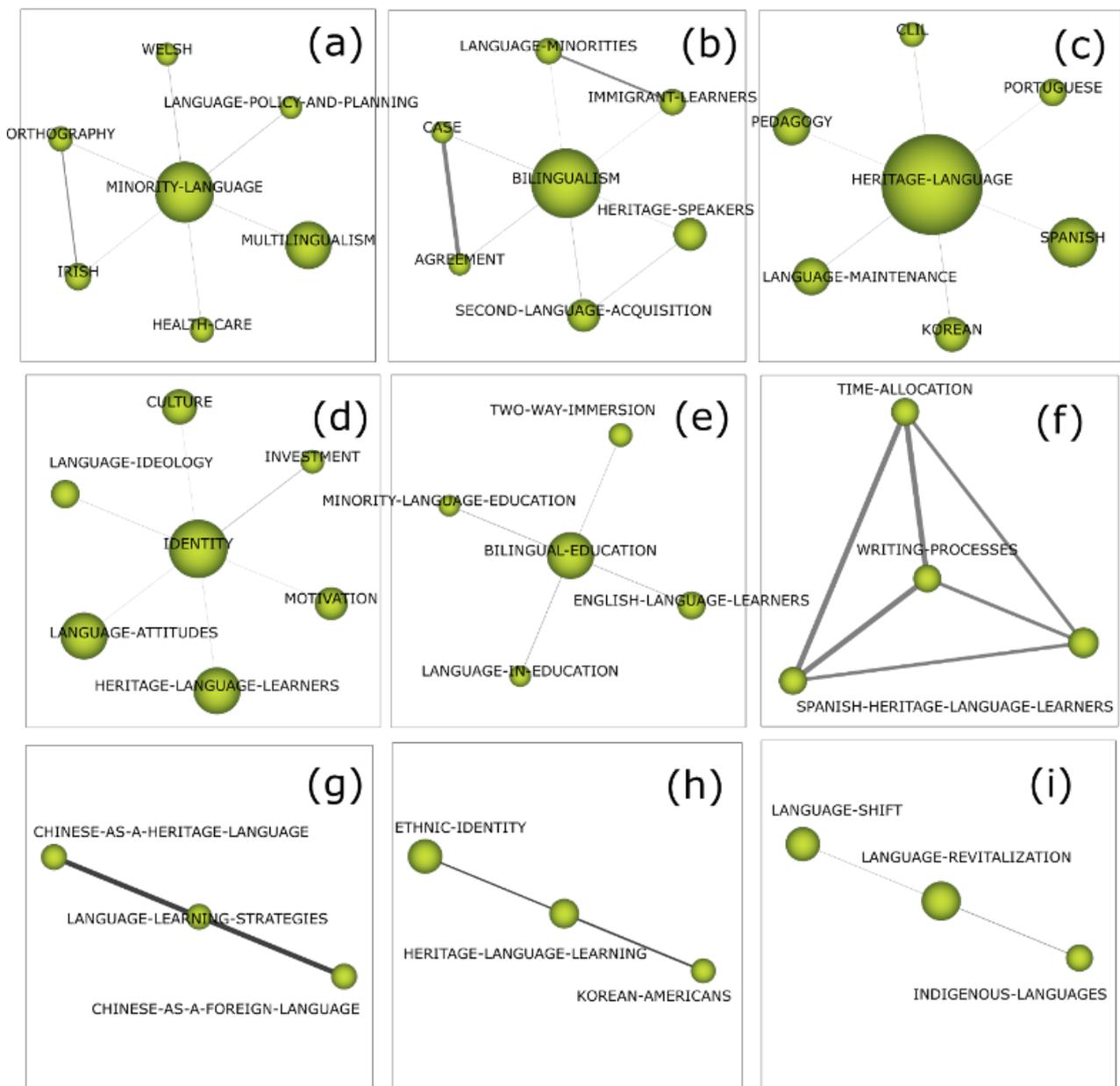


Figure 5. Strategic diagram and performance from 1989-2013 (P1). Thematic networks. (a) Minority Language, (b) Bilingualism, (c) Heritage Language, (d) Identity, (e) Bilingual Education, (f) Writing Process, (g) Language Learning Strategies, (h) Heritage Language Learning, (i) Language Revitalisation

For the second period analysed, between 2014-2018, nine research topics, directly related to heritage languages, were identified, as shown in the strategic diagram P2 (Figure 6). In this case, there are still five motor themes, and basic and transversal themes for the period: Multilingualism, Identity, Heritage Language, Minority Language, and Bilingualism. Likewise, when classified according to their h-index, *Minority Language*

stands out in first place, followed by *Bilingualism* and *Heritage Language*. These two, *Heritage Language* and *Bilingualism*, continue to appear as basic or transversal topics, although they have lost relevance when compared to the previous period.

Finally, *Motivation* appears for the first time within the group of emerging themes during the overall study period.

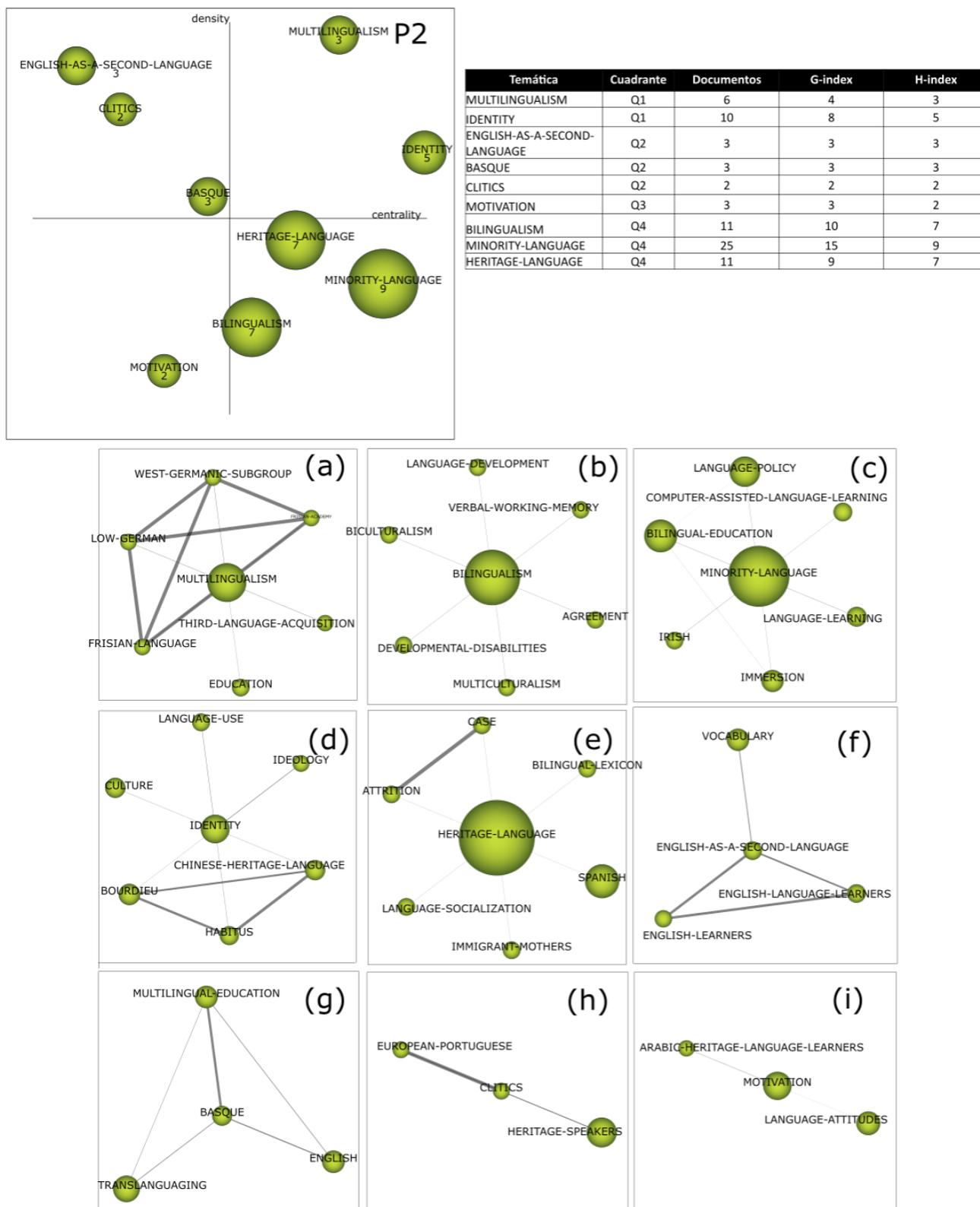


Figure 6. Strategic diagram and performance 2014-2018 (P2). Thematic networks: (a) Multilingualism, (b) Bilingualism, (c) Minority Language, (d) Identity, (e) Heritage Language, (f) English as a Second Language, (g) Basque, (h) Clitics, (i) Motivation

Finally, during the third period (2019-2022), eleven related research topics were identified (Figure 7). In this regard, six research themes are considered key due to their contribution to the growth of heritage languages knowledge (motor themes, basic and transversal themes): *Spanish*, *Heritage Speakers*, *Heritage Language Maintenance*, *Multilingualism*, *Bilingualism*, and *Language Maintenance*. Compared to the preceding period, most of the motor themes are lost, although *Multilingualism* and *Bilingualism* remain. Based on the

h-index of the topics studied, *Bilingualism* and *Multilingualism* stand out, although, as in the previous period, they keep losing relevance. There is no relevant theme present in all three periods; rather, those identified as motor and basic or transversal themes change categories across the periods.

However, it is noteworthy that new terms such as *Childhood* appear among the highly developed but isolated themes, and *Translanguaging* as an emerging theme.

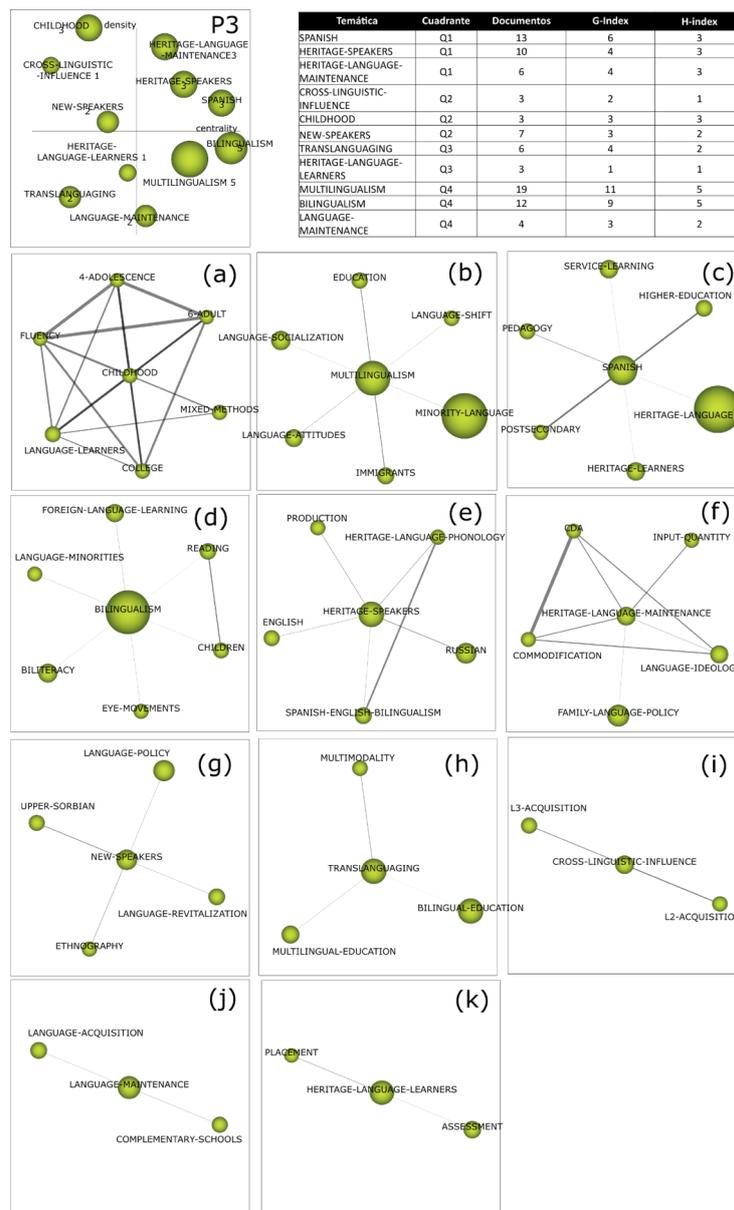


Figure 7. Strategic diagram and performance 2019-2022 (P3). Thematic networks. (a) Childhood, (b) Multilingualism, (c) Spanish, (d) Bilingualism, (e) Heritage Speakers, (f) Heritage Language Maintenance, (g) New Speakers, (h) Translanguaging, (i) Cross Linguistic Influence, (j) Language Maintenance, (k) Heritage Language Learners

3.3. Conceptual evolution map

To conclude this section of results, it is possible to analyse the raw conceptual evolution between the different periods, thus discovering whether there are shared themes or how these evolve over time. The solid line shows that the connected clusters share the main theme, the dashed line points that the groups share elements that are not the main themes, and the absence of a line means discontinuity. On the other hand, the thickness is proportional to the inclusion index and the volume of the spheres is proportional to the h-index of the documents associated with each cluster (Cobo et al., 2012).

Figure 8 shows the conceptual evolution for the periods analysed. Thus, several important relationships are detected throughout these periods. The strongest and most stable relationship (maintained among the three periods), marked in green, is found between the concepts *Minority Language*, *Multilingualism* and *Multilingualism*, together with *Minority Language*, *Minority Language* and *Multilingualism* in addition to *Bilingual Education*, *Minority Language* and *Multilingualism*.

The thematic fusion of the different periods in a single concept, *Multilingualism*, can therefore be detected.

In the purple shading we find the evolution of the main themes, which vary throughout the three periods, thus we find that in P1 and P2 the main theme of *Heritage Language* is maintained, but in P3 there is a direct relationship with *Spanish*.

Finally, marked in pink, there is a recurring theme among the three periods, which is related to *Bilingualism*. Moreover, the relationship among them is very strong, so that, although many themes appear and disappear throughout these three periods, this theme is always transversal to them.

Apart from the large coloured line of relationships we find two very direct ones: *Identity* and *Motivation* between P1 and P2, and *Basque* and *Translanguaging* between P2 and P3.

4. DISCUSSION

In view of the results of this bibliometric analysis of the scientific production on heritage and minority languages and learning carried out from 1989 to 2022, in terms of the **number of contributions** per year, the interval 1989-2007, included in the first period of analysis (1989-2013), is characterised by publications in WoS that could be described as anecdotal due to their small number. Researchers began to become aware of the status of the languages of immigrants arriving in host coun-

tries, such as the United States, where half of the student population in major cities already had minority origins in the last decade of the 20th century. As McLaughlin (1989) points out, this implied a challenge for teachers at the time, and so dual language programmes began to be introduced.

As the years go by, triggered by the growth of the population from other origins, with other languages and cultures, the interest in addressing the heritage and minority languages of students and their relationship with learning is reflected in a gradual increase in publications focusing on this phenomenon, as seen between 2008 and 2017, spanning the first two periods of this research (1989-2013 and 2014-2018). However, it was not until 2018 when the number of references grew considerably in line with multilingual education, where the language of social minorities, increasingly present in the school environment, was consequently more widely recognised both in school (García & Sánchez, 2018; Yiakoumetti, 2022), and in family learning (Little, 2019; Mattheoudakis et al., 2020).

With regard to the **geographical distribution** of the publications reviewed, the main countries of reference are the United States and Canada, with the former standing out, whose significant immigration from many and very different countries has increased the number of studies referring to minority languages and heritage languages (see Bonness et al., 2022; Carreira, 2017; Fairclough & Belpoliti, 2016; Gomez García, 2022; Montrul, 2008; Wu et al., 2011).

According to these data, as **entities** oriented both towards the training of future professionals and research into the phenomenon in question, the United States universities stand out in terms of publications on heritage and minority languages, followed at a great distance by the Canadian University of Toronto and the Spanish University of the Basque Country. Although the first countries stand out due to the importance of the migratory movements received, the Basque Country is a bilingual Spanish-Basque community, in which the latter is considered a minority language (Cenoz & Valencia, 1994; Gorter & Cenoz, 2011). In addition, it is a community that also receives immigrant populations mainly from countries such as Portugal or Morocco, which are attended to with specific language programmes (Etxeberria & Elosegui, 2008).

If we look at the **languages of publication**, the predominance of English is indisputable. This result is concomitant with the countries and organisations with the greatest scientific production, in addition to the fact that

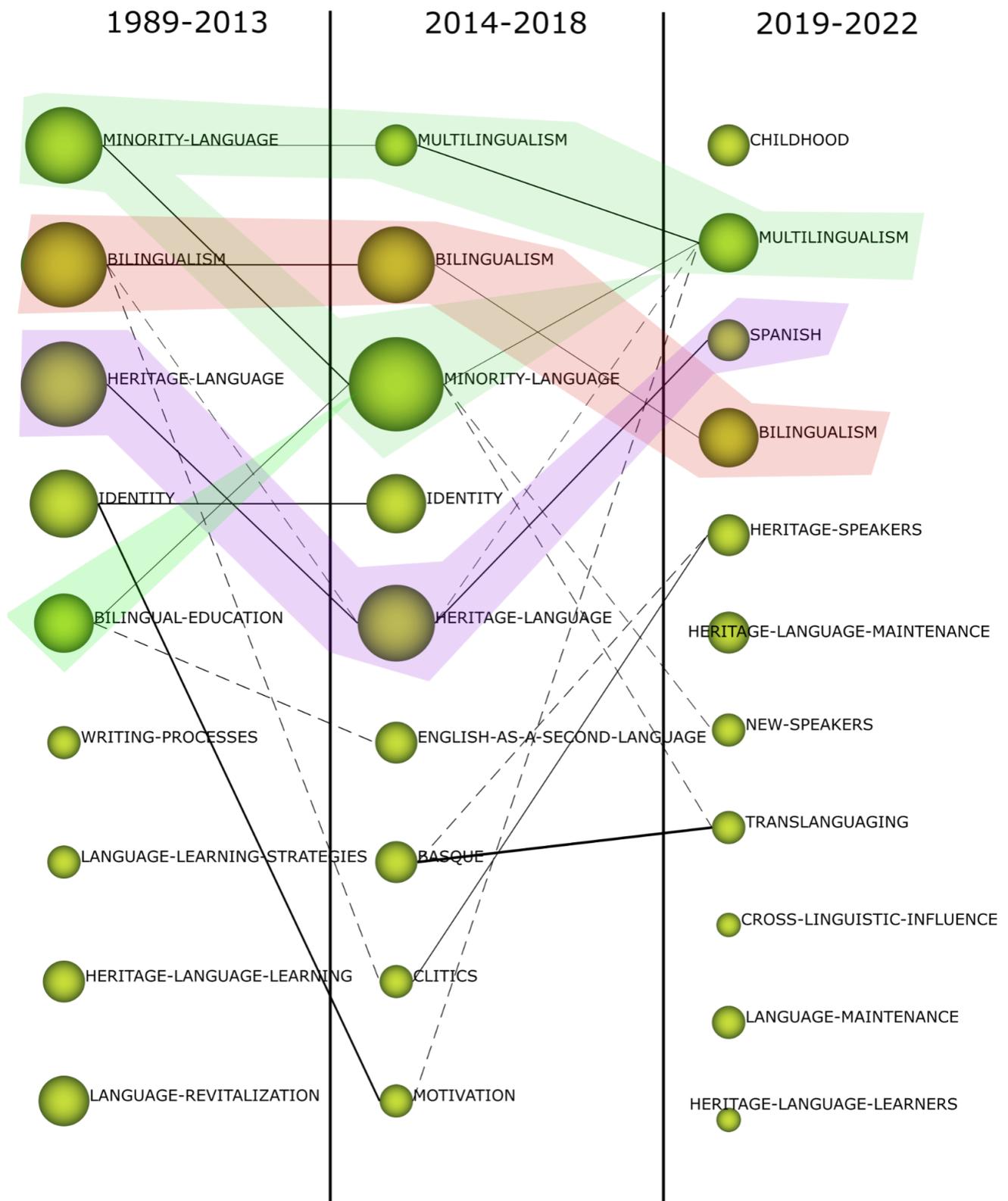


Figure 8. Conceptual evolution of the thematic areas over the periods

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The publications found in this study are mainly concentrated in two major research areas within the Social Sciences: Linguistics and Language, and Education and Educational Research. These areas are consistent with the main **thematic categories** of Web of Science established by Thompson Reuters related to this research, except that among these, Psychology also stands out. The topic of heritage/minority languages and learning belongs unequivocally to these areas and categories, but, in addition, it is closely linked to the science that studies the mental processes and behaviours of individuals, with some authors referring to the cognitive processes involved in language learning and any of its skills (Parshina et al., 2021; Polinsky & Scontras, 2020; Yiakoumetti, 2022), to the beliefs and attitudes of families regarding their heritage language (Lee, 2013), or to the convenience or not of using this language in teaching people with certain disorders or disabilities (Carioti et al., 2022; Lim et al., 2019).

In the ranking of the **most productive authors** according to the WoS database, in first place is Silvina Montrul, a linguist specialising in second language acquisition at the University of Illinois at Urbana-Champaign (USA).

This is followed by a group of four authors with the same number of productions, thirteen. They are: Neriko Musha Doerr, cultural anthropologist, professor at Ramapo College in New Jersey (USA); Colin J. Flynn, linguist specialising in bilingualism and second language acquisition, and professor at Dublin City University (Republic of Ireland); Kiri Lee, linguist at Lehigh University, Pennsylvania (USA); and Guanglun Michael Mu, sociologist of Education and professor at the Uni-

versity of South Australia and finally, Jasone Cenoz Iragui, from the University of the Basque Country (Spain), a specialist in multilingualism and second and third language acquisition.

As for the **most cited works**, the first is *Undoing appropriateness: Raciolinguistic ideologies and language diversity in education* (Flores & Rosa, 2015), from the Education and Educational Research area. Its criticism of linguistic appropriateness in multilingual contexts, from the viewpoint of the racialised hearing subject, gives it a very high number of citations and this number is progressively increasing.

The second of the most cited works is the article entitled *Family language policy* (King et al., 2008), included in the area of Linguistics. The authors describe what they call family language policy, bringing together two independent and very disconnected fields of study, namely language policy and child language acquisition. From a social point of view, both determine the maintenance of minority languages.

Next, we come across *The relation of input factors to lexical learning by bilingual infants* (Pearson et al., 1997), in the areas of Linguistics and Psychology. It is an investigation of simultaneous bilingual (English-Spanish) pre-primary children to study the correlation between language exposure and vocabulary learning.

The next work in the citation order is the article entitled *Heritage languages in the 'Wild' and in the classroom* (Polinsky & Kagan, 2007), included in the area of Linguistics. It is an investigation with low-level speakers in which recurrent features of heritage languages are identified with respect to phonology, morphology and syntax.

Finally, *A transdisciplinary framework for SLA in a multilingual world* (The Douglas Fir Group, 2016), belonging to the areas of Education and Linguistics. This collective is composed of leading authors in the area of additional language acquisition, such as Dwight Atkinson, Heidi Byrnes, Meredith Doran, Patricia Duff, Nick C. Ellis, Joan Kelly Hall, Karen E. Johnson, James P. Lantolf, Diane Larsen-Freeman, Eduardo Negueruela, Bonny Norton, Lourdes Ortega, John Schumann, Merrill Swain, and Elaine Tarone. In this volume they share their knowledge about their studies and research in the different fields of work. Therefore, it is an interdisciplinary framework.

As far as the **thematic evolution** of the concepts of this research is concerned, the results show a great variation in the study interval, although the main themes that are maintained are, firstly, *Bilingualism* and, later,

'As far as the thematic evolution of the concepts of this research is concerned, the results show a great variation in the study interval, although the main themes that are maintained are, firstly, Bilingualism and, later, Multilingualism, maintaining this order in their conceptual development over time, as linguistic diversity has become ever more present in society'

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Those terms that become crucial in the last period analysed (2019-2022) reflect the evolution that the concept of languages has undergone, going from general terms such as *Bilingualism* and *Multilingualism* to others more specific in the field such as *Heritage Language Maintenance*, *Heritage Speakers* and *Spanish*. Importantly, most of the publications are from the USA, where the immigration they experience comes mainly from countries with Spanish as an official language, principally from Mexico (García & Sánchez, 2018).

A similar explanation can be found in the **conceptual evolution**, in which highly related concepts such as *Minority Language*, *Bilingual Education* and *Multilingualism* stand out. In this regard, the cultural and linguistic diversity that characterises today's society generates an interest in bilingual education, initially and in multilingualism, subsequently (García, & Sánchez, 2018; Montrul, 2022; Paradis, 2007), just as stated in the previous paragraph. In the last period (2019-2022) a very close relationship between *Heritage Language* and *Spanish* also appears. All the concepts are complemented by a transversal one, *Bilingualism*, as the binding germ of the remaining concepts and the starting point of the first research that addressed the phenomenon of languages in contact, in the context of which heritage and minority languages are included.

On the other hand, between the first and second periods (1989-2013 and 2014-2018) an important relationship between *Identity* and *Motivation* stands out. In this regard, Gómez García (2022) points out that cultural identity is reinforced by maintaining the heritage language and this motivates the speaker to learn it.

There is also a very direct relationship between two terms from the last two periods (2014-2018 and 2019-2022), *Basque* and *Translanguaging*. Here, we

have to refer to many scientific studies focused on the Basque Country (Spain) and its language, as it is considered a minority language within the Spanish national panorama, and the incipient stream in language didactics that advocates translanguaging (Cenoz & Gorter, 2017; García & Sánchez, 2018; García & Wei, 2014).

5. CONCLUSION

This article represents the first bibliometric study of heritage and minority languages and their connection with learning, since the first published paper in 1989 to the present day, using SciMAT, an open-source software developed for longitudinal scientific mapping analysis, so that this research contributes to reducing the existing gap in the scientific literature and provides a starting point for the study of the issue in question. Thus, it focuses on the analysis and description of the evolution of research topics on heritage/minority languages and learning, and the main related concepts available in the literature.

In terms of bibliometric volume, 1341 original research papers on our object of study have been processed and analysed, which have shown a remarkable increase in recent years (2019-2022). It is still expected that this interest will continue to grow, given the continuous movement of people worldwide and their settlement in places where the language of communication is different from their own, putting it at risk of disappearing in the families themselves, a situation of insecurity that will continue in the future, although the importance of including them in the teaching and learning process of students to strengthen their identity and belonging to the group is under study. This is the reason for the growing interest of researchers mainly from *the United States* and *Canada*, especially those belonging to different research areas, among which *Linguistics*, *Education* and *Psychology* stand out, although there are other disciplines concerning Language Teaching, Sociolinguistics, Ethnic Studies, Anthropological or Cultural Studies, which can be supported by research such as the one presented in this article. In addition, the main topics that are trending in the scientific community working on them are identified, such as *Bilingualism* and *Multilingualism*, and, later, *Heritage Language Maintenance* or *Heritage Speakers*, focusing research into more specific topics.

This work has important implications from both theoretical and practical points of view. First, from the theoretical point of view, study results offer relevant information to the scientific community on heritage and

minority languages and learning, since the papers reviewed are all included in WoS, which makes them relevant in the field. In addition, the data provided, such as keywords, most outstanding authors, most cited works, areas of publication, etc., can help researchers to deepen their studies. Secondly, from a practical point of view, the information obtained is fundamental for the teaching of heritage and additional languages and their treatment in the classroom.

Despite these positive implications, some limitations of the study must be considered. On the one hand, although the data have been cleaned with SciMAT, the WoS database has its own cleaning, so there may be some alterations or repetitions when working with a large number of publications. On the other hand, future work is needed to further research into heritage lan-

guages and their importance for integrating and teaching in the best possible conditions students coming to our multilingual classrooms as members of migrant families with several generations in the host country and languages other than the language of instruction. It is fundamentally in this context where an important trend in language didactics has emerged on the teaching of additional languages using translanguaging as a learning strategy for the development of the linguistic repertoire, mainly at an early age.

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