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CURRICULUM THEORIES AND SCIENTIFIC PRODUCTION: CONCEPTUAL MAPPING FROM BIBLIOMETRY[1]

DEILA DA SILVA BARELI DE MORAES[1]
ORCID: https://orcid.org/0000-0002-2548-4561
<deilabareli@gmail.com>
CARLOS HENRIQUE MEDEIROS DE SOUZA[2]
ORCID: https://orcid.org/0000-0002-3774-0323
<chmsouza@gmail.com>

[1] Instituto Federal de Educação, Ciência e Tecnologia do Espírito Santo (Ifes). Alegre, ES, Brazil.
[2] Universidade Estadual do Norte Fluminense Darcy Ribeiro (UENF). Campos dos Goytacazes, RJ, Brazil.

ABSTRACT: This article presents the results of an academic research mapping about curriculum and its theoretical conceptualizations, seeking to identify how curriculum integration emerges from these discussions. This descriptive study carried out bibliometric analyses using the Bibliometrix package of the R software, extracted from the Web of Science database, from 2002 to 2022. We analyzed the following information: co-citation networks, most relevant authors, co-occurrence network, publication evolution, thematic map, and thematic evolution. Based on the analysis of this information, we mapped the main discussion axes and authorship networks to describe and discuss the main concepts addressed. The study shows that the curriculum theoretical discussions dialogue with the principles of curriculum integration, mainly those in which the authors deal with its importance as a potentializing agent of subjects' critical and emancipatory formation. However, there was a small number of works exclusively about this theme. We can see this indicator through the analysis of the thematic map. The works on curriculum integration are treated peripherally concerning the curriculum theoretical field. The studies also pointed out that productions on curriculum theories are emerging and closely connected with the themes of knowledge and curriculum policies, although they are still quite shy and need to be better explored, considering their relevance in the educational field.

Keywords: curriculum, curriculum theory, curriculum integration, bibliometrics, research mapping.

TEORIAS DO CURRÍCULO E PRODUÇÃO CIENTÍFICA: MAPEAMENTO CONCEITUAL A PARTIR DA BIBLIOMETRIA

RESUMO: O presente artigo apresenta os resultados de um mapeamento de pesquisas acadêmicas que versam sobre o currículo e suas conceitualizações teóricas, buscando identificar de que maneira a integração curricular emerge dessas discussões. Trata-se de uma pesquisa de cunho descritivo, em que foram realizadas análises bibliométricas por meio do pacote Bibliometrix do *software* R, extraídos da base

de dados da *Web of Science*, no período de 2002 a 2022. Para a realização do presente estudo, foram tratadas as seguintes informações: redes de cocitações, autores mais relevantes, rede de coocorrência, evolução das publicações, mapa temático e evolução temática. Com base nas análises dessas informações, foi possível mapear os principais eixos de discussões e redes de autoria, a fim de descrever e discutir sobre as principais concepções abordadas. O estudo permitiu verificar que as discussões teóricas acerca do currículo, especialmente àquelas em que os autores tratam da sua importância como agente potencializador de uma formação crítica e emancipatória dos sujeitos, dialogam com os princípios da integração curricular. Contudo, verificou-se um número reduzido de produções que tratavam exclusivamente da temática. Esse indicador pode ser evidenciado por meio da análise do mapa temático, em que as produções relacionadas à integração curricular são tratadas de forma periférica em relação ao campo teórico do currículo. Os estudos também apontaram que as produções relativas às teorias do currículo são emergentes e possuem estreita ligação com temas relacionados ao conhecimento e às políticas de currículo, embora ainda se apresentam bastante tímidas e carecem de ser melhor exploradas, considerando sua relevância no campo educacional.

Palavras-chave: currículo, teoria do currículo, integração curricular, bibliometria, mapeamento de pesquisa.

TEORÍAS DEL CURRÍCULO Y PRODUCCIÓN CIENTÍFICA: MAPEO CONCEPTUAL DESDE LA BIBLIOMETRÍA

RESUMEN: Este artículo presenta los resultados de un mapeo de investigaciones académicas que tratan sobre el currículo y sus conceptualizaciones teóricas, buscando identificar cómo la integración curricular emerge de estas discusiones. Se trata de una investigación de naturaleza descriptiva, en la que se realizaron análisis bibliométricos utilizando el paquete Bibliometrix del software R, extraído de la base de datos Web of Science, en el periodo de 2002 a 2022. Para la realización del estudio, fueron tratadas las siguientes informaciones: redes de cocitación, autores más relevantes, red de coocurrencia, evolución de publicaciones, mapa temático y evolución temática. A partir del análisis de esta información, fue posible mapear los principales ejes de discusión y redes de autoría, con el fin de describir y discutir los principales conceptos abordados. El estudio permitió verificar que las discusiones teóricas sobre el currículo, especialmente aquellas donde los autores tratan de su importancia como agente potenciador de una formación crítica y emancipadora de los sujetos, dialogan con los principios de la integración curricular. Sin embargo, hubo un número reducido de producciones que trataron exclusivamente el tema. Este indicador se puede evidenciar a través del análisis del mapa temático, donde las producciones relacionadas con la integración curricular son tratadas periféricamente en relación al campo teórico del currículo. Los estudios también señalaron que las producciones relacionadas con las teorías curriculares están surgiendo y tienen una estrecha conexión con temas relacionados con el conocimiento y las políticas curriculares, aunque todavía son bastante tímidas y necesitan ser mejor exploradas, considerando su relevancia en el campo educativo.

Palabras clave: currículo, teoría del currículo, integración curricular, bibliometría, mapeo de la investigación.

INTRODUCTION

Curriculum. A word that suggests a diversity of approaches. Of Latin origin, *scurrere*, is related to running and refers to a course. For educational institutions, the meaning is a common practice of association prescribed in the course plans, that is, with the curricular components and content that students must fulfill to complete their studies. This link between curriculum and prescription was strengthened due to sequential learning patterns to operationalize the curriculum according to an already fixed model. However, it is still necessary to understand it as a social construction, at the level of process and practice (GOODSON, 2001).

When analyzing the etymology of the word curriculum, Silva (2009) corroborates Goodson (2001), when highlighting the importance of understanding and valuing the "path" for the training of subjects, and highlights that the background of curriculum theories permeates the question of identity. This identity is constructed from experiences that occur around knowledge during social relationships (MOREIRA; CANDAU, 2007).

Understanding the curriculum depends on the way a given theory defines it and, perhaps, more important than searching for the ultimate definition of curriculum, is knowing what a curriculum theory seeks to answer. In all cases, a central issue for any theory of curriculum is the right everyone should have to knowledge. Access to cultural assets and knowledge must be guided by a curriculum focused on human training (LIMA, 2007; SILVA, 2009; YOUNG, 2014).

In anthropology, the process of humanization occurs with all human beings to appropriate human forms of communication, acquire and develop symbolic systems, learn the cultural instruments necessary for the most common practices of everyday life, and appropriate historically constructed knowledge. In schools, students seek knowledge and mastery of certain instruments that enable them to learn, not only for personal development, but also for collective development. Therefore, knowledge is a common good that must be socialized to all human beings, with the curriculum being the instrument par excellence of this socialization (LIMA, 2007).

A curriculum aimed at human development must suggest knowledge and experiences that contribute to the formation of autonomous, critical, creative subjects capable of understanding the reality in which they live and contributing in an ethical, competent, technical, and political way, to act in favor of the social and collective interests (MOURA, 2007).

From this perspective, curricular integration expresses a conception of human formation that aims to enable the student to understand the parts as a whole or the unity as a whole, based on the articulation between work, science, technology and culture, integrative axes of knowledge, detaching the focus from its objectives from the labor market to human, labor, cultural and technical-scientific training (CIAVATTA, 2005; 2014; CIAVATTA; RAMOS, 2012; FRIGOTTO, 2005; RAMOS, 2005; 2014).

Thus, recognizing the importance of understanding the curriculum from a broader perspective in educational processes, we sought, through this study, to carry out a mapping of academic productions from the last twenty years that deal with the topic to know the main aspects related to the theoretical field of the curriculum and identify how curricular integration emerges from these discussions.

STUDY METHODOLOGY

This is descriptive research, in which bibliometric analyses were carried out using the Bibliometrix package of the R software, extracted from the Web of Science (WoS) database, from 2002 to 2022[2] as a time frame. To carry out the analysis, the descriptors "theory" and "curriculum" were used, and 115 studies were found.

Bibliometric studies are related to the use of quantitative techniques for analyzing scientific productions on a given topic, helping to deepen and discuss the content to be analyzed and favoring the visibility of academic works (FERREIRA et al., 2015; FERREIRA; SILVA, 2019).

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[2] The information was extracted on 09/17/2022.

According to Aria and Cuccurullo (2017), Bibliometrix allows you to import bibliographic data from databases to carry out bibliometric analyses and construct data matrices for historical evolution, citations and co-citations, main authors and journals, analysis of collaboration networks, among others.

To carry out this study, the following information was processed from Bibliometrix: co-citation networks, most relevant authors, co-occurrence network of the most used terms, evolution of publications, thematic map, and thematic evolution. Based on the analysis of this information, it was possible to map the main axes of discussions and authorship networks, describe and discuss the main concepts addressed, and identify how the integrated curriculum emerges from these discussions.

RESULTS AND DISCUSSIONS

When starting studies on theoretical discussions related to the curriculum, we sought to understand the "co-citation network", defined by Spinak (1996) as the theoretical basis that supports the concept. These are authors cited in a greater number of works, considered, to a large extent, the "classics" of this selection (SPINAK, 1996; GRÁCIO; OLIVEIRA, 2019).

In this study, the network of co-citations, which refer to curricular theories, is represented as shown in the figure below:

Figure 1. Co-citation network for works published from 2002 to 2022.
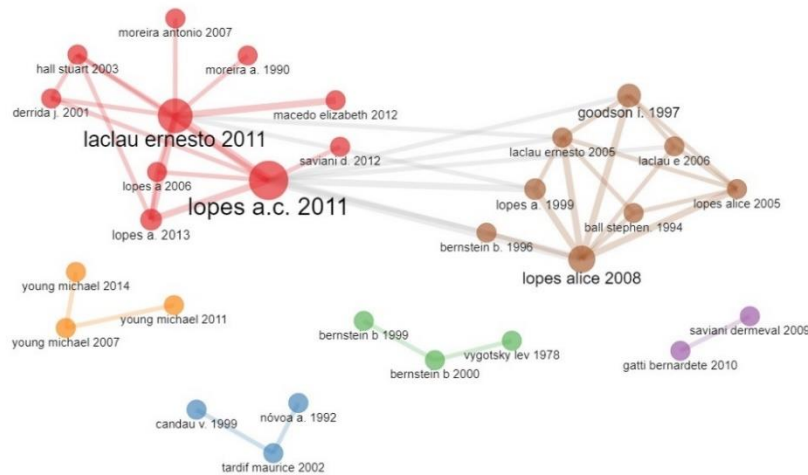
Source: Research data. Prepared in Bibliometrix.

According to Figure 1, six main networks can be observed, two of which demonstrate a closer relationship with the ideas and concepts presented by the authors. Four other networks appear without dialogue with each other. However, it is possible to verify the occurrence of the author Demerval Saviani (2009, 2012) in two networks that are not close to each other. The authors Ernesto Laclau (2005, 2006, 2011) and Alice Lopes (1999, 2005, 2006, 2008, 2011, 2013) are part of the two closest networks.

Based on the information contained in the previous figure, the "classics" were organized according to the table below:

**Table 1.** Authors cited in co-citation networks for works published from 2002 to 2022.

Author	Year(s) of production
Ball, Stephen	1995
Bernstein, Basil	1996, 1999, 2000
Candau, Vera	1999
Derrida, Jaques	2007
Gatti, Bernadete	2010
Goodson, Ivor	1997
Hall, Stuart	2003
Laclau, Ernesto	2005, 2006, 2011
Lopes, Alice	1999, 2005, 2006, 2008, 2011, 2013

Macedo, Elisabeth	2012
Moreira, Antonio	1990, 2007
Nóvoa, Antonio	1992
Saviani, Dermeval	2009, 2012
Tardif, Maurice	2002
Vygotsky, Lev	1978
Young, Michael	2007, 2014, 2011

Source: Research data 2022.

From then on, we sought to know the authors who had the most relevant publications related to curriculum theories, in the period considered:

**Graph 1.** Most relevant authors – 2002/2022.
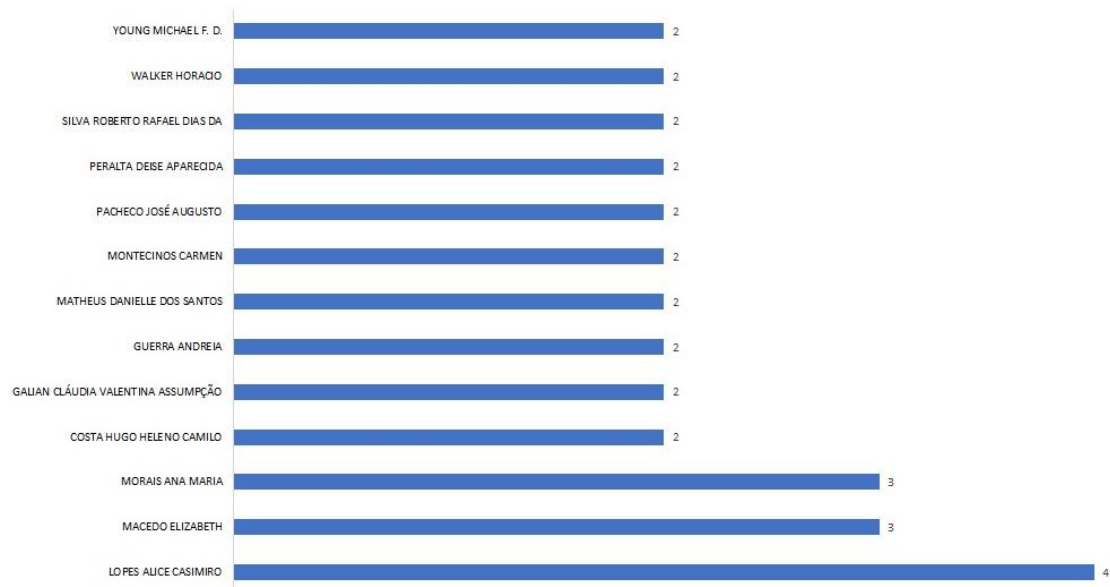
Source: Research data. Prepared in Bibliometrix.

When carrying out a comparative analysis of the information contained in Graph 1 and Table 1, it is possible to verify that, of the most relevant authors, three of them are also part of the co-citation network, such as Macedo (2012, 2016 and 2018), Lopes (2011, 2012, 2014, 2016, 2022) and Young (2002, 2014, 2016).

Based on this information, we analyzed the keywords in the productions of these three authors to identify the main concepts covered in the field of curriculum theory. The keywords were organized, as represented in the Venn[3] diagram, shown in Figure 2:

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[3] The Venn diagram allows for a better visualization of the relationship between a finite number of sets (MARTINS, 2014).

Figure 2. Representation in the Venn Diagram of the keywords used by Lopes, Macedo, and Young[4].
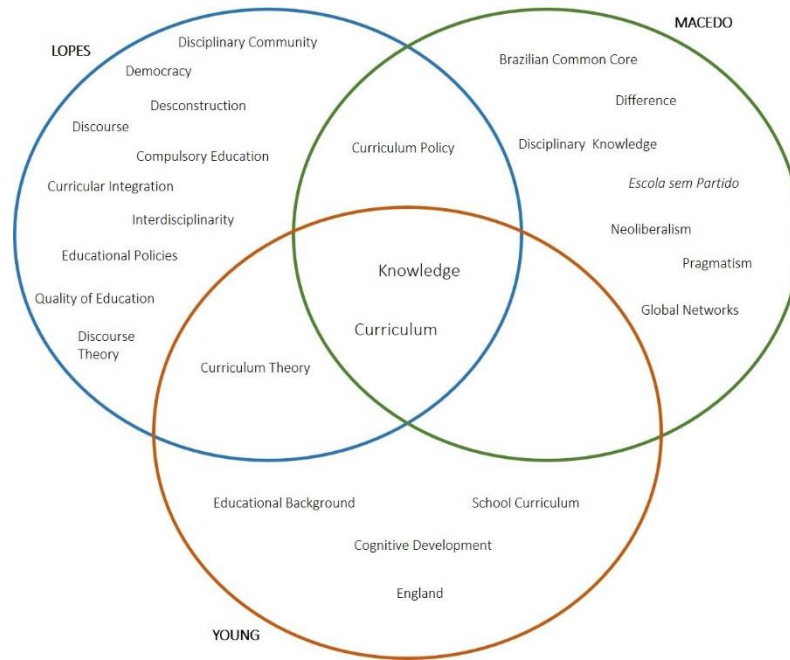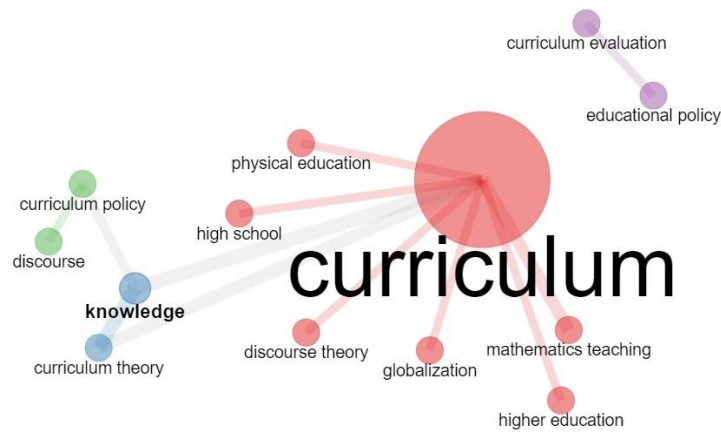
According to Figure 2, it is possible to verify that the keyword "curriculum policies" is used in at least one of the productions presented as an intersection between LOPES and MACEDO. According to Matheus and Lopes (2011, p. 174), "curriculum policies are cultural processes in which texts and discourses are intertwined, because of the articulation between curricular proposals and practices, produced for the school, through actions external to it and, simultaneously, by the school itself, in its daily life". Macedo (2012, p. 716) adds that curricular policies have the responsibility of preventing the idea of knowledge as the main core of the curriculum, and this must be redefined as "instituting meanings, as an enunciation of culture, as an undecidable space in which subjects they become subjects through acts of creation."

The keyword "curriculum theory" corresponds to the intersection between LOPES and YOUNG. According to Young (2014), curriculum theories have their traditions and, even if broken and transformed, it is not possible to live without them. For the author, the normative vision of curriculum theory is a form of technicality if it is separated from its critical role. Likewise, it is difficult to see a purpose in the critical role of curriculum theory if it is divorced from its normative implications. Thus, the author suggests that curriculum theory can unite these two roles and be able to understand the curriculum as a form of specialized knowledge. For Costa and Lopes (2022, p. 1), the reiteration of knowledge as property has two forms of visualization in curricular thinking: "knowledge as given or as related to the producing experience of subjects". For the authors, this process ends up determining a curricular subjectivation, in which the meaning of one is closed, based on the control of the other.

The intersection between LOPES, MACEDO, and YOUNG corresponded to the keywords of "curriculum" and "knowledge", used in at least one of the works, corroborating the studies by Costa and Lopes (2022), when they emphasize that theoretical discussions about the curriculum are prone to "orbit" around knowledge.

The analysis of the keyword co-occurrence network of the 115 studies extracted from the *WoS* database, from 2002 to 2022, allows an approximation with Costa and Lopes (2022):

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[4] LOPES represents the works published by Matheus and Lopes (2011, 2014), Lopes (2012) and Costa and Lopes (2016, 2022); MACEDO represents the works published by Macedo (2012, 2016, 2018); and YOUNG represents the works published by Young (2002, 2014, 2016).

Figure 3. Co-occurrence network[5].

According to Figure 3, it is possible to observe the formation of four clusters, where the keyword curriculum, in addition to being linked to those related in its cluster, is linked to curriculum theory and knowledge. The word knowledge links to curriculum theory, corresponding to its cluster, and to "curriculum policy".

The keyword "knowledge" is the second with the highest intermediation (16) among words, followed by curriculum policy, with nine intermediations (betweenness), as shown in Table 2:

Table 2. Words that represent the connection between clusters

Node	Cluster	Betweenness
curriculum policy	1	9
discourse	1	0
curriculum	2	39
discourse theory	2	0
mathematics teaching	2	0
high school	2	0
higher education	2	0
globalization	2	0
physical education	2	0
knowledge	3	16
curriculum theory	3	0
educational policy	4	0
curriculum evaluation	4	0

Thus, considering the first notes indicated in the bibliometric analyses, it was possible to observe that the keyword "knowledge" played a prominent role in the academic productions under study and, from then on, a more in-depth reading of these productions was carried out in the sense of understanding how knowledge is conceived in the study of curricular theories.

The question of knowledge in curriculum theories: concepts and perspectives

Young (2002) treats knowledge as something that can never be taken for granted, as it is part of history, being socially and historically constructed. For the author, knowledge cannot be subordinated to these historical-social construction processes, that is, knowledge is produced from knowledge:

> A curriculum of the future needs to treat knowledge as a distinct and non-reducible element in the historical process in which individuals strive to overcome the circumstances in which they

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[5] We chose to remove isolated "nodes" in Bibliometrix, aiming to better visualize the occurrence of correspondence networks between keywords.

find themselves. [...] These circumstances refer to the production, reproduction, and transposition of boundaries between disciplines and between knowledge from the school bench and the workplace (YOUNG, 2002, p. 77).

In line with Young (2002), D'Ambrósio (2005) proposes a transdisciplinary and transcultural theory of knowledge, understanding that knowledge arises from reality, in which knowing is knowing and doing. The author presents a holistic approach when dealing with knowledge based on transdisciplinarity, and states that human beings must understand the importance of the continuous search for knowledge and new explanations, which leads to a change in behavior. For D'Ambrósio, this incessant search replaces arrogance with humility, and, consequently, the individual learns values such as respect, solidarity, and cooperation. Therefore,

It is only justified to insist on education for all if it is possible to achieve, through it, a better quality of life and greater dignity for humanity. The dignity of the individual is manifested in the encounter with others [...]. Solidarity with others is the first manifestation of feeling part of a society (D´AMBRÓSIO, 2005, p. 110).

Like D'Ambrósio (2005), Flores Chaupis (2022) questions teaching processes based on disciplinary and fragmented education, and highlights transdisciplinarity as a practice that contributes to a better understanding of reality. The author suggests the development of transdisciplinary education in stages, from prior knowledge of teachers' characteristics to the development of a curriculum and transdisciplinary didactics (FLORES CHAUPIS, 2022). Along these lines, when analyzing integrated curriculum proposals in higher education, Heinzle and Bagnato (2015) found that one of the greatest challenges facing educational institutions is to break with the fragmented view of knowledge as well as the view of the human being as merely a biological human being.

Rosa, Leite, and Silva (2008) and Silva (2013) discuss critical and post-critical curriculum theories as theoretical fields that call into question the process of knowledge construction. The authors perceive the curriculum as a field of production and meaning. The existence of these relationships encourages a curriculum that, at the same time that culture is produced, must also be questioned to investigate what type of knowledge is being favored and why the choice of one knowledge and not another, if the chosen knowledge favors one social class and not another.

In this context, Magendzo (2016), based on critical curriculum theory, invites the transition from a technical curriculum, often uninteresting to students, to a curriculum that challenges them to question knowledge to contribute to the formation of subjects' dialogues and critics.

For Pacheco (2009), with intense globalization, in which new standards and new concepts are imposed, the curriculum gains another centrality in the field of education, especially if it is considered from the perspective of the notion of knowledge:

its cultural urgency can be explored in education so that the curriculum is understood as a project built on diversity and plurality, not only in the approach to school knowledge but, equally, in the unveiling of certain processes and practices of power and standardization culture that exist within schools (PACHECO, 2009. p. 393).

Macedo (2012) argues that education has been reduced to teaching, due to the centrality given to the issue of knowledge and suggests "redefining the curriculum as an institute of meanings, as an enunciation of culture, as an undecidable space in which subjects become subjects through of acts of creation" (MACEDO, 2012, p. 716). The author highlights two ideas that arise in an antagonistic way regarding the common curricular base in Brazil, namely knowledge to do something and knowledge itself. Macedo argues that this type of dispute ends up naturalizing the curriculum in the sense of control, and that he tries to detach this focus by understanding education, justice and democracy must be the real future of curricula (MACEDO, 2016).

Silva (2016) seeks to examine contemporary studies on the constitution of school curricula and the processes of selecting the knowledge that is taught. It considers the urgent need for reflections on the modes of cultural transmission of knowledge and the social and political relevance that schools have in this endeavor.

Catarino, Queiroz, and Araújo (2013) understand that knowledge, to be meaningful, must be built from interaction, conflict, incompleteness, and change, and emphasize that students must assume the roles of protagonists in this construction. The authors defend teaching based on dialogism and a democratic relationship, in the classroom, as a path to the emancipation of students and teachers.

Avendaño-Castro and Parada-Trujillo (2013) analyze the concept of curriculum and its relations with the so-called society of knowledge, cultural reproduction, and cognition. For the authors, culture and the knowledge society offer education the relevant context to which the curriculum must be adapted to respond to current society and the interests of students.

Silva and Pires (2013) bring a postmodern perspective to treat the construction of knowledge beyond the transmission of content, as something that needs to be transformed, based on the meanings produced by students with the mediation of the teacher.

Galian and Louzano (2014) present an interview carried out in 2013, with the classic theorist in the field of curriculum, Professor Michael Young, in which the author states the need for a theory of knowledge that is more solid to guide discussions regarding curricular choices. The authors report that Young identified that curriculum theorists present a refusal to face what he considers to be the specific function of education: "the promotion of students' intellectual development, based on what he defines as powerful knowledge, closely linked to the areas of knowledge, in universities, and school subjects" (GALIAN; LOUZANO, 2014, p. 1109).

For Matheus and Lopes (2014), how knowledge has been interpreted - as "something to be distributed, something that is known by a history (critical) or a science (disciplinary), something objective to the point of being able to be measured, something that is disconnected from the possibilities of cultural translation within the school and from the processes of subjectivation" (MATHEUS; LOPES, 2014, p. 352) shape curricular policies and contribute to making the project of centrality of the curriculum hegemonic. These established forms of interpretation end up preventing other curricular possibilities, and other ways of reading the curriculum, contributing to an inflexible curricular policy (MATHEUS; LOPES, 2014).

Ciavatta and Ramos (2012) defend the integration of specific knowledge of a profession with that of general training. For the authors, "only" specific knowledge is not enough to provide an understanding of the social relations of production:

> Even though the productive processes in which a profession can be exercised are particularities of the broader reality, it is possible to study them in multiple dimensions – economic, social, political, cultural, and technical, among others – so that, in addition to specific knowledge, general training also becomes a necessity." (CIAVATA; RAMOS, 2012, p. 26)

Young (2014) reaffirms the need for curriculum theorists to seek to develop curricula that expand students' learning opportunities and not just reproduce them. For Young, the curriculum must be able to provide students with a type of knowledge that he calls "powerful knowledge" (YOUNG, 2014, p. 201) in any area of knowledge and stage of school. In other words, the curriculum must be designed in such a way that all students have access to the knowledge necessary to understand the world and think about alternatives for change:

> In my view, if the curriculum is defined by outcomes, skills, or, more broadly, assessments, it will be unable to provide access to knowledge. Knowledge is understood as the ability to envision alternatives, whether in literature or chemistry; it can never be defined by results, skills, or evaluations (YOUNG. 2014, p. 195)

In 2016, the author reaffirmed the importance of a curriculum that represents all students' access to "powerful knowledge" (YOUNG, 2016, p. 18). In this type of knowledge, the most debated aspect is the power offered to students by different disciplines, such as the sciences that generate the power of abstraction and generalization. The social sciences, help students understand how people and institutions behave, and the human sciences, illustrate, through films, plays, and books, characters, and their representations of humanity. Young (2016) ends his article by including a text written by a school director, Carolyn Roberts, on important points regarding powerful knowledge:

(1) Knowledge is worth it. Tell this to the children: never apologize for what you need to learn.
(2) Schools transmit shared and powerful knowledge on behalf of society. We teach what it takes to make sense of the world and improve it.
(3) Shared and powerful knowledge is legitimized through learning communities. We need to keep in touch with universities, research, and knowledge production associations.
(4) Children need powerful knowledge to understand and interpret the world. Without it, they remain dependent on those who have it.
(5) Powerful knowledge is cognitively superior to that needed for daily life. It transcends and frees children from everyday experience.
(6) Shared, powerful knowledge allows children to grow into engaged citizens. As adults, they can understand, cooperate, and shape the world together.
(7) Shared knowledge is the basis for a fair and sustainable democracy. Citizens educated together share an understanding of the common good.
(8) It is fair and equitable that all children should have access to this knowledge. Powerful knowledge opens doors: it should be available to all children.
(9) Legitimate adult authority is required for the transmission of shared knowledge. The educator's authority to transmit knowledge is given and valued by society.
(10) The pedagogical relationship associates adult authority, powerful knowledge, and its transmission. We need quality professionals to achieve all this for all our children (YOUNG, 2016, p. 36)

For Libâneo (2015), there are two types of knowledge related to the professional training of teachers: disciplinary knowledge (content knowledge) and pedagogical content knowledge. The author highlights the importance of teachers being aware of their important role as educators, incorporating the political dimension into their practices, for the training of citizens and professionals. From this perspective, Araújo (2018) highlights that there is a conflicting debate regarding knowledge in the curricular field. In the case of teacher training curricula, there are three types of understanding about knowledge: practical knowledge built from action-reflection-action; the knowledge that must transcend to a political-social reflection of teaching practice; and valid knowledge from both models, which produces a certain hybridity of discourses (ARAUJO, 2018).

For Melo, Almeida, and Leite (2018), the need to know is a human condition, and knowledge should not be fixed, but rather seek to answer the questions of a given historical time. For the authors, knowledge is created and recreated in everyday actions. Thus, this way of conceiving knowledge contributes to the production of democratic forms related to the lived curriculum and, in this sense, "knowledge is inscribed in the needs of the subjects who are learning, in the social relevance of their teaching, in the possibility of inserting teachers and students in the process of producing new knowledge and practices" (MELO, ALMEIDA, LEITE, 2018, p.226).

Costa and Lopes (2022) highlight two readings related to the argument that discussions about the curriculum are prone to "orbiting" around "knowledge", the first being focused on the formation of subjects, a priori of their experiences (knowledge as something goal); and the second, based on the idea of valuing the knowledge produced based on their experiences. Regarding these two readings, Costa, and Lopes (2022) understand that both discourses end up focusing on the same logic of thought, that is, "the assumption of knowledge whose learning would have as its objective the formation of a subject for an already determined world, for a context for which a subjectivity must be prepared" (COSTA; LOPES, 2022, p. 20). Finally, the authors argue that there must be "a radical investment in interpretative processes over which we do not have full control, and which present themselves as the possibility of a radical critique of the reification of knowledge" (COSTA; LOPES, 2022, p. 20).

From the theoretical discussions presented, it was possible to identify important concepts and perspectives related to knowledge and its place in the field of curricular theories, in which the following stand out: a) knowledge as something not determined, but continually socially and historically constructed (YOUNG, 2002; CATARINO; QUEIROZ; ARAÚJO, 2013; MELO; ALMEIDA; LEITE, 2018); b) transdisciplinary, transcultural and non-fragmented knowledge (D´AMBRÓSIO, 2005; PACHECO, 2009; CIAVATTA; RAMOS, 2012; HEINZLE; BAGNATO, 2015; FLORES CHAUPIS, 2022); c) knowledge as a generator of social injustices, when prioritized to serve a certain class and not another (ROSA; LEITE; SILVA, 2008; SILVA, 2013); d) knowledge as an enabler of the emancipation of subjects (CIAVATTA; RAMOS, 2012; GALIAN; LOUZANO, 2014; YOUNG, 2014; LIBÂNEO, 2015; MAGENDZO, 2016); e) criticism of knowledge reduced to school concepts and as the center of

discussions about the curriculum (MACEDO, 2012; MATHEUS; LOPES, 2014); f) knowledge as an enhancer of cultural, social and political transmission (SILVA, 2016; ARAUJO, 2018); g) knowledge as a generator of meanings (SILVA; PIRES, 2013); g) criticism of the objectification of knowledge (COSTA; LOPES, 2022).

The perspectives highlighted above do not necessarily limit the conceptions of the authors mentioned. These are some notes on some ideas that present in convergence and that, at times, complement each other, in which it is possible to infer the importance of these discussions for the enrichment of studies related to the field of curriculum and its relationship with knowledge.

The curriculum and its conceptualizations: a study of academic productions

From the analysis of the 115 studies published in the *WoS* database, according to the time frame and descriptors used in this study, a mapping was carried out of the publications most related to theoretical discussions, which represented 28% (twenty-eight percent) of the published works in the *WoS* database, represented in the graph below:

Based on this mapping, the graph below was created, which shows the annual variation of these 115 publications, highlighting the main authors who produced studies more related to the theoretical field of the curriculum:

Graph 2. Annual variation in the number of publications – 2002/2022.
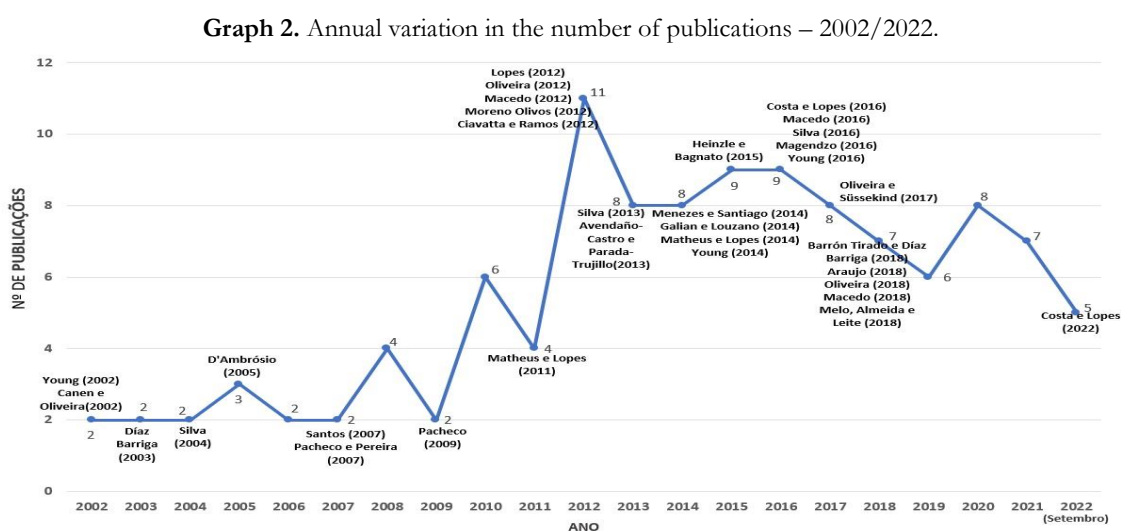
Source: research data 2022.

According to the graph, there was a greater intensification of these publications from 2012 to 2018. From 2019 to 2021, no studies were verified that were specifically related to the theme.

Thus, from a more in-depth reading of these productions, we sought to understand the main conceptualizations related to the curriculum by the highlighted authors, as well as identify whether curricular integration emerges from these discussions.

Young (2002, p. 77) points out the importance of a "curriculum of the future" that can treat knowledge in a way that is not reducible to students' social issues so that they can overcome the challenges and demands of a world in constant change. The aforementioned author, in an interview published by Galian and Louzano (2014, p. 1122), points to the importance of a curriculum that is capable of promoting intellectual development in students, based "on powerful knowledge", which means providing them with the ability to understand, analyze and face complex challenges in different areas of life, regardless of the stage of school (YOUNG, 2014a; 2016).

From this perspective, D'Ambrósio (2005) argues that the curriculum must be based on literacy, materacy, and technocracy to provide young people with instruments for survival and transcendence in future years, and to reduce social injustices. According to the author,

> **literacy** is the ability to process written and spoken information, which includes reading, writing, calculation, dialogue, ecalogue, media, internet in everyday life (communicative instruments);

materacy is the ability to interpret and analyze signals and codes, to propose and use models and simulations in everyday life, to elaborate abstractions on representations of reality (intellectual instruments); **technocracy** is the ability to use and combine instruments, simple or complex, including one's body, evaluating their possibilities and limitations and their suitability for different needs and situations (material instruments) (D'AMBROSIO, 2005, p. 119, our emphasis).

According to D´Ambrósio (2005), the curriculum is a strategy for educational action. The author highlights that the current educational curriculum model is obsolete, uninteresting, and not very useful, and proposes a curriculum concept based on communicative, analytical, and material instruments as an educational response to the responsibility of providing students with instruments that are necessary for their survival and transcendence in future years (D´AMBRÓSIO, 2005).

In this context, based on the understanding of the curriculum as an agent that enhances student training in its entirety, Silva (2004), Moreno Olivos (2012), Ciavatta and Ramos (2012b) and Melo, Almeida, and Leite (2018) criticize the curricular proposition centered on in the notion of skills, by establishing control over integral human training, with the perspective of adapting this training to imperatives posed by the marketing vision of production and consumption, which contradicts the concept of curricular integration that aims at the human and civic training of students. For Silva (2004), Santos (2007), and Pacheco (2009), this instructional nature of the curriculum has been legitimized by an instrumental vision, based on pedagogy by objectives and pedagogy by competencies, and points out that the adaptation of a curriculum to the imposed imperatives by the market and consumer society reproduces social exclusion and imposes limits on a broader formation of critical and reflective individuals.

Ciavatta and Ramos (2012) point to high school education integrated with professional education as a proposal for overcoming the educational duality rooted in Brazil, marked by the action of doing and executing and the action of thinking, planning, and directing. In this aspect, Matheus, and Lopes (2011) found that the integrated curriculum can be identified from two conceptions: one that fosters interdisciplinarity and another that seeks to overcome disciplinaryization. For the authors,

curricular integration and interdisciplinarity are floating signifiers that, despite being defended in both contexts, take on different meanings and in line with the demands presented by groups that, in the face of political articulations, seek to hegemonize what has been meant as curricular integration (MATHEUS; LOPES, 2011, p. 173).

From the perspective of human and civic education, Ciavatta and Ramos (2012) rely on the concept of polytechnics, in which work is an educational principle. From this perspective, they highlight that human beings are producers of their reality, and therefore, appropriate it to transform it. According to the authors, work is also an economic practice, and today, it is the foundation of professionalization, which must be integrated with science and culture, incorporating ethical-political values and historical and scientific content that characterize human praxis.

Along these lines, Menezes, and Santiago (2014) highlight Paulo Freire's political-pedagogical thinking in the construction of a curriculum theory, which aims at the emancipation and humanization of individuals, based on the development of critical consciousness for the formation of competent individuals, citizens aware of their role in society and critical thinking about their reality.

Understanding the curriculum from a critical-emancipatory view and as an investigative practice is also defended by Pacheco (2009), Menezes and Santiago (2014), and Magendzo (2016), who consider it necessary to establish a dialectical relationship between the curriculum and the historical, social, political and cultural context, in the search for overcoming its technical-linear conception, treating it in the dimension of the totality in which different contexts relate and influence each other. In this sense, Silva (2013) points to the importance of considering a type of education in which man, nature, and their relationships are not taken as particular objects of certain fields of knowledge but understood as pertinent to all areas of human knowledge.

For Macedo (2012, 2018), it is necessary to reflect on the return of a certain universalism in the field of curriculum, to redefine it as an institute of meanings, as an enunciation of culture, as a space in which subjects become subjects through acts of creation. In this aspect, Canen, and Oliveira (2002)

bring in their discussions the importance of considering multicultural curricula, which promote educational equity, based on valuing students' cultures and breaking down prejudices, to promote respect and appreciation of cultural plurality.

Along these lines, Avendaño-Castro and Parada Trujillo (2013) understand culture as the basis for the generation of cognitive processes. According to the authors, "culture and the knowledge society offer education the relevant context to which the curriculum must be adapted, to respond to current society and the interests of students" (AVENDAÑO-CASTRO; PARADA-TRUJILLO, 2013, p. 159). In this scenario, Silva (2016) emphasizes the importance of critical reflection on the modes of cultural transmission that must be mobilized in teaching processes, based on the constitution of their curricula.

The studies by Díaz Barriga (2003) and Barrón Tirado and Díaz Barriga (2018) point to the meeting of two trends in the field of curriculum. One is related to the perspective expressed in the development of teaching plans and projects, and the other is related to the curriculum as educational practice and linked to concepts of everyday life. The authors present a theoretical-conceptual approach to understanding the curriculum "as a project and as a practice, situated in a social and historical context and moment, of a multidetermined and complex nature" (BARRÓN TIRADO; DÍAZ BARRIGA, 2018).

Pacheco and Pereira (2007) carried out a critical analysis regarding the divergence of arguments between scholars of curriculum theories, especially between traditionalists and reconceptualists. According to the authors, there is a certain conceptual disorder on the topic, analyzed under different contexts, such as social, economic, cultural, political, and ideological, and despite this, curricular practices continue to follow practically the same path, due to difficulties in changing certain norms and rules already imposed in educational contexts.

Oliveira and Süssekind (2017) analyzed the influence of critical and post-critical theories in the field of curriculum studies in Brazil. The authors identified a strong influence of critical theories, which led authors of other theoretical tendencies to dialogue with it compulsorily, even subliminally.

According to Oliveira (2012, 2018), the curriculum must be understood as a discursive, cultural practice, of power, of meaning, and as an arena of struggles in which different demands are put into dispute in the search for the hegemony of a curricular project. Along these lines, Melo, Almeida, and Leite (2018) and Araújo (2018) recognize that the curriculum is dynamic and constitutes a territory in dispute because it is a training project produced by educational policies and agents that configure and practice it in the daily life in schools. For Matheus and Lopes (2014), the struggle related to curriculum policy is a discursive struggle for the constitution of representations, based on the analysis of curricular discourses in policies, in which different curricular demands are capable of articulating with each other, in a provisional and contingent, constituting given representations and social groups for the curriculum.

Nesse aspecto, Lopes (2012, p. 710) apresenta uma certa preocupação em relação aos discursos relacionados a determinadas opções curriculares:

In this aspect, Lopes (2012, p. 710) presents a certain concern regarding discourses related to certain curricular options:

> The defense of certain curricular options, such as common knowledge, values, projects, and purposes, by reference to universalization arguments – scientism, validity for all, global world, citizenship –, from an absolute point of view, does not seem to me to contribute to the democratic process. This may just be one of the ways to hide the contingency of the curricular options defended, to hide the character of these universals and their search for hegemonization, and to meet certain demands.

Macedo (2016, p. 45) points out that discussions related to the curriculum base in Brazil are marked by disputes between two ways of understanding knowledge: "knowledge to do something and knowledge itself". According to the author, this type of practice ends up naturalizing the curriculum in the sense of control, a conception that is opposite to the conception of understanding a universal, fair, and democratic education.

Thus, based on the analysis of the main concepts and discussions presented about the curriculum in the educational field, it was possible to identify the main approaches: a) the curriculum as

an agent that enhances a critical and emancipatory formation of subjects; b) the curriculum as an institute of meanings and as an important instrument for enunciating culture; c) understanding the curriculum as a project and as a pedagogical practice and; d) the curriculum as a discursive, cultural practice, of power, of meaning and as an arena of struggles in a scenario where different demands are put into dispute in the search for the hegemony of a curricular project.

The first approach, the curriculum as an agent that enhances the critical and emancipatory formation of individuals, can be seen in Young (2002, 2014, 2016) and Galian and Louzano (2014), when they bring concepts related to the "curriculum of the future", such as one capable of promoting the intellectual development of students, based on "powerful knowledge"; in D'Ambrósio (2005), when considering the importance of a curriculum based on literacy, materacy, and technocracy to provide young people with instruments for survival and transcendence in future years; in Silva (2004), Moreno Olivos (2012), Ciavatta and Ramos (2012b) and Melo, Almeida and Leite (2018) who discuss the importance of a curriculum capable of providing student training in its entirety; in Menezes and Santiago (2014), who consider the curriculum as an instrument for the emancipation and humanization of individuals; and in Pacheco (2009), Silva (2013), Menezes and Santiago (2014), and Magendzo (2016), who deal with the importance of the curriculum from a critical emancipatory vision and as an investigative practice.

It was also possible to identify in Macedo (2012, 2018), Canen and Oliveira (2002), Avendaño-Castro and Parada Trujillo (2013), and Silva (2016) an understanding of the curriculum as an institute of meanings and as an important instrument of enunciation of culture. In the works of Díaz Barriga (2003) and Barrón Tirado and Díaz Barriga (2018), it was verified, from a theoretical-conceptual approach, the understanding of curriculum as a project and as a pedagogical practice. It was also possible to verify, in Oliveira (2012, 2018) and Matheus and Lopes (2014), an approach related to the curriculum as a discursive, cultural practice, of power, of meaning, and as an arena of struggles in a scenario where different demands are placed on the dispute in the search for the hegemony of a curricular project.

Analysis of the evolution of academic productions

When carrying out this study, it was considered relevant to present, through the Thematic Map presented in Figure 4, a global view of the main research interests generated using the descriptors "theory" and "curriculum". Using Bibliometrix, it was possible to check, among the keywords in the database, the 60 most used by authors and which had at least 5 occurrences.

The Thematic Map, generated from Bibliometrix, is a graph in which themes can be analyzed according to the quadrants in which they are inserted, being defined by two axes: one related to the density of keywords (vertical axis), and another related to the centrality of keywords (horizontal axis). The first measures the strength of the internal ties between keywords, while the second checks how the community positions the others. The result is arranged in four quadrants, as shown in the figure below: (I) motor themes; (II) basic themes; (III) emerging or declining themes, and (IV) niche themes (very specialized themes) (ARIA; CUCURULLO, 2017).

Figura 4. Mapa Temático.
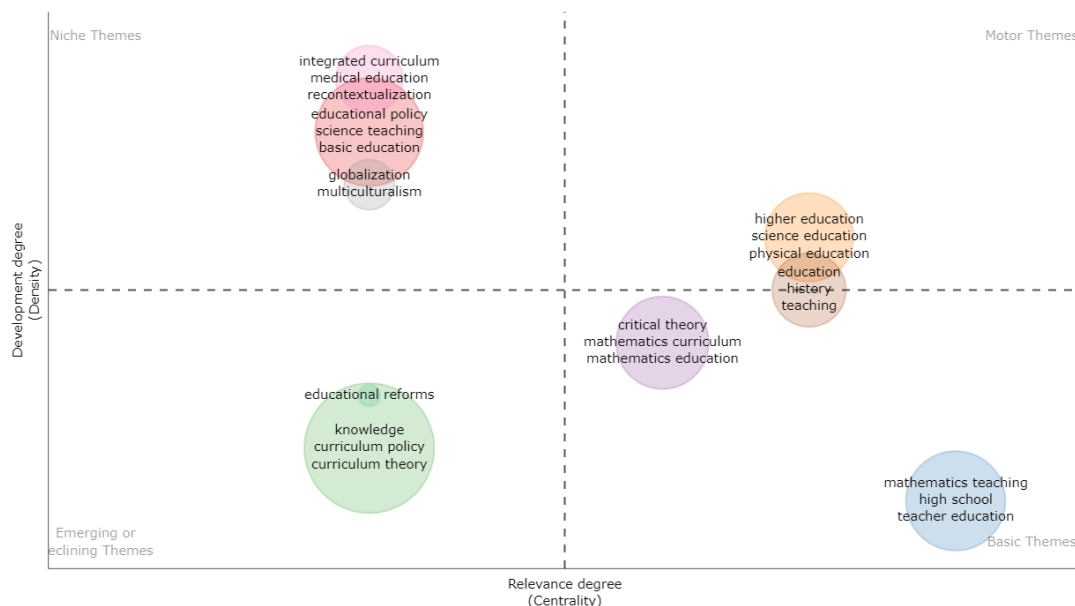
When analyzing the thematic map presented in Figure 4, in the lower left quadrant there is a niche led by the word knowledge, followed by curriculum policy and curriculum theory. Overlapping this niche, it is possible to verify a smaller niche represented by the term educational reforms. According to Aria and Cucurullo (2017), the lower left quadrant is related to emerging or declining themes. According to the positioning of the niche in question, it can be inferred that curriculum theory is an emerging theme and has a close connection with themes related to knowledge and curriculum policies. It is also observed that themes related to educational reforms are also emerging themes with discussions close to the field of curriculum theory.

For Santos (2007), the field of curriculum in Brazil, especially from the 1990s onwards, influenced proposals for change in education and, gradually, lost this influence. The author argues that the portion of scientific production, that is influenced by aspects of cultural studies, has not been offering effective contributions to the pedagogical practice of schools.

According to the analysis presented in Graph 1, about the productions of topics related more specifically to discussions about the curriculum, its policies, and theories, it was found that, even in the years in which there was a greater number of articles published (2012, 2016 and 2018), this number was reduced, totaling five in each year. From 2019 to 2021, no specific production was verified in the database. In 2022, there was a production in the area, in which the authors present, among the keywords, "curriculum theory" and "knowledge". In this sense, it is important to highlight the need to expand productions related to the theme.

In the curricular integration, the thematic map shows the occurrence of the word integrated curriculum leading to a niche in the upper left quadrant, which represents that this subject is more specific and peripheral to the theme (Niche Temes). However, there is an approximation between three niches located in the upper left quadrant, led by integrated curriculum, educational policy, and globalization, demonstrating a high density between these niches.

In this sense, the thematic map indicates that the integrated curriculum is a topic that has been treated in a specialized and peripheral way about curriculum theory.

Figure 5 shows the variation in the most frequently occurring themes from 2002 to 2022, subdivided into two periods: 2002-2015 and 2016-2022.

Figure 5. Evolution of the Theme.
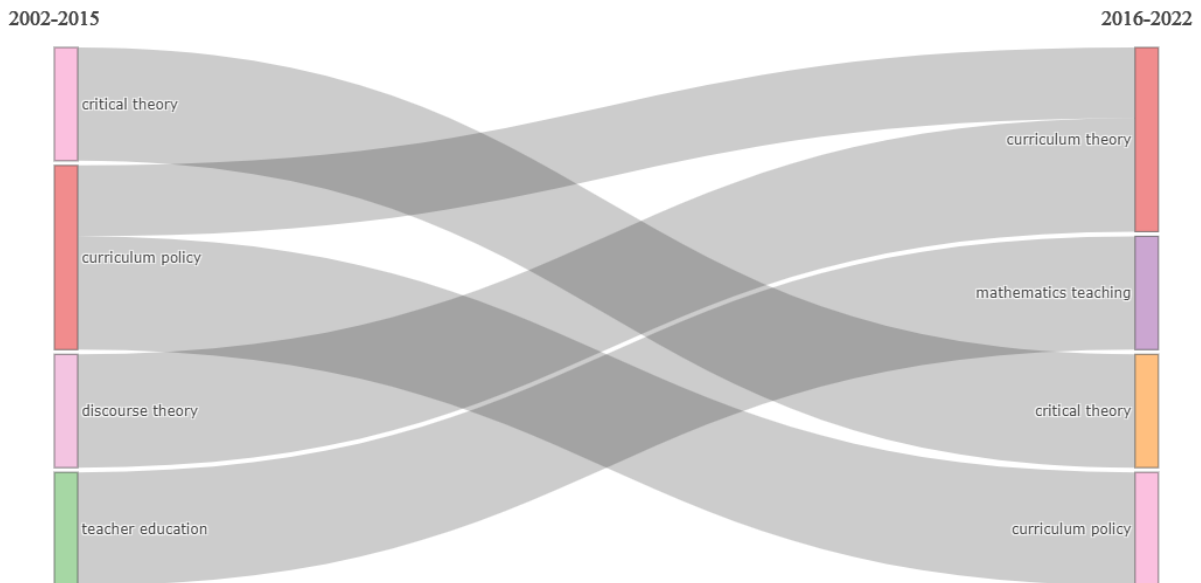
Source: Research data. Prepared in Bibliometrix.

It is possible to observe that, between 2002-2015, the term curriculum theory does not appear in the graphic representation. Until 2011, the number of more specific productions in the area ranged from 0 to 2.

In the period 2016-2022, the topic of curriculum theory appears more prominently, emerging from two keywords from the previous period, curriculum policy and discourse theory. Based on the analysis of the works published in the period in question, as shown in Graph 1, the largest production related to the topic of curriculum theories occurred from 2012 to 2018.

FINAL CONSIDERATIONS

Carrying out scientific mapping is extremely important in academic research, as it provides indicators that contribute to the deepening of concepts and approaches related to the topic intended for research. Through the bibliometric studies carried out in this work, it was possible to map the main axes of discussions and authorship networks related to the theme, describe and discuss the main concepts addressed, and identify how the integrated curriculum emerges from these discussions.

Bibliometric analysis pointed to knowledge as an important guiding axis of theoretical discussions of the curriculum, being approached from perspectives related to the importance of its continuous historical and social construction; the need for a transdisciplinary and non-fragmented approach; as a promoter of cultural, social, and political transmission, of emancipation of subjects and as a generator of meanings. It was also possible to identify discussions related to knowledge as a motivator of social injustices when treated in a way that prioritizes certain school contents according to the social class of the subjects.

In the theoretical conceptualizations of the curriculum, approaches related to its importance as an agent that enhances critical and emancipatory training of subjects were identified; as an institute of meanings and an important instrument for enunciating culture; as a project and as a pedagogical practice; as a discursive, cultural practice, of power, of meaning and as an arena of struggles in a scenario where different demands are put into dispute in the search for the hegemony of certain curricular projects.

The study allowed us to identify the theoretical approaches to the curriculum, especially those in which the authors discuss their relevance and action that enhance the emancipatory and critical formation of subjects, and dialogue with the principles of curricular integration. However, there was a reduced number of productions that dealt exclusively with the theme, which was also evident in the analysis of the thematic map, where productions related to curricular integration are treated peripherally in the theoretical field of the curriculum.

The studies also showed that productions related to curriculum theories are emerging and have a close connection with themes related to knowledge and curriculum policies, although they are still quite timid and need to be better explored, considering their relevance in the educational field. In this sense, it is expected that this study can contribute to future work related to the curriculum and its theoretical concepts.

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AUTHOR'S CONTRIBUTIONS

Author 1 - conception, data collection, data analysis, preparation of the manuscript, writing, discussion of results.

Author 2 - conception, preparation of the manuscript, writing, discussion of results, review.

DECLARATION OF CONFLICT OF INTEREST

We declare, for all due purposes, that there is no conflict of interest.