



The impact of Jürgen Habermas’s scientific production: a scientometric review

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Abstract

The use of bibliometrics, based on statistical and mathematical tools, makes it possible to measure the contributions of researchers to science. This is a widely used tool to assess scientific production in several areas of knowledge. Such methodology analyzes publication trends, author networks, structures of co-citation, journals and even the scientific contribution of renowned scholars in science. The precursor of bibliometrics, Eugene Garfield, who proposes the retrieval of information from the indexing of citations, was the object of a scientometric review aimed at assessing his impact on science. Given such relevance, this article presents the academic contribution of Jürgen Habermas based on a preliminary scientometric review of his studies. Jürgen Habermas is regarded not only as an active scholar in the social and political process, but also as a productive, controversial and influential contemporary author. The correct understanding of his works is a great challenge, as the bases of his thinking are so broad that they allow an interface between different approaches. We elaborated a design of his scientific work with the advancement to a connection between his main ideas through the use of bibliometric software. Bibliometrics, of the scientometric type, allows the understanding of how recognized patterns in citations can develop information relevant to the scientific field. The results confirm the multidisciplinary contribution of Habermas’s studies and highlight his main fields of research and works, which serve as a foundation for clearly understanding and applying his concepts.

Keywords Jürgen Habermas · Scientometrics · Bibliometrics · CiteSpace

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Introduction

A contemporary exponent, Jürgen Habermas composes the second generation of the Frankfurt School, comprising the tradition of critical theory originating from Marxism, with an emphasis on pragmatism and the relevance of linguistic exchanges established through discourse. His works focus, above all, on the study of democracy, based on his theories of communicative action, deliberative politics and the public sphere (Gabriel et al., 2021). As of Müller-Doohm (2016), Habermas's biography does not present prominent cuts or discontinuities. It is a story of academic success as well as significant contributions to political affairs, and the author is considered an active scholar in the social and political process. The works developed by the author are constant in the area of philosophy, and also in the social sciences, especially in the field of political theory and international relations (Siebenichler, 2018). The bases provided by Habermas's thinking are so broad that they legitimize its interface with different approaches (Rouanet, 2020). The philosopher proposes, as an end, a framework that associates and integrates several thoughts seen as competitive in the social sciences, among these the critique of ideology, the theory of action, the analysis of social systems and the theory of social evolution (Bottomore, 2012). One of Habermas's characteristics is that he is still present in the public debate, whether commenting on social networks (Hermoso, 2018) or even on the Covid-19 pandemic (Habermas, 2020).

Interdisciplinarity marks the impact of Habermas's writings. According to Fultner (2011), the author dared to develop a philosophical system that crosses disciplinary boundaries and different themes. Habermas contributed to a wide spectrum of disciplines in the social sciences and humanities, namely: public sphere, analysis of the position of modern science and technology in capitalist societies, philosophical foundations for critical theory, theory of action, patterns of crisis in capitalist societies, refinement of the theory of social evolution (Bottomore, 2012). The transition in Habermas to deliberative democracy brought new possibilities for Critical Theory, by supporting the development of a consistent and coherent democratic theory, proposing, for example, emancipation (Mendonça, 2013).

Habermas's trajectory changed its meaning, which was called the linguistic turn. There is a distancing from Critical Theory, according to Vandenberghe (2011), characteristic of the advance towards a post-metaphysical philosophy. Habermas, in opposition to the risks of a postmodernist relativism, attributed an "ontologically inclusive" stance, gathering principles from positivist, hermeneutic and linguistic traditions (Garland, 2014). Given the different stages of Habermas's intellectual trajectory, a set of discussions emerged about the changes and limits of his work (Fraser, 1990; Mészáros, 2004; Scheuerman, 2014). According to Voirol (2012), his work marked the abandonment of the dialectic perspective in favor of reconstruction. Another point of debate is Habermas's position for a methodological and theoretical pluralism (Voirol, 2012).

Biographies of Jürgen Habermas are recurrent, such as those of Müller-Doohm (2016). We identified only one study of his intellectual work, by Gabriel et al. (2021), which maps the research and influences of Habermas's reflections. However, the referred work is restricted to the BRAPCI database (Database on Information Science), which includes a collection of Brazilian publications on information science. In this work, we made a search for the author's name in any field. Therefore, it does not focus on the search for the author's publications and the subsequent impact of his works on other studies, through the analysis of citations. Hofmann (2021) conducted an analysis on the academic impact of Habermas, but only evidenced, through co-citation analysis, the author's concept of public sphere in

the last two decades. Although numerous works recognize and explore the relevant interdisciplinary influence of Habermasian theories, a scientometric quantitative study that would allow understanding the extent of Habermas's work was not proposed. Questions may be common, for example, about the evolution of the author's academic productivity, his most cited works and his references. In this sense, based on the methodological framework developed by Chen (2018) in the analysis of Eugene Garfield's publications, we present a preliminary scientometric review of Jürgen Habermas's publications and their academic impact.

Bibliometrics uses quantitative techniques to analyze academic production. It is developed from the study of citations, co-citations, authorship, co-authorship, journals, key words, distribution and bibliographic growth (Francisco, 2011; Pinto et al., 2014). The methodology also allows to identify information on changes and trends in the direction and content of scientific research (Zhang et al., 2017). The study by Romanelli and Boschi (2020) retrieved and analyzed scientific publications in the Web of Science database on common forest management research that were influenced by Elinor Ostrom, based on a bibliometric study. Bhattacharyya and Sahu (2020), a little more broadly, also analyzed the productivity of the renowned economist Elinor Ostrom, through a bibliometric study that identified trends, domains and citations. Two other important works also analyzed the academic impact of outstanding authors in the scientific field. Li et al. (2020a) analyzed through scientometrics the intellectual work of Trevor Kletz and its influence in the research domain of process safety. Chen (2018) presented a scientometric analysis of Eugene Garfield's intellectual assets, highlighting the rich information that can be obtained from citation-induced patterns.

Given the recognition of the extensive contribution of the author under analysis, the limitations and divergences of theoretical interpretations existing in some fields, and the relevance of bibliometric studies in mapping science, this article seeks to answer the following question: What are the impacts of Jürgen Habermas's scientific production in different areas of knowledge? To this aim, we analyzed the impact of Jürgen Habermas's scientific production based on a preliminary scientometric study that identifies the knowledge base of his research, as well as its intellectual structure. Initially, we conducted a search by author in the Web of Science database of publications authored and co-authored by Habermas (S_A Set: 122 publications). Following that, we analyzed the citation and co-citation networks (S_B Set: 2569 publications), based on the results provided by CiteSpace and other bibliometric analysis software. This analysis is relevant because it constitutes a source of knowledge for researchers who study theories with a Habermasian foundation, and above all, for those new to the area.

The Web of Science database, used in this study, indexes a large number of the most relevant scientific publications in the world, including areas from the natural sciences to the social sciences (Li et al., 2020a). Several studies used the database as a source of research, as it houses a large number of reliable publications with greater impact (Pinto et al., 2014; Chen et al., 2015; Prado et al., 2016; Liu et al., 2014; Marzi et al., 2017; Skute, 2019; Jiménez-García et al., 2020). The Web of Science database made it possible to obtain a large volume of relevant works for analysis—organized based on the methodological structure developed by Chen (2018). However, the Web of Science database also has limitations such as better coverage in the area of exact and natural sciences, little free access content, in addition to favoring Anglo-Saxon content (Prado et al., 2016; Mariano & Rocha, 2017). Despite these limitations, the study made it possible, initially, to analyze the impact of Habermas's scientific production, considering the lack of studies that map his works and contributions. Thus, it might serve as a basis for further studies that can complement and

deepen the analyses carried out here. It is important to highlight that the Web of Science has been used as a database for several bibliometric and scientometric studies published in relevant journals in the field (Pinto et al., 2014; Chen et al., 2015; Prado et al., 2016; Liu et al., 2014; Marzi et al., 2017; Skute, 2019; Jiménez-García et al., 2020).

This article is structured in five parts. In addition to this introduction, it presents the following sections: literature review, method, results, discussion and final remarks.

Bibliometric studies

Bibliometrics is an essential tool for the assessment of scientific production. Studies using this methodology perform the analysis of intellectual networks by seeking trends on a specific subject or discipline, reveal the most relevant theories and the most productive scholars, as well as institutions, map the intellectual structure of a field of study (Pinto et al., 2014), and even identify gaps (Gall et al., 2015). This is done through the use of attributes or metadata such as titles, authors and affiliations, keywords, place of publication and references (Abbasi et al., 2014; Van Raan, 2005). Studies that make use of bibliometrics allow to ascertain the state of the art and the scientific evolution of a given field.

Scientometrics is a commonly used type of bibliometrics. It is based on the quantitative assessment of networks of ideas, academics and publications (Wang & Schneider, 2020), through mathematical and statistical technologies (Mao et al., 2018; Zhao et al., 2018). It allows to map a spectrum of scientific literature by making use of metrics, visual analysis and indicators that delineate relevant patterns and trends, in addition to significant scientific changes that help in the exploration and interpretation of intellectual structures and dynamic patterns (Chen, 2017). Building networks based on bibliographic data allows to assess impact and interdisciplinarity (Ávila-Robinson & Sengoku, 2017).

Bibliometric methods have a series of advantages. They are complementary to traditional review methods and help to increase the objectivity of this type of study (Zupic & Cater, 2015). Bibliometrics is noteworthy for its robustness characteristics, for allowing a more general assessment of science, which includes validity, as it prevents distortions during the internal selection of data; functionality, by providing assessments for scientists through the description of the method and subsequent aggregations; and cost and time effectiveness during execution (Abramo & D'Angelo, 2011). It is defined as one of the rare interdisciplinary research fields that extends to almost all fields of science (Glänzel, 2003).

Academic trajectory of Jürgen Habermas

Over the years, Habermas has obtained several academic titles and awards from renowned universities around the world, indicating that he is a recognized theorist in the areas of political science and culture. Siebeneichler (2018) considered Habermas the most productive, controversial, influential, prolific and revolutionary contemporary author, while pointing out that the correct understanding of his works poses a great challenge. Rouanet (2020) highlighted that Habermas has the merit of receiving the most varied appropriations of his valuable contribution, beyond the Northern Hemisphere. The author pointed to the incorporation of categories based on the Habermasian approach by authors who study broad and varied theoretical issues (interdisciplinarity), from the theory of law to colonial processes,

as a critical foundation that supports reflections on reality, or even discussing the democratic politics in the context of degradation around the world.

Habermas directs his studies towards his own positioning. Müller-Doohm (2016) mentioned that Habermas was regarded as “the other among his peers”, since he did not visualize the Frankfurt School program as well defined. Habermas considered that, in fact, there is no critical theory, a precisely grounded doctrine. To the author, the understanding of the link to the school occurred due to his academic performance, his occupation after Horkheimer’s, as well as his intolerance manifested in public policy interventions. In this sense, according to Müller-Doohm (2016), in 1970 Habermas began to build a particular pattern of communicative reasoning, moving away from the path taken by representatives of the First Generation of the Frankfurt School—Adorno, Horkheimer, Marcuse, who also pursued distinct and independent paths, moving away from the idea of unity (Müller-Doohm, 2015). Habermas moved away from the one-sidedness of rationality, until then instrumental, to a broader conception—communicative rationality (Habermas, 2012).

The communicative turn marks the turning point of Habermasian writings. For Müller-Doohm (2016), Habermas’s philosophy began to explain the conditions involved in establishing rational answers to moral and ethical questions. There has been a communicative turn in social theory, which derives from the rational potential of linguistic action. Habermas was associated with radically critical thinking in Marx, Hegel and Freud, as he suggested fundamental questions and translated in a dominant way the transitional periods of cultural and political liberalization in Germany. Although Kantian philosophy prevails in Habermas’s theory, he also appealed to Hegel (Nobre, 2012). Bottomore (2012) mentioned Habermas’s departure from the Marxist trajectory, pointing to a process of self-emancipation and self-creation. As Müller-Doohm (2016) mentioned, as a politically active intellectual, in a democratic State, Habermas began to have a voice, without holding a political office, being recognized as the main representative of the Second Generation of Critical Theory—although he did not assign himself that label (Müller-Doohm, 2015). Nigro (2009) observed that formal pragmatics marked the turn of Habermas, with a post-metaphysical and linguistic-pragmatic philosophical basis, recovering practical (communicative) reason and discourse. This does not mean that there was an abandonment of what had been learned from the subjectivist paradigm (Garland, 2014). This new communicative rationality by Habermas constitutes an attempt to respond to critics of modernity, still inspired by the Enlightenment and the transforming power of reflection. Such contribution, as stated by Nigro (2009), is an inspiration for most contemporary philosophers, thus transforming the bases that predict the relationship between law and society.

Habermasian precepts were also present in organizational studies. Lara and Vizeu (2019) intended to recover Habermas’s Frankfurtian characteristics, often distant from Critical Theory, by bringing him closer to organizational studies, in the sense of the emancipatory proposal. In their view, the foundation of Habermas’s studies provided the definition of new directions for the construction of a society further distant from the dysfunctions of the mechanisms of domination. Inocêncio and Favoretto (2019) also mentioned that the contributions of the Habermasian referential occurred under different perspectives and levels of the organizational phenomenon.

Habermas positions himself in Critical Theory, even in the face of inquiries. Despite the differences, Rouanet (2020, p. 15) stated that Habermas “remains faithful to the principles that organize Critical Theory as a tradition of thought”. Finlayson (2005) placed Habermas as a provider of a “grand theory” with questions that permeate modern society, language, politics, ethics, law, among others. As the author sees it, in a global view of his work five research programs are noteworthy: the pragmatic theory of meaning; the theory

of communicative rationality; the social theory program; the program of discourse ethics; and the program of democratic theory and law, or political theory. Savidan (2007, p. 7) claimed that Habermas developed his discussions “[...] in practically all areas of philosophy: epistemology, philosophy of history, philosophy of language, moral and political philosophy, social theory, psychology, etc.”.

Method

The present research is a scientometric study. Scientometric analysis starts from a quantitative analysis, but the presentation of results can also be qualitative (Chen et al., 2018). Through it, high-level insights are achieved in a research domain (Li et al., 2020b), measuring and assessing research performance far beyond citation analysis (Mingers & Leydesdorf, 2015). Networks are built from bibliographic data, which are used for quantitative impact and interdisciplinarity assessments (Ávila-Robinson & Sengoku, 2017).

Operationalization

Aware of the scientific contribution made by Jürgen Habermas in several areas of knowledge and the need for a better understanding of his work, we gave rise to the present study. In order to make it operational, we chose the Web of Science (WoS) database. According to Chadegani et al. (2013), the WoS database, which was derived from the Science Citation Index created by Eugene Garfield in 1960, has strong coverage and includes over 21,100 high-quality journals published worldwide, in more than 250 disciplines in the areas of sciences, social sciences, arts and humanities (<https://clarivate.com/webofsciencgroup/solutions/web-of-science-core> collection/, on June 21, 2021). WoS consists of one of the main databases including journals that meet the highest quality standards (Abadal, 2012). It is also noteworthy in the representation of metadata lists (Chadegani et al., 2013), without great need for manipulation (Santos, 2003), thus facilitating the organization and use in bibliometric software.

We obtained the corpus of analysis from the search for the string $AU = (\text{habermas}, j^*)$ in the WoS database in June 2021. The AU field label searches for all documents written by the author and registered in the database. The search for the string “habermas, j*” allowed to cover the variations of the author’s name: habermas, j; habermas, juergen; habermas, jurgen; habermas, juesrgen; habermas, jrgen.

Sample selection

After searching by author, we followed the process as shown in Fig. 1. Steps 1–3 allowed to obtain the S_A Set, with all publications authored or co-authored by Habermas. After the advanced search by author (step 1), we adopted a filter to define the appropriate document types (step 2). The selection by “Article” and “Review” was necessary as these are main categories that comprise full research ideas and results (Boudry et al., 2018; Romanelli et al., 2018). In step 3, we performed the procedures for exporting the file in TXT format containing the information from the publications obtained by the research for further bibliometric analysis. We selected all publications (limited to 500 records at a time) with complete, unformatted data. We obtained a total of 122 publications in S_A Set, composed

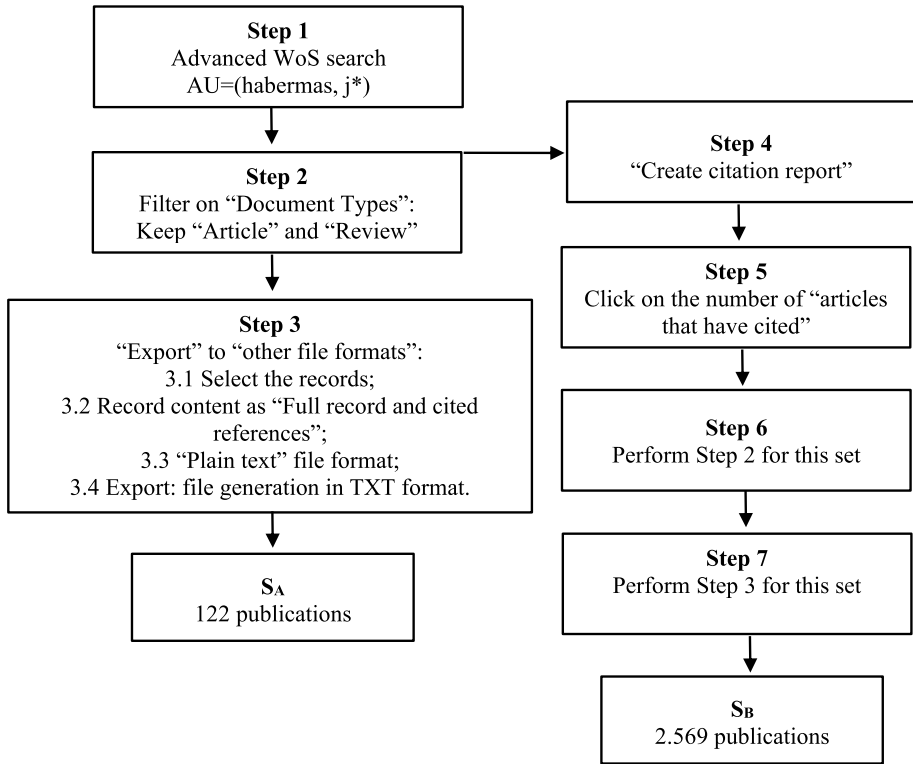


Fig. 1 Process for obtaining analysis sets in WoS

of publications authored or co-authored by Jürgen Habermas, in the period from 1945 to 2021.

Steps 1 and 2 (Fig. 1) followed by steps 4–7 allowed the formation of the S_B Set, composed of all the publications that cited the works of the S_A Set. We used the citation function, made available by WoS. Next, and applied the filter for articles and reviews. And the process of exporting the TXT file of this set occurred in the same way as in step 3. We obtained a total of 2569 publications in the S_B set that cited the publications of the S_A set.

Scientific analysis procedures for the SA and SB sets

From the total number of documents we gathered through the selection, the S_A set is composed of 120 articles and 2 reviews, and the S_B set is composed of 2456 articles and 113 reviews. We analyzed the data by using bibliometric analysis software. We used CiteSpace, a scientific mapping tool based on data such as those obtained from WoS (Chen, 2018). We replicated the analyses that Chen (2018) carried out for the assessment of Eugene Garfield’s academic impact, and we verified: temporal trends and citation analysis, dual-map overlay of main sources and journals, author keyword tree, co-citation network with cluster display. We also used complementary software as a support for the analyses—Bibliometrix (Aria, Cuccurullo, 2017) and VOSviewer (Van Eck & Waltman, 2010), aimed at analyzing and visualizing publication networks.

CiteSpace software allows the visualization and analysis of emerging trends as well as changes in the scientific literature, thus making it possible to identify intellectual turning points (Chen et al., 2010). According to Chen (2006), the intellectual basis of CiteSpace consists of co-citation networks, analyzing clusters as hybrid networks referring to co-cited articles and terms that cite these articles, from the tags as components of titles, abstracts and descriptors that sharply increase their frequency. CiteSpace's features were fundamental for what we aimed with this study—to analyze the impact of Jürgen Habermas's scientific production. From the analysis of the two publication groups herein proposed, it was possible to have a comprehensive understanding of Habermas's field of activity and also his main contributions, supported by relevant contextual aspects.

Results

Temporal trends and citation analysis

Citations allow to infer relevant information about an intellectual structure. Citing an article reflects its impact on the scientific community (Durieux & Gevenois, 2010) and is affected by research productivity as well as collaborative networks established among researchers (Uddin et al., 2019). Citation indexing was initially defined by Eugene Garfield as a means for retrieving information (Chen, 2018). Through citation analysis, it is possible to assess the evolution of emerging research topics and the intellectual basis of an area (Ye & Ge, 2019) and/or author.

Table 1 lists the 9 main citations found in the analyzed works by Habermas (S_A Set). The citations cover the period from 1969 to 1999 and four of them refer to the author's own works. The table was built in CitNetExplorer, with the option “include non-matching cited references” and a minimum number of citations 1 (diversity of citations inserted in Habermas's works).

The works in Table 1 express an important part of Jürgen Habermas's intellectual structure. We reached the titles of publications through a more specific search in different databases, as most of the data were incomplete, probably because they were books and from an older period, not conveying the information necessary for a more relevant interpretation. The two most cited works are two books, both with 5 citations. One of them is the book by Fritz K. Ringer, translated from German to English “The decline of the German mandarins: the German Academic Community, 1890–1933”, published in 1981. This book showed how the behavior of some intellectuals of superiority over class and socioeconomic interests facilitated the insertion of erudite German into the pseudo-idealistic world of antisemitism and aggressive nationalism (Ringer, 1969). The other book is by Habermas himself, published in 1992, with the title translated from German to English “Between Facts and Norms” (Law and Democracy: between facticity and validity). This book inaugurated communicative rationality (situated between the factual and validity dimensions) and discussed the democratic rule of law (Habermas, 1992). The other most cited publications, all with 4 citations each, translated into English were: “The cultural contradictions of capitalism”, Bell (1976)—“Scientific Organization and Political Experience: Studies on the first Critical Theory”, Dubiel (1978)—“Philosophical-Political Profiles”, Habermas (1981)—“Moral Conscience and Communicative Action”, Habermas (1983)—“The New Confusion”, Habermas (1985)—“Political Liberalism: reply to Habermas”, Rawls (1995)—“Two Theories of Modernity”, Taylor (1999). In his work, Bell (1976) highlighted

Table 1 Most cited references in Habermas's works (S_A Set)

Title	Authors	Year	Number of citations
The decline of the German Mandarins: the German academic community, 1890–1933	Ringer, F	1969	5.0
Faktizität und Geltung: Beiträge zur Diskurstheorie des Rechts und des demokratischen Rechtsstaats	Habermas, J	1992	5.0
The cultural contradictions of capitalism	Bell, D	1976	4.0
Wissenschaftsorganisation und politische Erfahrung: studien zur frühen Kritischen Theorie	Dubiel, H	1978	4.0
Philosophisch-politische profile	Habermas, J	1981	4.0
Moralbewusstsein und Kommunikatives Handeln	Habermas, J	1983	4.0
Die Neue Unübersichtlichkeit	Habermas, J	1985	4.0
Political Liberalism: reply to Habermas	Rawls, J	1995	4.0
Two theories of modernity	Taylor, C	1999	4.0

the contradiction between the type of organization prevailing in capitalism, with its economic norms, and the norms of self-realization essential in the current culture. Dubiel's work (1978) analyzed the historical-political process (1930–1945) for the development of Critical Theory. In "Philosophisch-politische Profile", Habermas (1981) described the profile of eight central German thinkers on philosophical consciousness: Martin Heidegger, Karl Jaspers, Karl Löwith, Ludwig Wittgenstein, Ernst Bloch, Herbert Marcuse, Theodor W Adorno and Arnold Gehlen. In "Moralbewusstsein und kommunikatives Handeln", Habermas (1983) founded his discourse theory and indicated, mainly, the program of justification of discourse ethics and critical approaches to the theory. The work "Die Neue Unübersichtlichkeit" addressed issues of democracy, law and the Welfare State (Habermas, 1985). In the article "Political liberalism: reply to Habermas", Rawls (1995) responded to Habermas's criticisms by discussing political liberalism in contrast to the Habermasian philosophical doctrine. Finally, in the article "Two Theories of Modernity" Taylor (1999) distinguished cultural and non-cultural theories of modernization.

Figure 2, built on the Bibliometrix, analyzes the evolution of the scientific production of the S_A and S_B sets. The publications by Habermas registered in WoS until the analyzed date comprise the period from 1970 to 2020 (Fig. 2). The articles are well distributed over the period, with an average of 3 publications per year, and a peak of 9 articles in 1988. Considering the works that cite Habermas, the WoS records follow an exponential trend, with citations of those works from the S_A Set appearing from the year 1975 until 2021 (until the date of the research—June). From 2017, Habermas's publications are cited by more than 200 articles per year, with the greatest highlight for the year 2019, with 234 articles cited. This tendency can be explained by the growth and dissemination of Habermas's works and his constant writing that fits the most debated topics today. As the author's citations grow, his expressive contribution is ratified as a foundation for later works.

Table 2 presents, among the 122 publications by Habermas, the top 10, which are most cited in the S_B Set (2569 publications citing Habermas as author or co-author). The most cited publication is Habermas's 2006 article, Religion in the public sphere (Table 2). The second most cited article, also from 2006, is the one that relates principles of deliberative democracy with the media context. The next four articles that were most cited correspond respectively to the following contents: main criticisms of political liberalism (1995); justifications for the elaboration of a constitution for Europe (2001); constitutional democracy (2001); theory of communicative competence (1970).

Dual-map overlays: SA and SB set

Dual-map overlays, according to Chen (2018), allow macroscopic views at a multidisciplinary level. They consist of two maps: one side (left) comprising those journals of origin (point of publication) and the other side (right) involving those "target journals", where the cited references of the article were originally published. According to Chen and Leydesdorff (2014), dual-map overlays facilitate the analysis of portfolios, as it allows the detection of areas of competence and patterns of movements in relation to different disciplines. In their view, they open assumptions for the grouping of scientific disciplines at the macroscopic level, as well as for the study of more specific specialties with a lower level of granularity. They also argue that overlay maps suggest new research and analyze gaps. It is important to mention that when the cited reference is a book, it does not integrate the base of the dual-map, not being shown in visualizations (Chen, 2018).

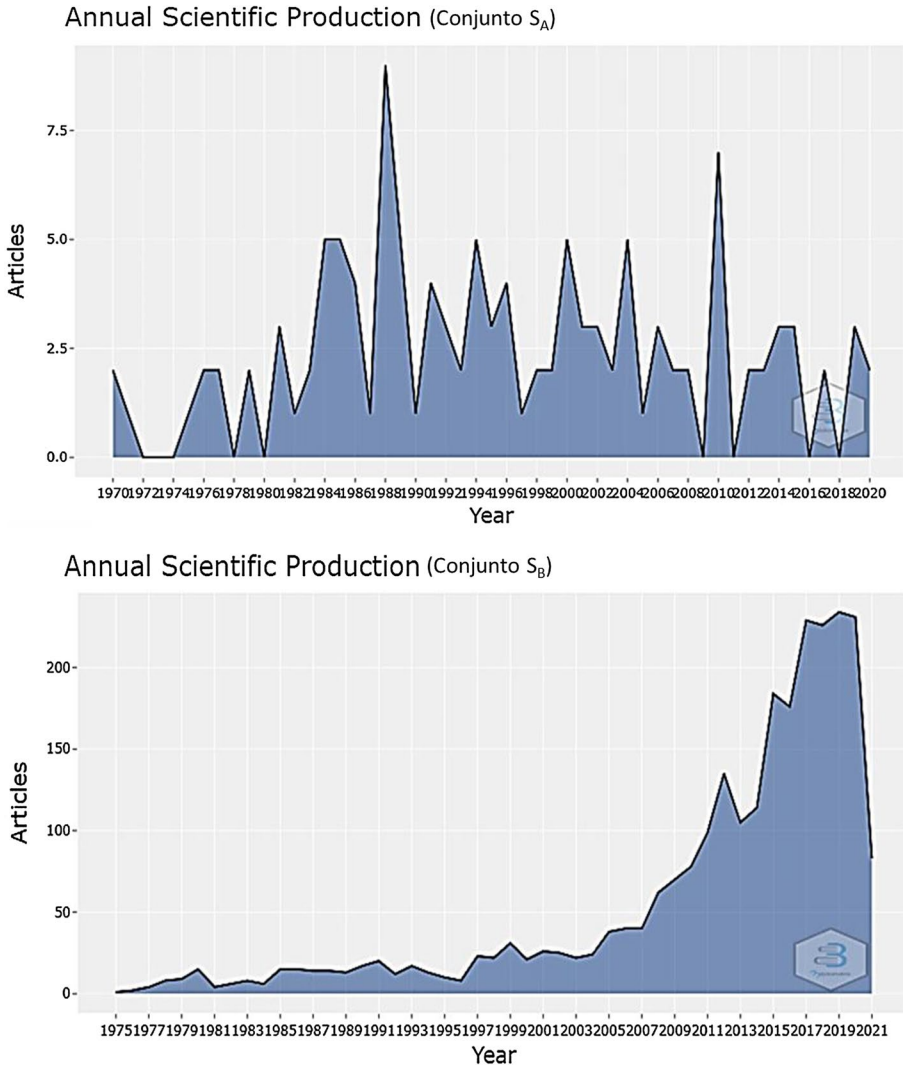


Fig. 2 Evolution of scientific production (S_A and S_B)

Figure 3 shows the dual-map overlay of Habermas’s publications, the S_A set, composed of 122 authored or co-authored publications. Citation links were grouped by using Cit-eSpace’s “z-score” function ($\alpha=100$). The source-journal groups consist of three main ones: molecular biology and immunology (yellow); medicine and clinic (green); psychology, education and health (cyan). Figure 3 shows that Habermas published in journals that reflect the WoS categories (Arts and Humanities; Social Sciences), which belong to the aforementioned themes—Economics, Politics, Psychology, Education. Destinations that indicate areas that the author cited the most are also concentrated in these areas.

Table 3 presents the main thematic areas of Habermas’s publications, based on the definitions proposed by WoS. The two most representative thematic areas correspond to Philosophy (38 publications) and Literature (30 publications). Following these

Table 2 Most cited references in the S_B set

Title	Journal	Year	Number of citations
Religion in the public sphere	European journal of philosophy	2006	752
Political communication in media society: does democracy still enjoy an epistemic dimension? The impact of normative theory on empirical research	Communication theory	2006	630
Reconciliation through the public use of reason—Remarks on rawls, john political liberalism	Journal of philosophy	1995	377
Why Europe needs a constitution	New left review	2001	305
Constitutional democracy—A paradoxical union of contradictory principles?	Political theory	2001	225
Towards a theory of communicative competence	Inquiry-An interdisciplinary journal of philosophy	1970	203
The concept of human dignity and the realistic utopia of human rights	Metaphilosophy	2010	162
Systematically distorted communication	Inquiry-An interdisciplinary journal of philosophy	1970	154
Arendt,H communications concept of power	Social research	1977	132
Modernity versus post-modernity	New German critique	1981	114

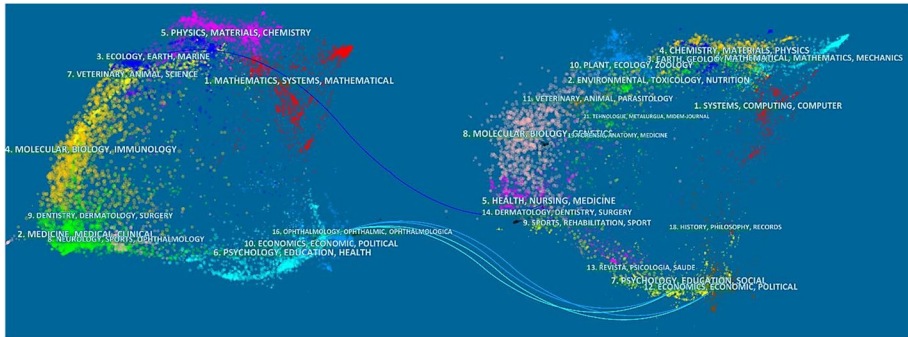


Fig. 3 Dual-map overlay of Habermas’s publications (S_A Set). (Color figure online)

Table 3 Thematic areas of Habermas’s publications (WoS)

Research areas	Records
Philosophy	38
Literature	30
Government law	19
Social sciences other topics	19
Arts humanities other topics	18
Sociology	7
Asian studies	3
Cultural studies	3
Business Economics	2
International relations	2
Art	1
Communication	1
Criminology penology	1
Education educational research	1
Social issues	1

groups, the topics of Government Law, Other Topics in Social Sciences and Other Topics in Arts and Humanities complete the five areas with the most publications by Habermas.

Figure 4 shows the dual-map overlay of the 2569 publications that cite the author’s works (S_A Set) in WoS. The two main clusters of the dual-map overlay of Habermas’s publications are also present in the map of the authors who cite his works (formed circles). It is also possible to visualize new trajectories of Economics and Psychology journals for the areas of Health and Medicine.

In addition, in Fig. 4 there is a connection between different disciplinary origins, also with an emphasis on Medicine, which culminate in the most representative circle of destination, moving on to other areas that are also different. Prusak (2005), for example, uses foundations proposed by Habermas to debate Bioethics.

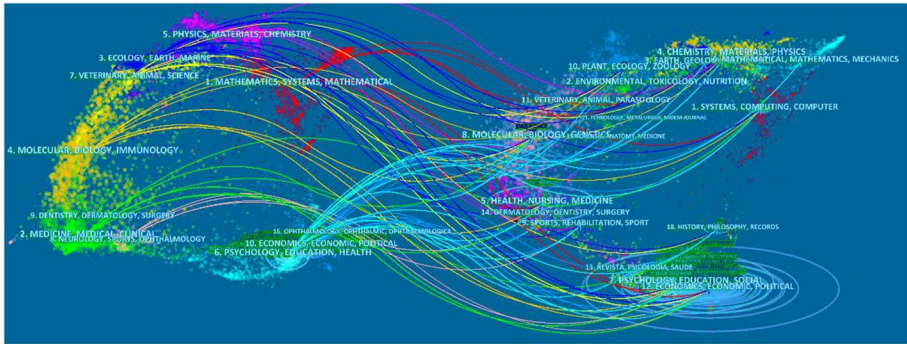


Fig. 4 Dual-map overlay of cited publications (S_B Set) *with z-score

Keyword co-occurrence analysis

Still in the field of key words, the analysis of co-occurrences culminated in the results presented in Fig. 5, which were prepared in the VOSviewer software. A network of key words indicates those that occur simultaneously in documents and reflect the themes of research publications (Van Eck & Waltman, 2014; Wuni et al., 2019). The size of the circles on the maps indicates the number of occurrences of the item—the larger the writing and the circle, the more important the item is—and the proximity between two items shows their degree of relationship, so that the closer they are, the more related they are (Van Eck et al., 2010). Items with a higher number of co-occurrences are located in the center of the map and those with a lower number are located on the periphery (Van Eck et al., 2010). And the colors show the formed groupings (clusters)—key words with the same color represent related themes.

The S_A Set network was built with the minimum number of occurrences established at 1, and the S_B Set with a minimum of 18. Of the 122 publications by Habermas, only 37 keywords met the defined limits and of the set of 2569 publications that cite the author, 98 words incorporated the network. In S_A Set, the red words have 2010 as the average year of publication; the green ones in the center of the figure have 2014 as the average year of publication; and finally the key words in light green have 2020 as the average year of publication. The words with the three colors mentioned presented as examples, respectively: civil rights, collective, human rights; Kant, morality; Hegel, Marx, ethical life. It is important to emphasize the three authors positioned as key words and who compose the theoretical framework of Habermas. The words Kant and Morality are considered the most relevant in terms of occurrence in the analyzed works of the author.

When analyzing the S_B Set, the three most representative colors are highlighted. The words in green color have 2015 as the average year of publication; the red ones have 2016 as the average year of publication; and finally the key words in yellow have 2014 as the average year of publication. The words with the three colors mentioned represent the three large groups that were built: democracy (green) and its related terms such as state, law and legitimacy; religion (red) and its references such as ethics and culture; communication (yellow), including media and deliberation. Democracy and Religion are themes that are explored with a higher incidence, thus indicating areas in which the Habermasian thought is more explored.

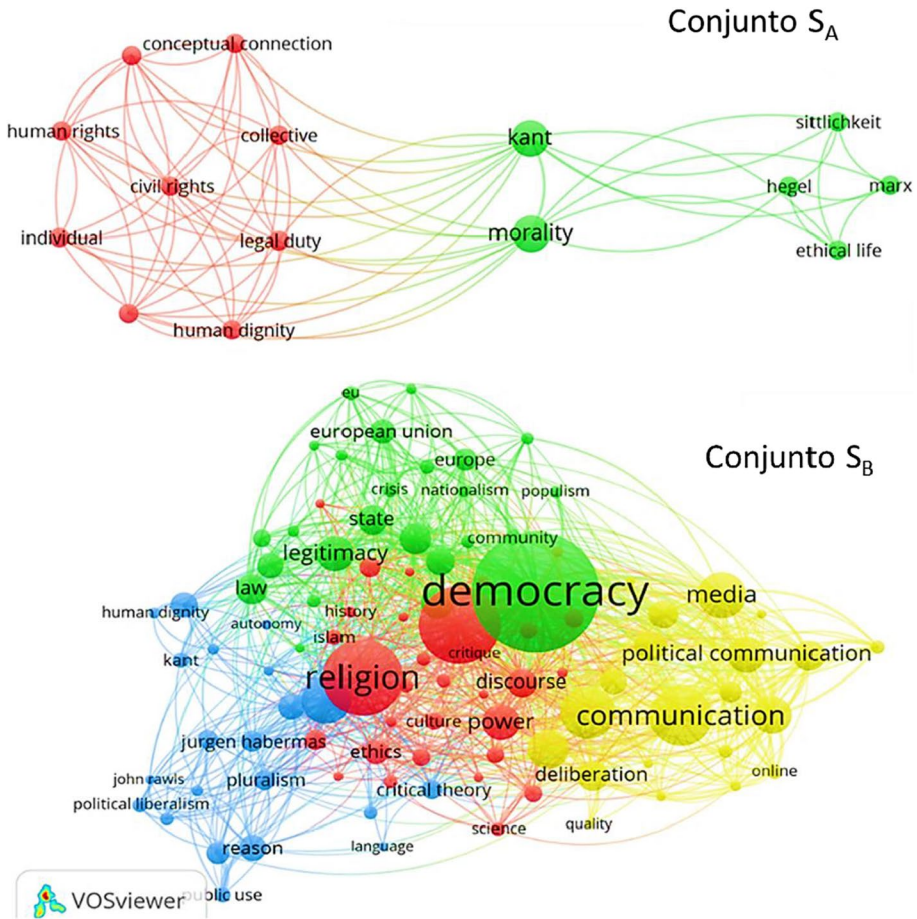


Fig. 5 Co-occurrence of key words in S_A and S_B sets. (Color figure online)

Co-citation networks with a clustered view

Co-citation provides a mechanism to aggregate local relationships, forming a representative network of a global structure (Van Raan, 2012). It makes it possible to assess how authors are cited by other authors and how they are grouped, indicating the most relevant connections and links established between authors cited in a same article. Figure 6 presents the main groups of co-citations from the citations made by the 122 publications by Habermas in S_A Set. Each representative area of the network, delineated by connecting lines, shows a cluster whose composition comprises the references of authors who are frequently cited. Each cluster receives a “label” according to the key words present in the articles that cite it, based on the LLR- log-likelihood ratio, a logarithmic property ratio (Chen, 2018). The cluster colors correspond to the average year of publication.

Figure 6 shows the co-citation network for the set of 122 Habermas’s publications. Cluster #0 (developmental history) is the most representative in terms of frequency and has as its main works the following: Dubie (1978)—the most cited; Adorno (1972);

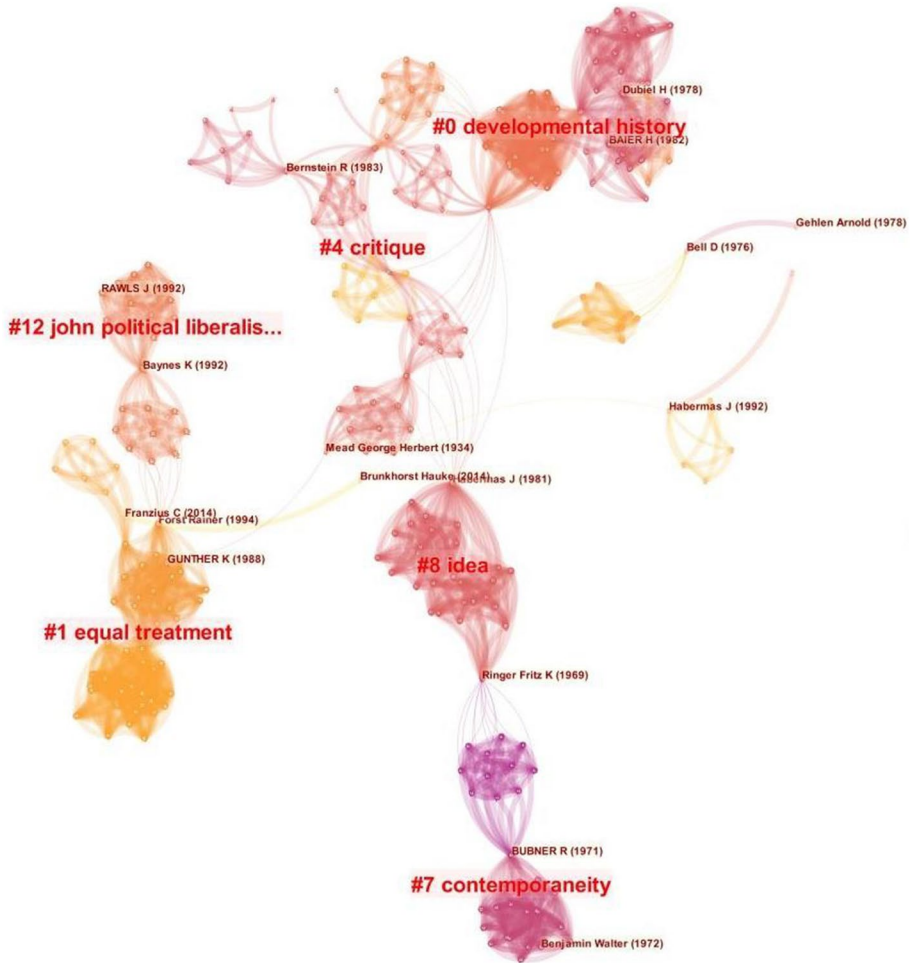


Fig. 6 Co-citation network from the set of 122 publications by Habermas

Habermas (1985); Finkeitel—1980; and Baier (1982). It contains critical and reflective approaches on the development of modern society. Among other works that make up the cluster is the one by Adorno and Horkheimer (1947)—“Dialectics of Enlightenment”, being these members of the First Generation of the Frankfurt School and precursors of Habermas.

Cluster #1 (equal treatment) composes the group with the most recent contributions. It presents social approaches, the most representative being the works of Fraser (2000), Galston (1995), Forst (1994) and Honneth (2000). Fraser’s article—“Rethinking Recognition”—works, for instance, with questions about recognizing differences and marginalized identities.

Cluster #8 is the oldest but also goes to more recent years, although it brings a vague concept by employing the word “idea”. The other views allow us to understand the scope and directions of more contemporary research, represented at its end by the “equal treatment” cluster, as previously discussed.

The same analysis procedures were applied to S_B Set, with 2569 publications, as shown in Fig. 7. The expressive words of the titles that “labeled” the clusters present terms such as “critical reflection”, “human rights”, “public sphere” and “spirituality”. Cluster #0 (critical reflection) is the most representative in terms of frequency and presents as authors of the main texts: Habermas (2006)—the most cited; Taylor (2007); Habermas (2011); and Beckford (2012). The article by Habermas refers to the work “Religion in the Public Sphere”, covering two central concepts in his theory. The other three works also discuss about critical reflections on such themes.

Cluster #13 (digital public sphere) composes the group with the most recent contributions. It presents as the most representative the works by Bennett (2018); Chadwick (2017);

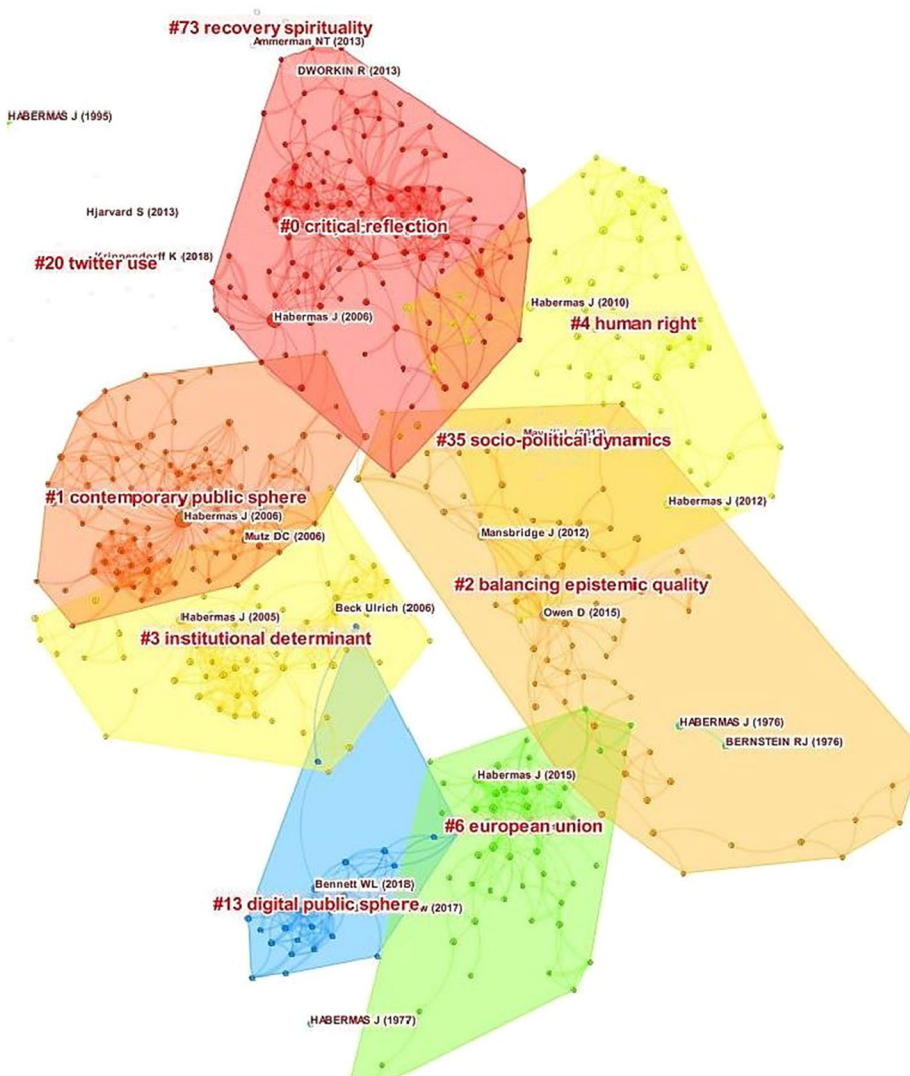


Fig. 7 Co-citation network from the set of 2569 publications citing Habermas

Van Aelst et al. (2017); and Toepfl (2015). These new perspectives from the works that cite Habermas bring a reconfiguration of the public sphere, adapting it to the new possibilities provided by the media field (and its repercussion in information and communication technologies), for instance Bennett (2018)—“Rethinking political communication in a time of disrupted public spheres”, also with associations to the field of democracy, as in the work of Van (2017)—“Political communication in a high-choice media environment: a challenge for democracy?”.

Cluster #0 is the oldest and refers back to the origins of “critical reflection” (most representative). It is positioned next to cluster #3 “institutional determinant”. “Digital public sphere” appears as a very current topic. Public sphere is one of the central terms in Habermas’s works and is often thought of when it comes to recent contexts in the world of the internet and other media scenarios, as we showed in the previous section with the analysis of this cluster.

The clusters also reveal the interdisciplinarity and coverage of Habermas’s works as well as the texts that cite the author. Contrasting the two maps presented in this section, it is possible to notice an evolution and multiplicity of themes from the S_A to S_B set, which indicates the multidisciplinary influence of the Habermasian theory and its remarkable impact. Criticism and analysis of contemporaneity remained in both sets, themes almost always recurring in debates involving the author.

Discussion and final remarks

The present work demonstrates the extent and depth of Habermas’s academic impact on the publications that make up the WoS records. The analysis of citations, visualizations of temporal patterns and composition of keywords with indication of trends allow the assessment of the author’s production through different connections, transferred to a broader level. It was possible to identify that the works that use foundations brought by Habermas are transferred to different areas of the scientific domain. His theoretical framework has also been consistently disseminated over the years.

We present an analysis of the academic impact of Habermas, based on a preliminary scientometric evaluation, besides the main works of the author and those that cite him, starting from the research conducted in the WoS database, with a subsequent analysis in the CiteSpace software and other complementary ones. The results allow the visualization of the dual-map overlay that shows the multidisciplinary of the impact provided by the Habermasian thinking. The keyword tree and co-occurrences allow the identification of central themes covered by the author and those that serve as a basis for other studies. Co-citation networks with cluster display identify those groups of most cited authors and their respective works, with an emphasis on the “development history” and “critical reflection” clusters. This analysis also brought about a temporal perspective, with the display of the “most recent” clusters, by placing them in the time horizon that we proposed to study.

This article contributes to a broad understanding of the work and academic impact of Jürgen Habermas’s publications, from which researchers can support each other, while facilitating the understanding of his work, theories and relationships between the areas of study and themes herein outlined. The study also allows the identification of new directions and a clear and introductory synthesis to guide new researchers who want to use theories and thoughts proposed by Habermas. The analyses conducted constitute a complement to those biographies that assess the author’s academic trajectory and theoretical contributions.

There is also a broader complement to the study by Gabriel et al. (2021), who analyzed in a more limited way the influence of Habermas in Information Science, but who highlighted, through the analysis of citations important works of the author, some of which are also detailed in our article—“Moral Consciousness and Communicative Action” and “Law and democracy: between facticity and validity”. Our study also corroborates the work of Hofmann (2021) who prioritizes the public sphere in Habermas’s trajectory. This topic was considered of academic interest and opens space for interdisciplinarity and current research trends.

Current themes seek to be correlated with precepts widely debated by Habermas. The author, in the same vein, calls attention to the need for adequate scientific constructions in his time. As we discussed in this work, the author’s most recent publications have solidified over the years, proving his linearity in contributing to debates relevant to the academic environment and also applied to society, given his significant focus on social issues. In this way, the article allows deeper connections with the contents expressed by the works of those who cite Habermas, also contributing to the identification of trends that can generate further explorations. Furthermore, the public sphere theme is a possibility for future studies, which can be better explored and adapted to the new configurations experienced by society, such as digital media, and also correlated with topics related to democracy and power.

Research limitations

The citation analysis that we conducted in this study has limitations such as the dependence on citations that accumulate over time. Indicators of this technique tend to disregard newly published articles, which take time to be developed, leading to “delayed recognition” (Garfield, 1980). Although these cases are not so common (Glänzel, 2008), as an alternative it is possible to assess the potential of an article with the aim of establishing relevant and/or unprecedented connections between different clusters (Chen, 2017). It is necessary to identify the extent to which a newly published article influences the conceptual structure of the knowledge domain under analysis (Chen, 2012). There are also cases where there may be citations that do not always reflect the quality of the publications. However, “negative” citations rarely occur and do not significantly influence the analyses (Pendlebury, 2009).

The bibliometrics we performed did not involve a more in-depth study of the content of Habermas’s literature. The article presented a comprehensive scientometric view (based on quantitative indicators) on the works of Habermas and those that cite him, being limited by the lack of theoretical depth of the related publications. Studies that aim to analyze the content this work results in more detail by employing additional methods may provide even more in-depth discussions of a qualitative nature. It is possible to analyze the context of citations and adopt, for example, hybrid adjustable text/citation techniques in conjunction with bibliometrics so that even data from those fields where citations do not play a relevant role can be retrieved (Glänzel & Thijs, 2011).

The study presented gaps regarding Habermas’s bibliographic production. The scope of the study was limited by the Web of Science database. Indicators are used for works available in bibliographic repertoires, publications and conference proceedings (Abramo & D’Angelo, 2011; Abramo et al., 2011). If the database is wrongly defined, bibliometric indicators may incur in biases concerning countries, disciplines and journals (Zitt et al., 2003). The set of documents is never exhaustive and completely free from noise, but

when data retrieval meets the search criteria and limits are set for the metric components, desirable results can be achieved (Glänzel, 2014). Although the defined sample meets the objective of this article and the selected base is suitable and representative, it is possible to expand the sample with the insertion of other relevant databases for the assessment of Habermas's work. Research can be expanded and developed in other bases, with the objective of deepening the results obtained in the present work.

Declarations

Conflict of interest The authors declare that there are no conflicts of interest.

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