

**THE PATHS OF COLLECTIVE COMPETENCE RESEARCH**  
**OS CAMINHOS DA PESQUISA SOBRE COMPETÊNCIA COLETIVA**  
**LOS CAMINOS DE LA INVESTIGACIÓN DE COMPETENCIA COLECTIVA**

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Scientific Editor: José Edson Lara  
Organization Scientific Committee  
Double Blind Review by SEER/OJS  
Received on 12/12/2021  
Approved on 10/08/2022

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## Abstract

**Objective:** This article aims to identify the progress of research on the collective competencies (CC) theme through the analysis of scientific production published in Brazilian and international journals.

**Methodology:** a systematic literature review was conducted using 62 publications from the Brazilian Scielo and Spell databases and the international Scopus and Web of Science databases, with the temporal evolution from 1985 to 2019.

**Relevance:** This article sought to develop insights and evidence that portray how CC research has developed over the past 34 years. It demonstrated the practical advances regarding research on the subject to identify gaps in future research.

**Results:** In the studies carried out in Brazil, there was a greater emphasis on CC's study as the central research theme, contributing to greater visibility. At the international level, the research, in its majority, is aimed at secondarily recognizing the CC.

**Contributions:** this article serves as a map that points out possible paths for conducting future research. Theoretical contributions to understanding CC are presented. CC is a theme still little explored in the academic and managerial environment. We have identified the most referenced articles, the authors who have published the most, areas of knowledge of the research, topics addressed, and methodologies used.

**Keywords:** Collective competencies; Systematic literature review; Scientific production.

## Resumo

**Objetivo:** o objetivo deste artigo é identificar o avanço da pesquisa sobre o tema competências coletivas (CC) através da análise da produção científica publicadas em periódicos brasileiros e internacionais.

**Metodologia:** foi realizada uma revisão sistemática da literatura com 62 publicações das bases de dados brasileiras *Scielo* e *Spell* e as internacionais *Scopus* e *Web of Science*, com evolução temporal de 1985 a 2019.

**Relevância:** este artigo procurou desenvolver *insights* e evidências que retratem como a pesquisa sobre CC vem sendo desenvolvida nos últimos 34 anos, demonstrando quais são os efetivos avanços, até o momento, referente a investigação sobre o tema, a fim identificar lacunas de pesquisas futuras.

**Resultados:** nos estudos realizados no Brasil, observou-se uma maior ênfase do estudo das CC como temática principal de investigação, contribuindo para maior visibilidade ao tema. No âmbito internacional, as pesquisas, em sua maioria, estão direcionadas para reconhecer as CC de forma secundária.

**Contribuições:** este artigo serve como um mapa que aponta possíveis caminhos para realização de pesquisas futuras. Contribuições teóricas sobre a compreensão da CC são apresentadas, uma temática ainda pouco explorada no meio acadêmico e gerencial, identificando os artigos mais referenciados, os autores que mais publicaram, áreas de conhecimento das pesquisas, temáticas abordadas e metodologias utilizadas.

**Palavras-chaves:** Competências coletivas; Revisão sistemática da literatura; Produção científica.

## Resumen

**Objetivo:** el objetivo de este artículo es identificar los avances de la investigación sobre el tema competencias colectivas (CC) a través del análisis de la producción científica publicada en revistas brasileñas e internacionales.

**Metodología:** se realizó una revisión bibliográfica sistemática con 62 publicaciones de las bases de datos brasileñas *Scielo* y *Spell* y de las bases de datos internacionales *Scopus* y *Web of Science*, con evolución temporal de 1985 a 2019.

**Relevancia:** este artículo buscó desarrollar *insights* y evidencias que retraten cómo se ha desarrollado la investigación sobre CC durante los últimos 34 años, demostrando cuáles son los avances efectivos, hasta el momento, con respecto a la investigación sobre el tema, con el fin de identificar brechas en futuras investigaciones.

**Resultados:** en los estudios realizados en Brasil, se hizo mayor énfasis en el estudio de la CC como tema principal de investigación, contribuyendo a una mayor visibilidad del tema. A nivel internacional, la mayor parte de la investigación está orientada a reconocer la CC de manera secundaria.

**Contribuciones:** este artículo sirve como un mapa que señala posibles caminos para futuras investigaciones. Se presentan aportes teóricos sobre la comprensión del CC, tema que aún se explora poco en el ámbito académico y gerencial, identificando los artículos más referenciados, los autores que más han publicado, áreas de conocimiento de la investigación, temas abordados y metodologías utilizadas.

**Palabras-claves:** Competencias colectivas; Revisión sistemática de la literatura; Producción científica.

## 1 INTRODUCTION

The competence approach is a complex issue that has been discussed and researched in three dimensions in management (Lima et al., 2012): organizational, individual, and collective. Two of them show a trajectory already consolidated in the academy: organizational competencies, as an unfolding of the Resource-Based View and the concept of core competence (Prahalad & Hamel, 1990) and the individual competencies, an approach that is already widespread in the organizational environment (Dutra, 2007; Zarafian, 2001).

Regarding the collective competence (CC) theme, it is recognized that its development can improve work teams' performance in organizations (Retour & Krohmer, 2011). It has not yet received the same degree of attention as the other dimensions of competencies (Avelino et al., 2017; Lima & Silva, 2015).

Todero et al. (2016) highlight that the CC is related to the ability of a group of individuals to collaborate towards a common goal, with the constitution made possible through the recurrence of activities and practices of a collective nature (Silva & Ruas, 2016). Therefore, acting with competence can be considered a junction between the individual and an actual work situation, where the shared values that structure collectives are present (Araújo et al., 2019).

The development of social relationships and a sense of interdependence between teams from the same organization allow them to learn together and understand their roles and responsibilities, contributing to CC (Liberati et al., 2019). A team will mobilize a CC to analyze or explore solutions collectively, using collaborative practices to face the unexpected. Thus, promoting CC and equipping teams with practical and straightforward management tools is a path that is being researched (Gentil & Chétodel, 2018).

Our problematic and research justification are based on three main points. Firstly, the discussion on the CC theme is complex, heterogeneous, and has the possibility of multiple interpretations (Silva et al., 2022). Second, the competence literature neglects the codimension by studies focused on individual and organizational dimensions (Silva et al., 2021). Furthermore, thirdly, some authors have pointed out the lack of empirical research on the CC theme (Avelino et al., 2017; Lima & Silva, 2015; Silva et al., 2021).

This research contributes to filling this gap helping to better understand a little tangibility phenomenon, such as CC, through a systematic literature review about the content of CC investigations. Based on the exposed problem, the question is: How has research on CC been developed, and what are its prospects? In which areas of knowledge are the works inserted? What are the significant works and authors? To answer these questions, this article aims to identify the progress of scientific research on CC.

The conceptual bases and functional and social perspectives are discussed to approach the CC theme. Furthermore, a table with the characteristics of the conceptual content of the CC is presented. Then, the methodological procedures used for the systematic literature review are described. Finally, the main research results and final considerations are highlighted.

## 2 THEORETICAL REFERENCE

Etymologically, the word competence comes from the Latin *competens*, which means "who goes with," and is essentially rooted in action and presupposes a dynamic interaction process (Dupuich, 2011). The concept of CC was initially linked to the socio-cognitive phenomena analyzed mainly in psychology and ergonomics, in the context of workgroups, emphasizing groups and teams (Michaux, 2011). The notion of CC has been deepened in French literature (Zarafian, 2001; Le Boterf, 2003; Boreham, 2004) to understand its nature and manifestations. In contrast, Anglo-Saxon research (Weick, 1993) was concerned with the link between collective functioning and performance (Defelix et al., 2014).

The concept of CC is appropriate (Silva & Ruas, 2014) because it is comprehensive and brings together different cognitive and social phenomena, assisting in acting and reacting collectively. In this way, the CC refers to individuals' workgroup participation and interaction. It represents all their knowledge and know-how to deal with different work situations (Avelino et al., 2017). They are perceived when people are mobilized to come together, focus on the desired results, and then take steps to achieve them (Mancini et al., 2018). CC is relevant to the success of work activities and, consequently, to the collective effectiveness of work teams (Adams & Forsyth, 2006).

For Lingard et al. (2017), CC is a dynamic and evolutionary process influenced by its contexts of time and space. These contexts are incorporated into tacit knowledge and not represented by prescribed knowledge, arising from the unpredictable way as the system self-organizes to adapt to the usual dysfunctions. Dupuich (2011) adds that CC is built by sharing knowledge and experience in work situations. The bonds of collective reflection create a shared understanding with the potential to increase team CC (Ohlsson, 2013). For this to happen, managers must recognize these work situations' characteristics, especially in terms of the nature of the activity, how the profession is conducted and the value of the experience (Iazykoff, 2018).

Boreham (2004) highlights three principles that a work team seeks to conform to act with competence at the collective level. The first principle consists of the collective sense of events in the workplace. To deal with issues skillfully, it is necessary to give meaning to the

situation. The second principle involves developing a collective knowledge base in which the organization's uniqueness depends on its ability to generate a knowledge structure. The third principle consists of interdependence between team members since the collective activity demands cooperation and communication between the subsystems.

Amid this discussion on the identification of principles of competence at the collective level, it is possible to find the contribution of some authors who argue the analysis of CC on two dimensions: functional and social (Michaux, 2011; Klein & Bitencourt, 2012; Macke & Crespi, 2016). The functional perspective perceives the organization from its main functions and analyzes a company's competencies through its functional areas. In this logic, the CC would be necessary to perform the company's functions connected to its organizational strategy, that is, the integration of the main functions (functional CC) and which can provide a sustainable competitive advantage (Ruas, 2008). The functional dimension focuses on implementing organizational competencies in different processes, levels, and sectors through specific knowledge, skills, and activities (Macke & Crespi, 2016).

From the social perspective, the work community is defined by interdependence, characterized by an effective interaction between the different individuals that compose it (Loufrani-Fedida & Angué, 2011). The interaction of these members is essential, as people share different knowledge, points of view, or beliefs analyzed by the collective, creating a synergy that results in CC (Tello-Gamarra & Vershoore, 2015). Interpersonal relationships are the key to creating and maintaining trust between team members and the knowledge in these established relationships (Johansson & Wallo, 2020). In this way, CC is formed around the interactions between people at work (Dupuich, 2011). Specific competencies persist despite some individuals' departure, and newcomers reconstruct others through interactions (Le Boterf, 2003).

Research on the CC theme is still considered embryonic. It cannot be said which of these dimensions (functional and social) is the most appropriate alternatively, whether they are exclusive or complement each other (Bitencourt et al., 2013). Although they are different perspectives, some authors develop studies under the functional focus. However, they also deal with the social issue and vice versa, thus characterizing a complementarity logic, having specific aspects of the context, and performing the action (Todero et al., 2016). A common

aspect of both dimensions is managing individuals with different competencies and producing the necessary synergy to achieve organizational goals. The challenge is to train, articulate, and combine these individuals at the intra and inter-organizational levels (Rosa & Bitencourt, 2010). In summary, mobilized by the need to work as a team to achieve a specific objective (functional dimension), social relations within the group are intensified (social dimension), which develops the collective character of the work in the group question.

Functional or social CC provides more efficient ways for the teams to perform their work routines (Broman et al., 2019). They are a collective action carried out by several individuals working jointly for a common purpose (Nielsen, 2003). Besides, they require the ability to understand other members' actions and adjust them based on their information (Frohm, 2002). In this way, collaborative work allows sharing information, knowledge, skills, and resources to solve problems and increase effectiveness (Hedjazi, 2018).

Therefore, the CC construction process is enriched by collaborative activity through exchanges, confrontations, negotiations, and interpersonal interactions (Hedjazi, 2018). For CC to emerge, it is assumed that rules and conditions are needed to create relevant combinations of competencies (Le Boterf, 2003). The emergence of CC can only be achieved through permanent interactions between people and organizations, becoming part of a context of unpredictability, freedom, and will (Dupuich, 2011). CC development comes from socialization, which develops the understanding of the work process and the sharing of knowledge by team members (Sandberg, 2000).

To better understand the CC theme, a synthesis was structured in Table 1. It presents the characteristics of its content, the critical attributes for its constitution, the sources for its creation, its constitutive elements, and the determining factors for its development.

**Table 1**  
Conceptual characteristics of Collective Competencies

Characteristics	Categories	Description	Authors
Content	Knowing how to create shared representations	A specific way of guidance in a complex situation. Composed of collective values, priorities, norms etc.	Le Boterf (2003)
	Knowing how to communicate	Development of a common language belonging to a team, used in relation to their practices.	



	Knowing how to cooperate	Cooperation and daily mutual help, in which speech and discussion take place to find a solution to a problem.	
	A knowledge to learn collectively from experience	The team collectively draws lessons from its experience. Some knowledge or know-how is acquired by experience.	
Attributes	Common reference	Refers to a common representation of the work to be done.	Retour and Krohmer (2011)
	Shared language	Language that allows team members to forge their own identity.	
	Collective memory	It is linked to learning; it is learning collectively through experience.	
	Subjective engagement	Subjective mobilization of people oriented to the company as a whole.	
Sources	Capital of individual competencies	They are dependent on the individual competencies expressed by each of the employees, who make up the group the collectivity considered.	Lima e Silva (2015); Retour and Krohmer (2011)
	Affective interactions	It allows the constitution of a community and a greater willingness for the individual to carry out teamwork.	
	Informal interactions	Create and stabilize shared forms of CC.	
	Cooperation	Reciprocal understanding and the meaning given to actions and convergence of motivations of individuals who act together.	
	Team composition	The most harmonious combination of talents, compatible with the personalities of everyone, must be found.	
	Formal interactions	Installation of formal structures that allow people to be held accountable and involved.	
	Management style	Know how the organization learns the group's autonomy and initiative.	
	Factors related to Human Resource Management	Recruitment, evaluation, development, training, or training actions must be linked to their development.	
Elements	Sensemaking	Team's ability to make action meaningful, creating collective experiences.	Klein and Bitencourt (2012)
	Shared understanding	Meaning of work, structured by the construction of meanings of activities.	
	Action	It concerns the fact that competence only happens through action, they present routine and reflective moments.	
	Coverage	The idea of time and space. Time is an element that involves experience and tacit knowledge for practical competence. The space concerns the place where the interaction takes place.	
Development	Dynamics of activities in the professional context	How activities are divided in the context of professional action and the way teams do their work.	Lima and Silva (2015)
	Staff	Individual competencies of members, the	



		number of people in the sector and allocation by profile in each coordination.
	Individual characteristics and provisions	Willingness of employees to learn and teach, as well as the ability to integrate and communicate with the team.
	Team integration	Ability of the group to interact and share experiences.
	Communication	It enables the dissemination of individual knowledge and the sharing of social experiences.
	Physical structure	Physical space that welcomes employees in the learning and development of CC.
	Manager's role	Related to the behavior of managers in the learning process.

Given the exposed in Table 1, some reflections on the CC characteristics can be highlighted:

a) the contents of the CC allow their recognition and reinforce the importance of collective learning for directing collective work activities (Le Boterf, 2003);

b) attributes are essential for the constitution of CC and can contribute to a more specific definition of them (Retour & Krohmer, 2011);

c) the sources of creation of CC emphasize the need to confront work situations for their construction (Iazykoff, 2018);

d) the constituent elements of the CC provide actions and strategies to stimulate the emergence of these competencies, being closely related and not be possible to consider them separately (Klein & Bitencourt, 2012);

e) the development of CC involves practices to increase collective skills and the adjustment of teams to work, promoting cooperative relationships, more significant learning, and better performance (Le Boterf, 2003; Lima & Silva, 2015);

f) interaction, the participation of individuals, and cooperation are essential for the emergence and development of CC (Klein & Bitencourt, 2012).

### 3 METHODOLOGICAL PROCEDURES

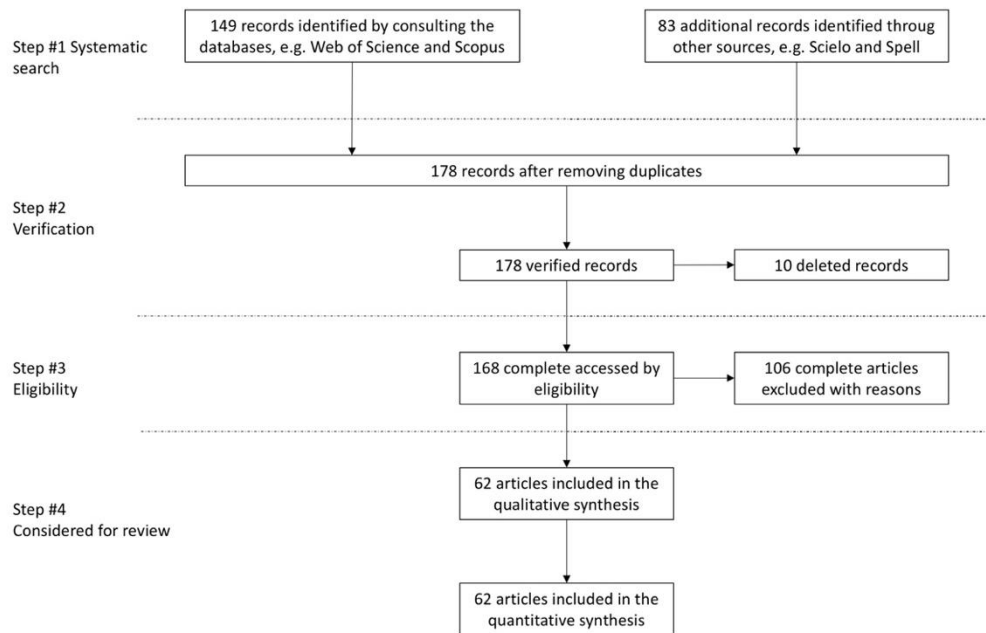
This study is classified as exploratory since its objective is to identify the evolution of a research theme (CC) based on the analysis of scientific production published in Brazilian and international journals. A literature review was used to advance this objective, characterized as



an updated and structured overview of the literature in a specific area, which seeks to add value through interesting conclusions (Wee & Banister, 2016). The systematic review was conducted using selection criteria for data extraction and synthesis to find all relevant studies (Silva, 2019).

For data analysis, publications from the Brazilian Scielo and Spell databases and the international Scopus and Web of Science databases were used. There was no previous time interval definition since it sought to analyze the most significant number of possible articles on the theme until 2019. The search in the databases was performed in July 2020. The databases searched articles that contained the word "collective competence(s)" in the title, abstract, or keywords in Portuguese, English, Spanish, and French. Only articles that contained any discussion about CC were selected for systematic review (inclusion criterion). On the other hand, those that only cited the term and did not bring empirical or theoretical discussion were excluded (exclusion criterion). For better management of references in the databases, the articles were imported into Endnote software version x.9.

Figure 1 presents the articles found in the researched databases according to the flow of procedures for the treatment of documents participating in a systematic review proposed by Silva (2019) adapted from Moher et al. (2009) composed of four steps: Systematic search, Verification, Eligibility, and Considered for review. The first step, Systematic search, resulted in 149 records in international databases (Web of Science and Scopus) and 83 in national databases (Scielo and Spell), totaling 232 records. After removing duplicate records, ten records were excluded in the second step (Verification) because they had restricted access. In the third step, Eligibility, 168 articles were selected for full-text review to verify their eligibility and application of inclusion and exclusion criteria. Of these, 106 articles were excluded for not presenting a discussion on the researched topic. Thus, in the fourth step, considered for review, the final number of records considered for review that met the inclusion criteria was 62 articles.



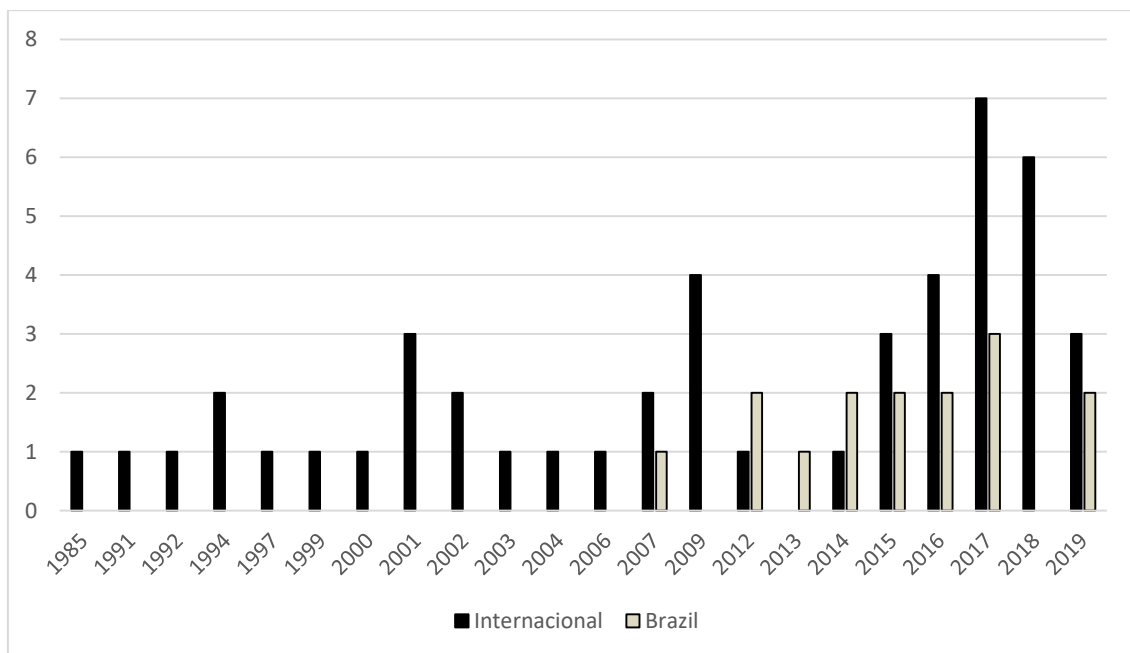
**Figure 1.** Procedures for handling participating documents

In the exploration phase, some analyses were selected, which were adapted from the options proposed by Wee and Banister (2016) to generate added value for a literature review: Empirical insights, Theories, Gaps in literature, Research agenda, and Methodologies. In Empirical Insights, the authors propose a synthesis of what is already, or perhaps what is not, known in the literature on the researched topic, so we carry out the following analyses: a) characterization of publications, with verification of article numbers per year, areas of knowledge, prominent journals, thematic focus, and most referenced works; b) characterization of the production, presenting the authors who published the most and those who published together.

In Theories, the authors suggest an investigation of the different theories used. We chose to carry out the following analysis: c) CC concepts defined by the authors. In Gaps in literature and Research agenda, the authors analyze the main gaps in the literature and the paths for future research, to which we conducted: d) research gaps and agenda. Finally, in Methodologies, the authors show an analysis of the methods used, where we verify: e) types of research; f) methodological paths; and g) data collection techniques.

#### 4 ANALYSIS AND DISCUSSION

This section presents the interpretation of the results referring to the analysis of the 62 articles selected from the Scielo, Spell, Web of Science, and Scopus databases. Figure 2 shows the temporal evolution (from 1985 to 2019) and the number of articles published in Brazilian and international journals.



**Figure 2.** Evolution of the number of articles per year

The first article published on the research bases was the international article by Zeeuw (1985). It brings support systems to restrict or improve certain types of CC, helping to solve the problems of individuals in a varied and flexible way. The last Brazilian article by Broman et al. (2019) was published. They carried out a study on budgetary organizational routines, identifying evidence of workgroups and forming CC attributes.

The results shown in Figure 2 indicate that publications focusing on CC are still relatively scarce in both Brazilian and international journals. Even though the international production is, in the period was more than three times higher than the Brazilian one. The total average of publications is 2.81 articles/year. However, it is observed that 51.61% of the articles were published in the last five years, showing an increase in interest in studies on CC. The most significant number of articles were published in the year 2017 (10 articles),

followed by 2018 (6 articles) and 2016 (6 articles). This recent growth could be linked to disseminating collective work modalities, such as teams, project groups, and squads.

The analyzed articles were classified according to the journals in which they were published, following the areas of knowledge proposed by the Coordination for the Improvement of Higher Education Personnel (Capes), shown in Table 2.

**Table 2**  
Knowledge areas

Knowledge areas	Number of articles		
	Brazil	International	Total
Applied Social Sciences	12	21	33
Human Sciences	02	16	18
Health Sciences	-	09	09
Engineering	01	01	02

There is a prevalence of Brazilian and international articles in Applied Social Sciences. A total of 33 published articles, representing 53.22% of the sample, reveal the recent interest of academic researchers and professionals from organizations. This prevalence could be explained by organizations' growing concern for developing work teams to improve performance and reach results. They make CC an essential element to understanding this collective dimension increasingly present in the organizational context (Klein & Bitencourt, 2012).

The Human Sciences theme appears in 18 articles, working on learning, behaviors, and collective actions. In the second place, nine international articles in the Health Sciences area addressed interprofessional relations and training and team development, and 1 Brazilian article in Engineering considering the importance of organizational culture in competency management.

The articles specifically addressed the CC theme, and the articles that addressed the CC within secondary themes are visible in (Table 3). It is noticeable that the Brazilian scientific production has a more significant number of articles with an exclusive focus on the CC. On the other hand, international production presents many articles associating CC with secondary themes, such as performance, leadership, training, development, organizational culture, learning, and individual or organizational competencies.

**Table 3**  
Focus of themes

Article focus	Number of articles		
	Brazil	International	Total
Collective competences	12	14	26
CC as a secondary theme	03	33	36

The subjects covered in the articles with an exclusive focus on CC were verified to analyze the theme's paths. It was observed that the concern with CC's identity and nature is present both on the Brazilian and international bases. Nevertheless, there is an essential difference between them: in the Brazilian base, there is a predominance of this approach with the following approaches: attributes of the CC; its construction and training processes; the functional and social dimensions of its dynamics; the elements that make up the CC; analyzes about CC concepts. In international production, there is a mixture of the nature and characterization of CC with more applied themes, for example, the evaluation of CC; performance modes of CC; CC as resources of organizations; CC in the project environment; and CC and self-managing teams.

The CC's international production tries to research the application in authentic contexts. It is verifying its developments, mainly in publications related to the health area. Although Brazil also conducts research addressing the feasibility of applying CC in different organizational contexts. The view, in general, rests less on the conditions of CC and more on the attempt to confirm the presence of some aspects of CC (attributes, institutional elements, and managerial).

In the quantification of references, 592 references were found in national articles and 2.133 in international articles. Each national article cited an average of 40 references. As for the international articles, an average of 44 references were found. Table 4 lists the ten most-cited authors as bibliographic references in the analyzed articles. Some articles have more than a year of publication because they deal with original works and translation or have more than one edition.

**Table 4**  
Most Referenced Works

<b>Brazil</b>			
Authors	Works	Year	Quant.
Le Boterf, G.	Desenvolvendo a competência dos profissionais	2003	11
Retour, D. & Krohmer, C.	A competência coletiva: uma relação chave na gestão de competências	2006 2011	10
Zarafian, P.	Objetivo competência	2001 2008	08
Ruas, R.	Gestão por competências: uma contribuição à estratégia das organizações	2005	06
Boreham, N.	<i>A theory of collective competence: challenging the neo-liberal individualization of performance at work</i>	2004	06
Colin, T. & Grasser, B.	Das competências individuais à competência coletiva: contribuições da aprendizagem em um serviço de emergência hospitalar	2011	05
Dutra, J.	Competências: conceitos e instrumentos para a gestão de pessoas na empresa moderna	2004 2007	05
Frohman, C.	<i>Collective competence in interdisciplinary project context</i>	2004	05
Michaux, V.	Articular as competências individual, coletiva, organizacional e estratégica: esclarecendo a teoria dos recursos e do capital social	2011	06
Prahalad, C. & Hamel, G.	<i>The core competence of the corporation</i>	1990	05
<b>International</b>			
Authors	Works	Year	Quant.
Boreham, N.	<i>A theory of collective competence: challenging the neo-liberal individualization of performance at work</i>	2004	10
Weick, K.	<i>Collective mind in organizations: heedful interrelating on flight decks</i>	1993	05
Hansson, H.	<i>Collective competence</i>	2003	04
Prahalad, K. & Hamel, G.	<i>The core competence of the corporation</i>	1990	04
Lingard, L.	<i>Rethinking competence in the context of teamwork</i>	2012	04
Hodges, B. & Lingard, L.	<i>The question of competence: reconsidering medical education in the twenty-first century</i>	2013	03
Leonard-Barton, D.	<i>Core capabilities and core rigidities: a paradox in managing new product development</i>	1992	03
Melkonian, T. & Picq, T.	<i>Opening the "black box" of collective competence in extreme projects: lessons from the French special forces</i>	2010	03
Retour, D. & Krohmer, C.	<i>La compétence collective, maillon clé de la gestion des compétences</i>	2006 2011	03
Sandberg, J.	<i>Understanding human competence at work: an interpretative approach</i>	2000	03

Among the articles published in Brazil, the three most referenced works are by three French authors, Le Boterf (2003), Retour and Krohmer (2011), and Zarafian (2001). It confirms the influence of the current French thought in the debate on competencies held in Brazil. Among the ten most referenced works, only two are by Brazilian authors Ruas (2005)



and Dutra (2004; 2007). In international production, the most cited works are Boreham (2004), Weick (1993), and Hansson (2003). Only three works are present among the most referenced when considering both the Brazilian and the international context: Boreham (2004), with a proposal of fundamental principles for the construction of CC; Retour and Krohmer (2011), in the identification of four attributes capable of mobilizing the development of CC; and Prahalad and Hamel (1990) in the concept of essential competence, expressing the notion of competencies in their organizational dimension, which would be the CC par excellence.

All works classified as the most referenced among the analyzed articles deal with themes associated with the characterization and composition of competencies in their collective dimension, except Weick (1993), who also flirts with learning. That said, it is evident that the theme of the identity and composition of CC is one of the main concerns of researchers in this field. Table 5 presents the authors who most published articles in the verified databases regarding production characterization. In the Brazilian production, the author who published the most was Ruas with three articles and Silva and Zago with two. In international production, the author Lingard appears with three articles, and Berg, Boreham, Franqueiro, Ruuska, and Zeeuw, with two articles each.

**Table 5**  
Most published authors

Brazil	Nº of articles	International	Nº of articles
Ruas, R.	03	Lingard, L.	03
Silva, F.	02	Berg, S.	02
Zago, C.	02	Boreham, N.	02
Macke, J.	01	Franqueiro, T.	02
		Ruuska, I.	02
		Zeeuw, G.	02
		Macke, J.	01

Roberto Ruas' works address the link between CC with Human Resource Management practices (Silva & Ruas, 2014; Silva & Ruas, 2016) and organizational routines (Broman et al., 2019). Lorera Lingard, on the other hand, discusses CC in the health area, portraying teamwork (Lingard, 2016; Lindarg et al., 2017) and learning (Teunissen et al., 2018).

For co-authorship, the analysis showed a weak network of Brazilian and international scientific collaboration. Only the authors Silva and Ruas (2014, 2016) jointly published more than one article on the topic. The concept of CC was comprehensive, bringing together different cognitive and social phenomena, corroborating the perception of Avelino et al. (2017). Thus, Table 6 presents the trajectory of the construction of CC's concept based on the analyzed articles' authors.

**Table 6**  
Collective competence concepts

Authors	Concepts
Van Der Zee (1991, p. 220)	Ability to act, given the availability of support systems.
Zago et al. (2007, p. 214)	The collective body of the teams and the organizational culture goes beyond the simple sum of individual competencies, but is restructured through their synergistic enhancement.
Arnaud and Mills (2012, p. 457)	Skill that has been established and stabilized through collaborative social engagement.
Klein and Bitencourt (2012, p. 601 e 604)	It represents the construction of a collective meaning of work, based on different knowledge bases, thus expanding the knowledge network, and building a systemic and interdependent vision to achieve a shared objective.
Lingard (2016, p. 19)	A distributed capacity of a system, an evolving, a relational phenomenon that emerges from the resources and constraints of particular contexts.
Silva and Ruas (2016, p. 271)	Superior performance of collective work due to the recurrence of interaction processes and the consolidation of SC attributes.
Avelino et al. (2017, p. 211)	It brings together different cognitive and social (cooperative) phenomena, which would help the capacity to act and react collectively.
Benbrahim et al. (2017, p. 23)	Ability of generating team spirit, such as exchanging and sharing knowledge and competences of a specific activity among team members.

Through Table 6, it is observable that the term "collective competencies" appears primarily as a capacity to act based on support systems (Van der Zee, 1991). Subsequently, it goes beyond the simple sum of individual competencies and is restructured through synergistic enhancement and collaborative social engagement (Arnaud & Mills, 2012; Zago et al., 2007). It started to be recognized as a relational phenomenon emphasized by the construction of collective meaning and characterized by the shared objective and the collective superior performance (Klein & Bitencourt, 2012; Lingard, 2016; Silva & Ruas, 2016). Thus, CC is perceived in the interaction, in positive communication, and in the team's cooperation, that is, in the collective actions and reactions (Avelino et al., 2017; Benbrahim et

al., 2017). Nevertheless, despite the portfolio about CC concepts, it can be verified through studies like the one developed here that it is still under construction.

Table 7 shows the mapping of proposed objectives, based on identified gaps, for future research based on articles published in the last five years. For a better understanding of the level of complexity of these identified objectives, the categorization used by Bloom's Taxonomy was adopted (Bloom, 1986; Driscoll, 2000; Krathwohl, 2002). This taxonomy is used to define research objectives. It presents different levels of complexity of mental processes (knowledge, understanding, application, analysis, synthesis, and evaluation) in an increasing and cumulative way (Ferraz & Belhot, 2010).

**Table 7**  
Mapping proposals for future research

Levels of Complexity *	Objectives proposed for future research
Understanding	a. Understand the relational barriers that affect groups in the development of CC (Macke & Crespi, 2016);
	b. Understand the conditions for the emergence of CC resulting from individual functional competencies, interactive organizational competencies and collective mechanisms (Loufrani-Fedida & Missonier, 2015);
	c. Understand the role of convergent and divergent relationships in training for CC (Lingard et al., 2017);
	d. Understand each of the 7 dimensions of CC found in this study, in order to understand and clarify them (Tello-Gamarra & Verschoore, 2015);
	e. Identify other types of mobilizing factors, management practices and attributes of CC (Silva & Ruas, 2016);
	f. Identify mechanisms for companies to stimulate the development of CC in working groups (Toderó et al., 2016);
	g. Identify elements of social capital and CC that can be strengthened and/or weakened by implementing a competency-based management program (Toderó et al., 2016);
	h. Identify the role of leadership in the formation of CC (Giansante et al., 2015);
	i. Identify determinants for the development of CC in other contexts (Lima & Silva, 2015);
	j. Examine other elements that contribute to the identification and development of CC (Silva & Ruas, 2014).
Analysis	a. Analyze if the manager would be a primary actor for the development and support of

	CC in work groups (Silva & Ruas, 2014);
	b. Test the conceptual generalization and the transferability of the concept of collective (in)competence (Kitto et al., 2015);
	c. Test new correlations between CC and collective performance (Giansante et al., 2015).
	a. Propose a construct to quantitatively measure CC based on the dimensions found (Tello-Gamarra & Verschoore, 2015);
Synthesis	b. Propose a qualitative data collection instrument to assess the relationship between social capital and the development of CC (Toderò et al., 2016);
	c. Propose a CC framework (Benbrahim et al., 2017).
Evaluation	a. Assess the CC (Benbrahim et al., 2017).

\* For the Knowledge and Application complexity levels, no related objectives were found.

When analyzing Table 7, it is evident that more than half of the objectives proposed for future research (10) are in the second level of complexity of Bloom's Taxonomy (understanding). This level of complexity demonstrates that, although a large part of Brazilian and international research addresses the identity and nature of CC. Nevertheless, there is still a need to understand, in more depth, the attributes of CC, construction, and training processes. The functional and social dimensions of its dynamics and the elements that make up the CC aim to better capture the meaning of the CC and use the concept in different environments, thus enhancing research related to the application level. It is noteworthy that no objective was identified pointing in this direction.

Notwithstanding, the positive point is that none of the proposed objectives are at the first level of complexity (knowledge). This fact indicates a set of known and shared terminologies and an amount of knowledge related to the classification and categories that provide the advancement of studies in the area (Ferraz & Belhot, 2010).

Objectives related to the analysis, synthesis, and evaluation levels indicate that the theme still needs further development related to analysis in different application fields. To provide a more excellent range of information that supports the systematization of knowledge to create something new and original (synthesis level) that can be further validated (evaluation level). For the reasons raised here, this mapping becomes relevant because it serves as a guide for new research, a justification for those in progress, and a process of reflection and enabling

a combination of proposals. These gaps point to directions and trends that can contribute to advancing the issue.

Another point analyzed was the types of research used by the articles. As shown in Table 8, empirical studies on CC are more used than theoretical research, mainly in Brazil, representing 93.33% of the analyzed articles. On the other hand, empirical research at the international level represents 53.20% and the theoretical 46.80% of articles. The CC can explain a more significant number of empirical researches found in action (Hedjazi, 2018). This type of research can be characterized by observation and experimentation (Theophilo, 1998).

**Table 8**

Types of research

Types of research	Number of articles		
	Brazil	International	Total
Empirical	14	25	39
Theoretical	01	22	23

In the 39 empirical articles found, the following methodologies used (Table 9) and data collection techniques (Table 10) were verified. As for the methodological paths used, the research's nature, the approaches, and the strategies were observed (Table 9). The results show that regarding the nature of the research, as expected, there was an exploratory predominance (69.24%), followed by descriptive (17.95%), exploratory-descriptive (10.25%), and a descriptive study.

**Table 9**

Methodologies used

Nature of the research	Number of articles		
	Brazil	International	Total
Exploratory	10	17	27
Descriptive	01	06	07
Exploratory-descriptive	03	01	04
Explanatory	-	01	01
Approaches	Brazil	International	Total
Qualitative	10	18	28
Quantitative	-	07	07
Quantitative-qualitative	04	-	04
Research strategies	Brazil	International	Total
Multiple case study	07	10	17
Case study	07	11	18
Survey	-	04	04

Regarding the approaches, the vast majority of articles presented qualitative research (71.80%) and other studies, quantitative (17.95%) and quantitative-qualitative (10.25%). The predominance of qualitative research can be highlighted by the possibility of recognizing and analyzing different perspectives and understanding its dynamic processes (Flick, 2009). Regarding research strategies, there was a preference for multiple case studies (43.60%) and case studies (46.15%), and some survey strategies (10.25%). These results also align with the research's nature and approach (Eisenhardt, 1989).

As for the data collection techniques used in the empirical articles, the results are shown in Table 10.

**Table 10**  
Data collection techniques

Data collection techniques	Number of articles		
	Brazil	International	Total
Interviews	11	17	28
Observation	04	11	15
Document analysis	05	07	12
Questionnaire	03	09	12
Focus group	03	03	06
Field journal	-	01	01
Field research	01	-	01

The total number of techniques presented is greater than the number of empirical articles since many studies use more than one technique to obtain data. It is noticed that most articles use the interview as a data collection technique, followed by observations, documentary analyzes, and questionnaires. This result corroborates that the researched theme has most of its studies exploratory and qualitative.

### 3 FINAL CONSIDERATIONS

This article sought to develop insights and evidence that portray how CC research has been developed in the past 34 years. The article demonstrates what the practical advances are so far regarding research on the subject. It identifies gaps in future research that may contribute to this area of knowledge still not widespread in the Brazilian and international scope.

We noticed that in the national production, there is a slight predominance of literature dealing with the identity and the external factors that determine the CC formation and development, which reveals a concern with the intrinsic characteristics of the CC and the elements that condition them. In international production, the relevance of works that identify and propose spaces for expanding collective work and approaching CC in different sectors and activities is evident: health, education, public policies, and project management.

A highlight in the scientific production analysis was the observation of a considerable debate retraction about CC in the studied period. Indeed, the rise of dynamic capability, a conception of capability more suited to this new context, played an essential role in the loss of prominence of the notion of strategic competence. Changes may have generated a reduction in expectations around the CC strategic position and the deflation of the corresponding debate.

Our findings showed that CC could have "its own light" when considered a strategic alternative for solving performance and work organization problems in specific sectors and activities. In the health sector, for example, the work on CC already has a significant contribution and a promising potential in identifying contradictions between the organization forms and the work division, hitherto predominantly individual, and the need for some core activities to be conceived and activated collectively, increasing collective work and the notion of CC.

Other works demonstrate that this problem is also present in several economic and social sectors. It opens an essential perspective for replicating studies on the CC diffusion in other fields of activities such as education and large projects in public management. These replication alternatives will, however, require a review of the ways of conceptualizing and characterizing the CC notion considering the specificity of the different application contexts. Indeed, the diffusion of collective work in different environments and activities implies the inclusion of a period of construction and adaptation of the collective approach. It involves not only criteria and practices but also changes in the vision and mentality of the actors involved. It mainly refers to aspects related to the identity of CC and the conditions for their appropriation in different environments.

It is possible to affirm that studies that originated in the area of Applied Social Sciences are the ones that have invested the most in the construction of a CC concept.



Nevertheless, if today there is some lack in the debate on CC, this does not occur in the field of offering concepts. It is also noteworthy that the works investigating the CC identity and dynamics devote more attention to their social dimension than to the functional dimension. Regardless, the CC development and consolidation depend on the interaction between these two dimensions.

Among the findings that can be classified as promising in the academic debate on CC, one of the most relevant is the peculiarity of adapting to emergencies and restrictions in the use of time. In which sharing and collaboration between professionals endowed with competencies and expertise from different fields. In addition to the strategic opportunities, this peculiarity leads to different activities and sectors of society and boosts the economy. Today's collective perspective reaches an extremely opportune dimension due to the forms of global instability in recent years.

Currently, these instabilities are no longer related only to economic factors. However, they progressively include instabilities generated by imbalances in the environment and the disorderly occupation of the planet. This phenomenon has generated many unpredictable events, such as the spread of Covid-19. Interventions with significant participation of conceptions related to collective work capable of responding to unforeseen and emergency events will be almost indispensable. This condition opens a field of opportunities for studies on CC.

As research limitations, we mention: a) the involvement of only four databases (Scielo, Spell, Web of Science, and Scopus) in the article selection process; b) articles with restricted access were not part of the systematic analysis; and c) the search for the term "collective competence(s)" only in the title, abstract, or keywords in Portuguese, English, Spanish and French, may have restricted the selection of articles for analysis.

As for the possibilities for future research that may arise from this investigation, three relevant trajectories can be highlighted. Attentive observers can see an obscure zone in the use of the expression CC, expressing even common meanings. It is necessary to define the limits between the activity qualified as collective work and the capacities to carry it out (CC). A second promising trajectory is related to investigating activities and processes conducive to CC in new environments and contexts, which can contribute with new perspectives to the

debate. Finally, a path is still open to researchers investigating CC development phases and their characteristics, a topic that has been timidly addressed in a few works.

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