

THE CONCEPTUAL OR THEORETICAL IDENTITY IN SPORTS SCIENCES: A SCOPING REVIEW

Johan Edixon Sarmiento Rojas^{A, B, C, D, E}

Faculty of Health and Sport Sciences; Professional in Sports Training, Fundación Universitaria del Area Andina in Bogotá, Colombia
ORCID: 0000-0003-1877-2669 | e-mail: jsarmiento48@areandina.edu.co

Fabio Alberto Escobar Díaz^{A, B, C, D, E}

Faculty of Health and Sport Sciences, Fundación Universitaria del Area Andina in Bogotá, Colombia
ORCID: 0000-0002-4721-2209

^A Study Design; ^B Data Collection; ^C Statistical Analysis; ^D Manuscript Preparation; ^E Funds Collection

Abstract The consensus around the identity of sport sciences presents unresolved challenges due to the various theoretical or epistemological perspectives that influence it. A scoping review was conducted to map publications in scientific journals that address this topic in databases and bibliographic indexes. Information was sought in Scopus, ScienceDirect, Web of Science, and the Virtual Health Library using free and controlled key terms and Boolean connectors AND and OR. The process included 34 articles that explore the conceptual or theoretical identity in sport sciences. Overall, the literature reveals different perspectives on theoretical and conceptual identity, with multiple alternatives coexisting and no consensus. In the future, research to examine whether this confusion exists at the practical level from an inductive point of view is proposed.

Key words: sports sciences, science, knowledge

Introduction

The identity of the sciences refers to the nature and distinctive characteristics that define the different scientific disciplines. This identity is forged through the methods, theories, and principles that govern how scientists in a particular discipline approach problems and generate knowledge. Each science has a unique identity that is manifested in specialized language and its approach to solving problems. As is natural in new academic disciplines, reflecting on their own status in the academic world through introspective analysis helps them carve out an identity, represented by a set of research topics, concepts, or methods that are unique to them (Weingart, 2010).

In the case of Sport Sciences (SS), this introspective analysis has opened the discussion at an international level. In 1998, an attempt was made to reach an agreement at the International Consensus Symposium “Jose A. Madrigal”, but it was unsuccessful - as stated in the proceedings: “Consensus is still not possible; the Symposium must continue and perhaps organize a larger group” (Bento et al., 1998, p. 119). Another parallel debate has arisen, concerning what some authors have termed “physical education” (Bento, 1998; Crum,

2012; Eusse et al., 2021; Magallanes, 2015). However, are these two debates different? Are they rather the same, but with different names? Are these alternate debates that could converge into a common denominator?

The extensive production published under the “International Congress of the Spanish Association of Sports Sciences” (Reina, 2010), the “Congress European College of Sports Sciences” (Hristovski et al., 2017), as well as various publications in scientific journals under titles as such as “sport sciences, physical education or physical activity” (Coimbra et al., 2019), to name just a few, reveals the existence of a disciplinary field and, within it, different themes. Is it the same to talk about SS as it is to talk about physical culture? Is it better to talk about SS rather than science of sport? Does physical activity belong to SS? And what about physical education, what is its place? These are questions with unclear answers; we will refer to this confusion as an identity crisis.

Some authors have proposed solving this crisis through a unifying theoretical framework capable of integrating the various subdisciplines of SS under a “Grand Unified Theory” (Glazier, 2017). Recently, a way to integrate the supposedly incommensurable disciplines researched in SS under “dynamic systems approaches has been proposed (Hristovski et al., 2017).

In a narrative review aimed at contributing to the discussion of the crisis, the most influential authors, the so-called “classics”, have been well summarized. These include Cagigal, Le Boulch, Sergio, Parlebas, Pedraz, Haag, and Martínez (Sarmiento, 2018), and in some way, this review has highlighted what we know about the theoretical identity of SS. However, there is no updated mapping of the contributions, positions, and even debates surrounding this identity, which is still under construction in this field. In this regard, we have posed the following question: What is currently known in the existing scientific literature about the theoretical or conceptual identity of SS? Therefore, the purpose of this scoping review is to map articles on the theoretical and conceptual identity in SS in bibliographic databases to understand the current state of issues about it.

Material and Methods

According to the Joanna Briggs Institute (JBI) Manual, scoping reviews are useful for examining emerging evidence when it is not yet clear what other, more specific questions can be asked. They may be appropriate for identifying evidence in a particular field, clarifying concepts, and identifying gaps (Dowling et al., 2020; du Toit & de Klerk, 2022; Sabiston et al., 2022).

Articles published were searched in the literature without time restrictions up to August 2023, in databases as Biblioteca Virtual en Salud, Scopus, ScienceDirect, Web of Science, PubMed, Taylor & Francis, and SPORTDiscus. Combinations of free and controlled keywords were used, employing the Boolean connectors AND and OR. The inclusion criteria were as follows: a. research, review, reflection, or opinion articles; b. articles that explicitly address the theoretical or conceptual aspects of SS; c. articles in English, Spanish, or Portuguese; d. Free full text. Consequently, all articles that did not meet these criteria were excluded.

The identified records were exported to the Rayyan platform (AI-powered tool for Systematic Literature Reviews), where duplicates were removed. Subsequently, the titles and abstracts were read to select those that met the inclusion criteria. Any disagreements that arose between the reviewers were resolved through discussion. The results of the search, filtering, and inclusion process were obtained following the PRISMA methodology (Figure 1). Data were extracted using Microsoft Excel®, collecting information about authors, year of publication, article title, type of study, country, and key findings relevant to the review question.

Results

A search of the literature in automated databases between August 2023 and May 2024 yielded 6,462 results across 7 databases. After removing 2,230 duplicates from the published literature, 4,232 results remained for title and abstract selection. Of these, 4,131 results did not meet the inclusion criteria, and 34 results could not be retrieved, leaving 67 results for full-text reading. Then, 35 articles were excluded according to the inclusion criteria, and finally 32 articles were included (Figure 1).

In SS, three conceptual positions have been identified from different perspectives regarding how knowledge should be acquired. These positions—interdisciplinary, transdisciplinary, and from the theory of dynamic systems—reflect a rich diversity of approaches. Regarding the object of study, two conceptual positions are recognized: human motricity and human body movement, motor action; performance, and the human being in motion (de Souza, 2023; Glazier, 2017; Martínez-Santos, 2014; Pisk, 2014; Renson, 1989).

Only one conceptual position has stood out concerning the specific topics to be investigated in SS. Generally, there does not seem to be a marked interest in determining the extent to which a topic belongs exclusively to the discipline without overlapping with others. Haag (1979) and Renson (1989) proposed bodies of knowledge specific to SS, including the theory of movement, the theory of motor learning, the theory of training, and the theory of sports management, as well as Renson’s differential, developmental, sociocultural, clinical, and agological kin anthropology. These “kinanthropology” subdisciplines focus on the physical-motor-behavioral trinity, although from somewhat different perspectives, as topics exclusively belonging to SS derived from interdisciplinary or multidisciplinary approaches, but in some way specific to the discipline (Haag, 1979; Renson, 1989).

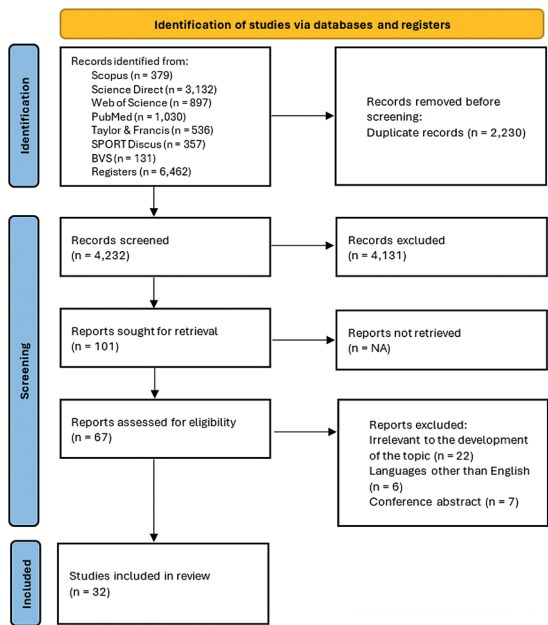


Figure 1. Prisma flowchart

Source: Created by the authors.

Regarding the naming of the field, there are at least three strong conceptual positions: science of human motricity, SS, and physical activity sciences (Balagué et al., 2017; de Souza, 2023; Renson, 1989). Within the discipline, terms often vary widely. Two positions are observed regarding this terminological diversity: one, following Wittgenstein from linguistic philosophy, advocates for the use of clear terminology; and another sees this diversity as an advantage, arguing that the multiplicity of connotations provides theories with greater explanatory power, suggesting examining how different terminologies converge in meaning (Almeida et al., 2012; Pisk, 2014).

There has also been a trend among some authors to reflect on the nature of the human being that the discipline should adopt. In this context, the concept of corporeality emerges as a significant stance for understanding the human being. Other positions consider the human being in relation to their environment, following Gibson's theory of dynamic systems; this is closely related to the lexicon of motor praxiology by Pierre Parlebas, highlighting how activities are examined in their interaction with the environment (Maguire, 1991; Parlebas, 2001; Parviainen & Aromaa, 2017; Woods & Davids, 2023).

In this review, we have identified two marked trends in defining the identity of SS. One trend is more local, as in Brazil, where the debate about the field identity has evolved from more positivist conceptual positions to a more complex perspective. The other trend is global, recognizing that the discipline transcends national borders and forms a unique and coherent entity (Balagué et al., 2017; Glazier, 2017; Mendes & Da Nóbrega, 2008).

The need to ground research within a solid epistemological framework provided by the philosophy of science was another theoretical stance found, arguing that this approach not only legitimizes their methods and findings but also facilitates a more rigorous and constructive dialogue with the scientific community at large (McFee, 2007).

The review included articles primarily from Brazil, Australia, and Great Britain, as well as research from the United States, Germany, France, Spain, Slovenia, Belgium, Canada, Finland, and Serbia. This geographical diversity underscores the relevance and global interest in the field of SS. (Figure 2)

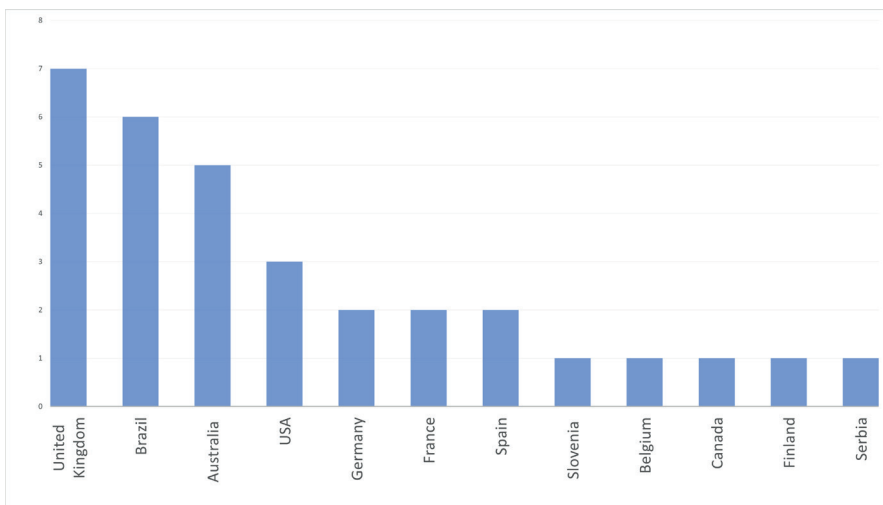


Figure 2. Distribution of articles by country

Within the articles reviewed, several general themes were identified, including divergences and ambiguities in the naming of the field, epistemological domains in sports science, and philosophical foundations. In addition, aspects were explored such as the bibliometric evaluation of specialized literature, the process of theoretical definition and conceptualization, the implications of the theory of complexity in sport, the genealogy of postulates in the sports field, the epistemology of scientific production in sport, and the rethinking of the anthropological budget.

The articles cover a variety of approaches and topics, from the implications of complexity theory in sport to the epistemology of scientific production. Each entry reflects a unique contribution to the body of knowledge in sports science, providing a solid foundation for future research and discussion in the field.

In addition to the themes identified, the diversity of publications supporting these findings is notable. Table 1 summarizes the selected articles, highlighting the authors, year of publication, country of origin of the study and type of article. This organization helps visualize the extent and scope of research in sports sciences worldwide.

Table 1. Selection of Articles on Theoretical or Conceptual Identity

Authors	Year	Country of origin	Article
Zeigler, Earl .F.	1974	Canada	Review
Thomas, Duane L.	1976	EE. UU	Opinion
Haag, Herbert	1979	Germany	Opinion
Renson, Roland	1989	Belgium	Review
Sage, George H.	1989	EE. UU	Comment
Maguire, Joe	1991	Great Britain	Opinion
McNamee, Mike.	1998	Great Britain	Opinion
Jirasek, Ivo	2004	EE. UU and Rep. Checa.	Review
McFee, Graham.	2007	United Kingdom and EE. UU	Review
Mendes, Maria.; Da Nóbrega, Terezinha	2008	Brazil	Review
Almeida, Felipe Q.; Bracht, Valter.; Vaz, Alexandre.	2012	Brazil	Descriptive
Martinez-Santos, Raul.	2014	Spain	Opinion
Pisk, Jernej	2014	Slovenia	Opinion
Glazier, Paul S.	2015	Australia	Opinion
Hackfort, Dieter	2017	Germany	Comment
Glazier, Paul S.	2017	Great Britain	Opinion
Balague, Natalia; Torrents, Carlota; Hristovski, Robert; Kelso, Scott.	2017	Spain, Macedonia, and EE. UU	Opinion
Camy, Jean; Fargier, Patrick; Perrin, Claire; Belli, Alain	2017	France	Qualitative content analysis
Parviainen, Jaana; Aromaa, Johanna.	2017	Finland	Phenomenological
Williams, Mark.; Ward, Paul.	2017	England	Comment
Champely, Stephane; Fargier, Patrick; Camy, Jean	2017	France	Review

Petrovic, Adam; Koprivica, Vladimir; Bokan, Bozo	2017	Serbia	Content analysis
Piggott, Ben; McViller, Sean; Chivers, Paola; Papaluca, Carmen; Hoynes, Gerard	2019	Australia	Systematic review
Ryall, Emily	2019	England	Theoretical reflection
Bungenstab, Gabriel	2020	Brazil	Systematic review
Fensterseifer, Paulo	2020	Brazil	Theoretical reflection
Martines, Isabel; de Carvalho Fug, Nataly; de Souza, Juliano	2020	Brazil	Exploratory review
Woods, Carl; Rudd, James; Araujo, Duarte; Vaughan, James; Davids, Keith	2021	Australia	Opinion
Lambert, Karen; Gray, Shirley; O'Connor, Justen; Young, Lisa	2022	Australia	Narrative review
Woods, Carl; Davids, Keith	2023	Australia	Opinion
Souza, Juliano de	2023	Brazil	Theoretical reflection
Jess, Mike; Howells, Kristy; McMillan, Paul	2023	Great Britain	Theoretical reflection

Discussion

The purpose of this scoping review was to map studies on theoretical and conceptual identity in SS in databases, with the aim of to understand the current state of issues about the so-called identity crisis. Among the findings, we want to highlight the strong tendency to place any conceptual or theoretical project aimed at resolving the identity crisis within the framework of complexity theory. Although there is no concrete attempt, at least there seems to be a consensus regarding a philosophical and methodological approach to the way knowledge is acquired: positivism, phenomenological-hermeneutic, and critical-dialectical (Almeida et al., 2012; Balagué et al., 2017; Glazier, 2015, 2017; Hackfort, 2017; Jess et al., 2023; Martínez-Santos, 2014; Williams & Ward, 2017; Woods et al., 2021).

Unlike what was the case in the mid-70s of the 20th century, where the debate regarding the name of the disciplinary field was intense (McNamee, 1998), currently no articles were found regarding the name that the field should have: discipline, with SS, physical education, physical activity science and human motor science being the most outstanding references. However, it should be noted that it is the name of the science of human motor skills, which enjoys a strong philosophical argumentation from the contributions of the existentialist phenomenology of Merleau-Ponty and the theory of complexity (de Souza, 2023). In that sense, the name “science of human movement” is found with Martínez (2009) has a fairly strong philosophical argument from the theory of action, idealism, phenomenology, structuralism among others.

One of the identified results, and the object of discussion, is related to the term SS. This expression has been interpreted at least in our findings, in two ways: the first defines it according to its context of application. In this sense, SS are understood exclusively as an academic discipline dedicated to high-performance sports activity, a perspective that limits the term only to its specific field of application (Martínez-Santos, 2014). This functionalist view implies that “Physical Education” should be considered a different disciplinary field, whose context of application is confined to the school environment (Crum, 2012). Consequently, from this standpoint, a clear differentiation is established between physical education and SS as two independent disciplinary fields.

A second interpretation understand SS in a broad sense, in line with the proposal of Kurt Meinel, who considers this term as referring to “all forms of movement”, as well as Nancy Struna, who defines it as a “set of practices” (Meinel, 1977, p. 9; Struna, 2007, p. 221). In this sense, Hristovsky et al. (2017) also adopts a wide perspective by explicitly including sports pedagogy with the field of SS, thus extending the scope of the term beyond high performance. This expansion of the concept of sport clearly reveals that it is a term of “variable geometry”, which is why various authors turn to multiple categories to address and understand it (Gillet, 1991, p. 93).

Upon reviewing of de Souza’s (2023) approach, it is explained that since the 1960s, physical education has faced the need to “justify our place in relation to other disciplines and university departments”, which led to the emergence of various terms such as “kinesiology”, “sports sciences”, “Psychokinetics”, “Motor Praxeology”, “Human Motor Science”, and “Physical Activity Sciences” (de Souza, 2023). These terms reflect a broad and plural understanding of SS, representing important efforts to build an integrative discipline identity. De Souza (2023), in developing the concept of motor skills, concludes that it significantly expands the understanding of physical education and sport, showing an explicit effort to address the disciplinary field in a broad sense. In this way, his approach helps overcome terminological debates about whether it is “Sport Science”, “Science of Sport”, or “Sport Research”, by offering a more integrative and comprehensive approach to the area.

Similarly, Jess et al. (2023) also use the term “Physical Education” from a broad perspective, without limiting it exclusively to the school context. These authors express concern about excessive emphasis on modernism, which tends to reduce and hierarchize the disciplinary field rather than expanding it in its historical and cultural development. According to Jess et al. (2023), “the process of becoming raises fundamental questions for Physical Education, as it challenges the traditional representation of a subject that is only experienced within the school schedule [...]. These approaches include physical literacy, physical culture, as well as both formal and informal sport” (Jess et al., 2023). From this perspective, the functionalist separation, according to which physical education corresponds exclusively to the school environment and SS solely to athletic performance, does not hold.

The fact that physical education teachers began transforming their classes into training sessions (Crum, 2012) could be interpreted, from an epistemological standpoint, as a significant step toward the consolidation and expansion of the disciplinary field. However, from a pedagogical perspective, it may be problematic. Moreover, this advancement implies overcoming the biologism that was traditionally imposed by the ‘*citius, altius, fortius*’ philosophy. Therefore, future reflections on sports sciences must specify the meaning (broad or restricted) in which the term is used. We believe that this integrative perspective is the one we should advocate for, because as long as disciplinary fragmentation persists, all we will achieve is a scattered and disconnected set of elements.

A similar stance is found in Haag’s proposal, who highlights that ‘in German, there is the term Sportwissenschaft, which encompasses all the scientific aspects of the field that, in English, are designated by various terms such as

“physical education,” “kinetics,” “sport studies,” or “physical activity sciences.” This approach also seeks a more integrative understanding of the disciplinary field.

Sarmiento's (2018) review constitutes another attempt to approach the disciplinary field from a broad perspective. Although it somewhat forces a definition of ‘sports sciences,’ it offers an approach that integrates the historical trajectory, recognizing that there are no separate histories for physical education, SS, or physical culture (or any other term); instead, all of them are part of the same historical-cultural tradition.

The so-called ‘classics,’ including Cagigal, Le Boulch, Manuel Sergio, Pierre Parlebas, Miguel Vicente Pedraz, Herbert Haag, and Jaime Martínez, contributed to the foundations of the theoretical identity of SS before automated searches in databases existed. However, to the best of our knowledge, there is no mapping of this identity through automated searches in academic databases.

The identity within the ‘classics’ remains tied to what Parlebas defined as a ‘terminological babel’ that is still unresolved (Parlebas, 2001), a phenomenon also observed in the literature reviewed in automated databases. Consensus has yet to be reached; however, there is agreement on the need to consolidate ‘sports sciences’ as a scientific discipline (Balagué et al., 2017).

Glazier (2017) proposes a Grand Unified Theory (GUT) of sports performance, based on the conceptual model originally presented by Newell (1986). This theory would serve as a platform for the much-needed interdisciplinary work in sports sciences. However, considering Weingart's (2010) argument on the growth of knowledge, constructing a unified theory of sports performance may be unfeasible due to the ongoing expansion and diversification of knowledge in these areas.

In this context, rather than necessarily pursuing a unified theory, and in line with the perspective suggested by Weingart (2010), a more suitable strategy may be to identify the specific bodies of knowledge within SS (in its broad sense). This approach would facilitate an analysis of how newly generated knowledge fits or aligns within those established bodies, or observe how new bodies of knowledge gradually emerge. This methodology not only acknowledges the inherent and dynamic complexity of the field but also allows for a more flexible and effective integration of interdisciplinary knowledge around the disciplinary field.

This perspective is further supported by Hristovski et al. (2017), who, from a dynamic systems viewpoint, conducted a dynamic structural and documentary analysis, reviewing 2,998 abstracts to schematically illustrate the temporal dynamics of SS. These authors conclude that the structure of SS is continuously reconstructed, reinforcing the need for an adaptive and flexible approach to the ongoing disciplinary development.

Martínez-Santos (2014) established a critical dialogue with Balagué et al. (2017), recognizing the urgency of redefining the SS to transcend its traditional biologists approach and incorporate educational and sociocultural dimensions into its analysis. In his reflection, he emphasized three central arguments: first, that transdisciplinarity does not imply the fusion into a single discipline, but rather collaboration between areas without losing their identity; second, that imposing specific terminology (such as ‘science of sport’) could methodologically limit the diversity of scientific approaches; and third, the need to critically evaluate academic training in Physical Activity and SS suggesting potential structural reforms, as applied to the Spain case.

Additionally, Martínez-Santos proposed that this field should not be conceived as a closed discipline but as a dynamic space for applied research, which could well be called ‘sport research,’ where specialists from multiple disciplines (medicine, pedagogy, sociology, etc.) converge to study the sports phenomenon in its complexity. He highlighted that those terminological differences (such as ‘science of sport’ vs. ‘sport research’) are secondary,

as the essential element is the shared object of study and methodological rigor, regardless of the institutional or academic affiliation of the researchers. According to him, this perspective would resolve theoretical tensions by prioritizing collaborative practice over disciplinary labels.

To the best of our knowledge, there is no consensus on the 'disciplinary matrix' or the 'logical framework' of SS. Some propose organizing it around 'theories of action' (Hackfort, 2017), others from a dynamic systems theory perspective (Woods & Davids, 2023), others from complexity theory (Almeida et al., 2012; Balagué et al., 2017; Glazier, 2015, 2017; Hackfort, 2017; Jess et al., 2023; Martínez-Santos, 2014; Williams & Ward, 2017; Woods et al., 2021), and others, following the same need for consensus, propose an Aristotelian and holistic approach to its methodology (Ryall, 2019).

Some authors argue that, in the search for disciplinary identity, each science should define its epistemological particularities by drawing on philosophers such as Karl R. Popper, Thomas Kuhn, Imre Lakatos, and Paul Feyerabend. While these philosophers present contradictory positions, it is possible to identify common foundations as a general starting point (García Jiménez, 2008). However, since this proposal is general and mainly aimed at social sciences, it is necessary to complement it with specific studies addressing the particular epistemology of SS, due to its interdisciplinary nature.

In this context, McFee (2007) argues that Kuhn's and Popper's perspectives must be examined and applied specifically to SS to identify appropriate ways of theorizing and avoid epistemological errors in this field. However, no equivalent studies focused specifically on the contributions of Lakatos, Feyerabend, or approaches related to complexity theory have been identified in the review, aspects that could also contribute significantly to this debate. In general terms, the product of science is theory, understood as a 'logical framework.' Popper (1980) describes it as nets cast to capture, understand, and dominate reality. Kuhn (2004), on the other hand, speaks of the scientific product as a 'disciplinary matrix,' meaning a shared structure that organizes elements within each discipline. Applying these concepts to sports sciences, some researchers have proposed organizing this matrix around different theoretical perspectives: theory of action (Hackfort, 2017), dynamic systems theory (Woods & Davids, 2023), complexity theory (Almeida et al., 2012; Balagué et al., 2017; Glazier, 2015, 2017; Hackfort, 2017; Jess et al., 2023; Martínez-Santos, 2014; Williams & Ward, 2017; Woods et al., 2021), and Aristotelian-holistic approaches (Ryall, 2019).

Similarly, there are more specific proposals on how to define the 'disciplinary matrix' of SS. For example, Haag (1979) identifies: the theory of movement, the theory of play, the theory of training, and the theory of motor learning. This corresponds to the 'core' as a set of fundamental premises that remain unchanged and define the essence of a research program (Lakatos, 1989), which in this case could be called SS. In contrast, Hristovski et al. (2017) suggest a disciplinary matrix that is not organized into exclusive fields but interdisciplinary ones, including Biomechanics, Coaching, Physiology, Health and fitness, Sociology, Psychology, Training and testing, Molecular biology and biochemistry, Nutrition, Physical education and pedagogy, Sports medicine and orthopedics, and Motor learning.

Nagel (1991) emphasized the importance of the specific language of a discipline. Common knowledge is often too vague and ambiguous— for example, the phrase 'water freezes when cooled enough' can refer to any type of water (cloud water, fruit water when pressed, ocean water, etc.). Science, on the other hand, must classify and determine the different types of water to reduce ambiguity. This leads to precision (Nagel, 1991). In this sense, this appears to be one of the main problems that blur theoretical identity, starting with the naming of the field. We have

found that some prefer the term 'sports sciences,' others 'physical activity science,' 'human motor science,' 'human movement science,' or 'motor action science,' among others. The only clear consensus seems to be that the term 'physical education' is obsolete, something that had already been discussed by McNamee (1998).

According to Padrón (2007), between 1920 and 1979, there were four approaches that idealized scientific research, providing scientists with a system of beliefs and answering questions. These always included objects of knowledge: 'science of observable objects,' 'science of calculable objects,' 'science of intuitable objects,' and 'science of visible' or 'experiential' objects (Padrón, 2007). Whatever the science, having a clarified or discovered object of knowledge is fundamental to understanding its identity. There is no consensus in the automated databases on the object in question, and when it is mentioned, it does not stem from a strongly epistemological foundation. The results show some possibilities: sport (Martínez-Santos, 2014), humans in movement situations (Renson, 1989), motor action (de Souza, 2023), or performance in sport (Glazier, 2015). A more permanent consultation with the 'mother discipline,' namely philosophy itself, is necessary to avoid dogmatic positions without resorting to greater theoretical-scientific foundation or conceptual elaboration (Vargas Olarte, 2012, p. 140). It is important to clarify that, regarding the object of study in SS, the results found show some possibilities, but only two are explicitly presented: sport and sports performance (Glazier, 2017; Martínez-Santos, 2014). Therefore, the question remains open: What is the object of study? We believe that this matter should be the subject of the discussion, perhaps in the format of opinion articles and their corresponding commentaries, as was the case with Glazier's (2015) proposal, the subsequent analyses by Hackfort (2017) and Cardinale (2017), and followed by Glazier's (2017) reply to those contributions. Such a format would lend the discussion the necessary rigor.

Some time ago, the renowned Ommo Grupe recognized that, to grant the academic field scientific status, the first thing to establish is an anthropological assumption, a shared concept of human beings (Grupe, 1976). As far as we know, the understanding of the human being in the sports context has been enriched by multiple disciplinary perspectives. However, an attempt at synthesis to group them within the disciplinary field has been made by de Souza (2023), who, based on the contributions of the human motor paradigm and the concept of motor skills and corporeality, reveals a concept of the human being about the world: a human being who thinks, feels, and acts. Contributions from dynamic systems theory have indeed deepened the understanding of this relationship with the world, and in the same vein, understanding the human being who moves about the environment and the task, both of which are changing, placing the individual in a state of uncertainty (Davids et al., 1991; Davids & Araújo, 2010; Davids, 2010; Davids et al., 2015). However, a major synthesis is needed, based on these contributions, to establish a common framework and resolve the ontological status of the human being in the context of the discipline. It is perhaps here where the complexity paradigm provides an analytical lens that helps bring coherence to the disconnection (Jess et al., 2023).

Conclusions

A plurality of terms was identified to refer to the disciplinary field—"sports sciences," "physical education," "exercise science," "human movement science," among others—which highlights the lack of clear consensus and reinforces the notion of a still-prevailing "terminological Babel." Despite this, two prevailing perspectives were identified: a narrow one, focused exclusively on high-performance sport—often expressed as "sports sciences are only for sport"—and a broader one that encompasses school settings, athletic performance, health, and more—

referred to as “sports sciences also include physical education.” This illustrates the need to reach consensus regarding the theoretical and practical scope of the field.

Several theoretical approaches coexist, including complexity theory, dynamic systems theory, and action theory, as potential frameworks to unify the discipline. However, no definitive agreement has been reached as to which of these should serve as the central theoretical foundation, reflecting the conceptual breadth and philosophical diversity within the field. Despite this coexistence, a tentative theoretical structure has emerged, comprising twelve core areas: Biomechanics, Training, Physiology, Health and Physical Fitness, Sociology, Psychology, Training and Evaluation, Molecular Biology and Biochemistry, Nutrition, Physical Education and Pedagogy, Sports Medicine and Orthopedics, and Motor Learning. Each area is subdivided into specific subtopics. This proposal represents a significant advancement compared to the seven areas suggested by Haag in 1994: Sports Medicine, Sports Biomechanics, Sport Psychology, Sports Pedagogy, Sports Sociology, Sports History, and Sports Philosophy.

There is still no agreement in the literature regarding what, precisely, SS broadly defined are meant to study—that is, what constitutes their object of study: “sport” as a cultural phenomenon, “motor action,” “performance,” or the “human being in motion”? This should be the subject of further debate, perhaps in the form of opinion articles.

The search for an integrative framework and the diversity of approaches reveals the complexity of a constantly expanding field. Rather than a rigid theoretical unification, what is needed is a shared proposal that clearly defines the disciplinary body of knowledge, in order to understand how inter or transdisciplinary knowledge is integrated within this ongoing reconstruction—or whether, on the contrary, such integration gives rise to entirely new bodies of knowledge.

Finally, we conclude that no studies were found that fully explore, from an inductive perspective, the views of actors within the field itself—professors, researchers, or graduate students—or that investigate, from a qualitative approach, how they conceptualize “sports sciences” or what shared perspectives they hold regarding its object of study and disciplinary status. Given the growing diversity of the community engaged in this area, research that includes the direct voices of its key stakeholders would offer a more in-depth and contextualized understanding, with the potential to reduce conceptual fragmentation and contribute toward a more shared and coherent definition of the field.

Appendix I search strategy

Scopus		
	Algorithm	Results
1	(„sports science” OR „Physical Education and Training/history”) AND („Interdisciplinary Studies” OR „Philosophy” OR „Sports / history” OR „Knowledge Discovery” OR „History, 20th Century” OR „History, 21st Century” OR „Historical Article”)	111
2	(„Sports Sciences”) AND („epistemology”) OR („sociology of science”)	31
3	(„sports science” OR „Physical Education and Training/history” OR „Sports Medicine / history”) AND („Interdisciplinary Studies” OR „Philosophy” OR „Sports / history” OR „Knowledge Discovery” OR „History, 20th Century” OR „History, 21st Century” OR „Historical Article”)	112
4	(„Sports Sciences” OR „Exercise and Sport sciences” OR „Sport Science” OR „Physical Education”) AND („epistemology” OR „sociology of science”)	125

ScienceDirect

	Algorithm	Results
1	(„sports science“ OR „Physical Education and Training/history“) AND („Interdisciplinary Studies“ OR „Philosophy“ OR „Sports / history“ OR „Knowledge Discovery“ OR „History, 20th Century“ OR „History, 21st Century“ OR „Historical Article“)	837
2	(„sports science“ OR „physical education“) AND („epistemology“ OR „Interdisciplinary Research“ OR „theoretical study“ OR „knowledge discovery“ OR „History“)	421
3	(„Sports Science“ OR „Exercise“) AND „Theory development“ AND „Theory“ AND Interdisciplinary Research AND (Knowledge OR Epistemology)	352
4	(„Sports Science“ OR „Sport Science field“) AND („conceptual framework“ OR „Interdisciplinary Research“ OR „Epistemology“ OR „knowledge discovery“) AND („knowledge“)	486
5	((„Sports Science“ AND „Exercise“) AND („Theory“ OR „Theory development“ OR „theoretical study“) AND Interdisciplinary Research AND (Knowledge OR Epistemology))	207
6	(„Sports Science“) AND „Interdisciplinary Research“	195
7	(„Sports Science“ OR „Sport Science field“) AND („conceptual framework“ OR „Interdisciplinary Research“ OR „Epistemology“ OR „knowledge discovery“)	634

Web of Science™

	Algorithm	Results
1	(„Sports Sciences“ OR „Exercise and Sport sciences“ OR „Sport Science“) AND („Knowledge“ OR „epistemology“ OR „sociology of science“ OR „Philosophy of science“)	565
2	(„Sports Sciences“) AND („Knowledge“)	223
3	(„Physical Education“) AND („Knowledge“ OR „epistemology“)	109

Pubmed

	Algorithm	Results
1	(„sports science“ OR „Physical Education and Training/history“) AND („Interdisciplinary Studies“ OR „Philosophy“ OR „Sports / history“ OR „Knowledge Discovery“ OR „History, 20th Century“ OR „History, 21st Century“ OR „Historical Article“)	249
2	(„sports science“ OR „Physical Education and Training/history“ OR „Sports Medicine / history“) AND („Interdisciplinary Studies“ OR „Philosophy“ OR „Sports / history“ OR „Knowledge Discovery“ OR „History, 20th Century“ OR „History, 21st Century“ OR „Historical Article“)	523
3	(„sports science“ OR „Physical Education and Training/history“) AND („Interdisciplinary Studies“ OR „Philosophy“ OR „Sports / history“ OR „Knowledge Discovery“ OR „History, 20th Century“ OR „History, 21st Century“ OR „Historical Article“ OR „Terminology as Topic“)	258

Taylor & Francis

	Algorithm	Results
1	(„Sports Science“ AND „Exercise“ AND Theory development AND Interdisciplinary Research AND Knowledge OR Epistemology)	200
2	((„Sports Science“ AND „Exercise“) AND („Theory“ OR „Theory development“ OR „theoretical study“) AND Interdisciplinary Research AND (Knowledge OR Epistemology))	191
3	(„Sports Science“) AND („Epistemology“ OR „philosophy of science“)	145

SPORTDiscus

	Algorithm	Results
1	(„Sports Sciences“) AND (epistemology)	15
2	(„Sports Sciences“) AND „SPORTS philosophy“	22
3	(„Sports Sciences“) AND („SPORTS philosophy“ OR „PHILOSOPHY of science“ OR „HISTORY of sports“ OR „Epistemology“)	70
4	(„Sports Sciences“) AND („Interdisciplinary Studies“ OR „Philosophy“ OR „Sports / history“ OR „Knowledge Discovery“ OR „History, 20th Century“ OR „History, 21st Century“ OR „Historical Article“)	250

Biblioteca Virtual en Salud (BVS)

	Algorithm	Results
1	(Physical Education and Training) OR (Sports Sciences) AND (Humanities) OR (Knowledge) OR (Interdisciplinary Research) AND (Science)	25
3	(„Physical Education and Training“ OR „Sports Sciences“) AND („interdisciplinarity“ OR „transdisciplinarity“ OR „Philosophy“ OR „Science“ OR „Epistemology“ OR „Comprehension“ OR „Interviews as Topic“)	106

References

- Almeida, F. Q., Bracht, V., & Vaz, A. (2012). Epistemological classifications in physical education: Redescrptions. *Movimento*, 18(4), 241–263. <https://doi.org/10.22456/1982-8918.27727>
- Balagué, N., Torrents, C., Hristovski, R., & Kelso, J. A. S. (2017). Sport science integration: An evolutionary synthesis. *European Journal of Sport Science*, 17(1), Article 1. <https://doi.org/10.1080/17461391.2016.1198422>
- Bento, J. O. (1998). *Sobre el objeto y sobre la metodología de investigación de las Ciencias del Deporte*. Universidade da Coruña. <https://ruc.udc.es/dspace/handle/2183/9767>
- Bento, J. O., Carreiro da Costa, F., Vicente Pedraz, M., Araujo Gaya, A. C., Lagardera Otero, F., Parlebas, P., Pieron, M., Sobral, F., & Touriñán, J. M. (1998). *Conclusiones y consenso*. Universidade da Coruña. <https://ruc.udc.es/dspace/handle/2183/9757>
- Bungenstab, G. C. (2020). Epistemology of Brazilian physical education: (Re)descriptions of epistemological activity in the 21st century. *Movimento*, 26(1), 1–14. <https://doi.org/10.22456/1982-8918.100551>
- Camy, J., Fargier, P., Perrin, C., & Belli, A. (2017). Forms of interdisciplinarity in four sport science research centres in Europe. *European Journal of Sport Science*, 17(1), Article 1. <https://doi.org/10.1080/17461391.2016.1218551>
- Cardinale, M. (2017). Commentary on “Towards a Grand Unified Theory of sports performance”. *Towards a Grand Unified Theory of sports performance*, 56, 160–162. <https://doi.org/10.1016/j.humov.2017.04.015>
- Champely, S., Fargier, P., & Camy, J. (2017). Disciplinarity and sport science in Europe: A statistical and sociological study of ECSS conference abstracts. *European Journal of Sport Science*, 17(1), Article 1. <https://doi.org/10.1080/17461391.2016.1197318>
- Coimbra, D. R., Dominski, F. H., Correia, C. K., & Andrade, A. (2019). Scientific production in sports science journals: bibliometric analysis. *Revista Brasileira de Medicina Do Esporte*, 25, 88–93. <https://doi.org/10.1590/1517-869220192501208554>
- Crum, B. (2012). La crisis de identidad de la Educación Física: Diagnóstico y explicación. *Memoria Academica*, 14, 61–72.
- Davids, K., Smith, L., & Martin, R. (1991). *Controlling system uncertainty in sport and work*. *Applied Ergonomics*, 22(5), 312–315. [https://doi.org/10.1016/0003-6870\(91\)90387-W](https://doi.org/10.1016/0003-6870(91)90387-W)
- Davids, K. (2010). The athlete-environment relation as a complex system: Implications for sport pedagogy. *International Journal of Sport Psychology*, 10, 13–14.
- Davids, K., & Araújo, D. (2010). The concept of “organismic asymmetry” in sport science. *Journal of Science and Medicine in Sport*, 13(6), 633–640. <https://doi.org/10.1016/j.jsams.2010.05.002>
- Davids, K., Araújo, D., Seifert, L., & Orth, D. (2015). *Expert performance in sport: An ecological dynamics perspective*. In: Routledge handbook of sport expertise. Routledge.
- Dowling, M., Leopkey, B., Inoue, Y., Berg, B. K., & Smith, L. (2020). Scoping reviews and structured research synthesis in sport: Methods, protocol and lessons learnt. *International Journal of Sport Policy and Politics*, 12(4), Article 4. <https://doi.org/10.1080/19406940.2020.1817126>

- Eusse, K. L. G., Bracht, V., & Almeida, F. (2021). Crisis epistemológica de la Educación Física en Colombia: El debate sobre la identidad y el objeto de estudio. *Educación Física y Deporte*, 40(2), Article 2. <https://doi.org/10.17533/udea.efyd.v40n2a02>
- Fensterseifer, P. (2020). Knowledge production in physical education/sport science - Quality x quantity: Where are we going? *Revista Tempos e Espaços Educação*, 13(32). <https://doi.org/10.20952/revtee.v13i32.14099>
- García Jiménez, L. (2008). Aproximación epistemológica al concepto de ciencia: Una propuesta básica a partir de Kuhn, Popper, Lakatos y Feyerabend. *Andamios*, 4(8), 185–202.
- Glazier, P. S. (2015). Towards a grand unified theory of sports performance. *Human Movement Science*, 56(Pt A), 139–156. <https://doi.org/10.1016/j.humov.2015.08.001>
- Glazier, P. S. (2017). Towards a grand unified theory of sports performance: A response to the commentaries. *Human Movement Science*, 56, 184–189. <https://doi.org/10.1016/j.humov.2017.04.016>
- Gillet, B. (1991). *La imposible «definición» del deporte*. In J.-J. Morne (Ed.), *Epistemología y antropología del deporte* (pp. 92–94). Alianza.
- Grupe, O. (1976). *Estudios sobre una teoría pedagógica de la educación física*. Instituto Nacional de Educación Física.
- Haag, H. (1979). Development and structure of a theoretical framework for sport science («Sportwissenschaft»). *Quest*, 31(1), 25–35.
- Hackfort, D. (2017). Commentary on "Towards a Grand Unified Theory of sports performance". *Human Movement Science*, 56, 166–168. <https://doi.org/10.1016/j.humov.2017.05.003>
- Haddaway, N. R., Page, M. J., Pritchard, C. C., & McGuinness, L. A. (2022). PRISMA2020: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis. *Campbell Systematic Reviews*, 18(2), e1230. <https://doi.org/10.1002/cl2.1230>
- Hristovski, R., Aceski, A., Balague, N., Seifert, L., Tufekcievski, A., & Cecilia, A. (2017). Structure and dynamics of European sports science textual contents: Analysis of ECSS abstracts (1996–2014). *European Journal of Sport Science*, 17(1), Article 1. <https://doi.org/10.1080/17461391.2016.1207709>
- Jess, M., Howells, K., & McMillan, P. (2023). Becoming physical education: The ontological shift to complexity. *Sport Education and Society*. <https://doi.org/10.1080/13573322.2023.2177984>
- Jirásek, I. (2004). From philosophy of sport to philosophical kinanthropology. *International Journal of Physical Education*, 41(4), 163–171.
- Joyner, M. J. (2003). Before automated database searches: Let's not forget the classics!! *Exercise and Sport Sciences Reviews*, 31(2), 59–60. <https://doi.org/10.1097/00003677-200304000-00001>
- Kuhn, T. (2004). *La estructura de las revoluciones científicas*. Fondo de Cultura Económica.
- Lakatos, I. (1989). *La metodología de los programas de investigación científica*. Alianza Editorial.
- Lambert, K., Gray, S., O'Connor, J., & Young, L. (2022). How is embodiment in physical education theoretically conceptualised? A concept analysis. *Physical Education and Sport Pedagogy*. <https://doi.org/10.1080/17408989.2022.2153819>
- Magallanes, C. (2015). Crisis de identidad en la educación física. *Revista Universitaria de la Educación Física y el Deporte*. <http://revista.iaucj.edu.uy/index.php/rev1/article/view/18>
- Maguire, J. (1991). Human sciences, sport sciences, and the need to study people "in the round". *Quest*, 43(2), 190–206. <https://doi.org/10.1080/00336297.1991.10484021>
- Martínez, J. (2009). *El movimiento humano. Ciencia, competencia y estándares*. Kinesis.
- Martínez-Santos, R. (2014). Thoughts and conditions for the unification of sports science. *Apunts. Educación Física y Deportes*, 118, 95–100. [https://doi.org/10.5672/apunts.2014-0983.es.\(2014/4\).118.10](https://doi.org/10.5672/apunts.2014-0983.es.(2014/4).118.10)
- Martínez, I. C., de Carvalho Fugí, N., & de Souza, J. (2020). The José María Cagigal research program for the field of physical education. *Movimento*, 26(1). <https://doi.org/10.22456/1982-8918.92691>
- McFee, G. (2007). Paradigms and possibilities: Or, some concerns for the study of sport from the philosophy of science. *Sport, Ethics and Philosophy*, 1(1), 58–77. <https://doi.org/10.1080/17511320601143009>
- McNamee, M. (1998). Philosophy and physical education: Analysis, epistemology and axiology. *European Physical Education Review*, 4(1), 75–91. <https://doi.org/10.1177/1356336X9800400108>
- Meinel, K. (1977). *Didáctica del movimiento*. Orbe.
- Mendes, M. I. B. D. S., & Da Nóbrega, T. P. (2008). Brazil-Medico and the contributions of medical-hygienist thought to the scientific bases of Brazilian physical education. *Historia, Ciencias, Saude – Manguinhos*, 15(1), 209–219. <https://doi.org/10.1590/S0104-59702008000100013>
- Nagel, E. (1991). *La estructura de la ciencia*. Paidós.

- Newell, K. M. (1986). *Constraints on the development of coordination*. In M. G. Wade & H. T. A. Whiting (Eds.), *Motor development in children: Aspects of coordination and control* (pp. 341–360). Martinus Nijhoff. https://doi.org/10.1007/978-94-009-4460-2_19
- Padrón, J. (2007). Tendencias epistemológicas de la investigación científica en el siglo XXI. *Cinta de Moebio*, 28, Article 28.
- Parlebas, P. (2001). *Juegos, deporte y sociedad: Léxico de praxiología motriz*. Paidotribo.
- Parviainen, J., & Aromaa, J. (2017). Bodily knowledge beyond motor skills and physical fitness: A phenomenological description of knowledge formation in physical training. *Sport, Education and Society*, 22(4), 477–492. <https://doi.org/10.1080/13573322.2015.1054273>
- Petrovic, A., Koprivica, V., & Bokan, B. (2017). Quantitative, qualitative and mixed research in sport science: A methodological report. *South African Journal for Research in Sport, Physical Education and Recreation*, 39(2), 181–197.
- Piggott, B., Müller, S., Chivers, P., Papaluca, C., & Hoyne, G. (2019). Is sports science answering the call for interdisciplinary research? A systematic review. *European Journal of Sport Science*, 19(3), Article 3. <https://doi.org/10.1080/17461391.2018.1508506>
- Pisk, J. (2014). Sport science: Ontological and methodological considerations. *Physical Culture & Sport. Studies & Research*, 61(1), 5–14.
- Popper, K. (1980). La lógica de la investigación científica. Tecnos.
- Reina, R. (2010). Estado Del Arte En Las Ciencias De La Actividad Física Y Del Deporte a Través Del Vi Congreso Internacional De La Aecd: Perspectivas Científicas Y Organizativas. Motricidad. *European Journal of Human Movement*, 25, 1–30.
- Renson, R. (1989). From physical education to kinanthropology: A quest for academic and professional identity. *Quest*, 41(3), 235–256. <https://doi.org/10.1080/00336297.1989.10483973>
- Ryall, E. (2019). Introduction to philosophical issues in sport science. *Philosophies*, 4(4). <https://doi.org/10.3390/philosophies4040057>
- Sabiston, C. M., Vani, M., de Jonge, M., & Nesbitt, A. (2022). Scoping reviews and rapid reviews. *International Review of Sport and Exercise Psychology*, 15(1), 91–119. <https://doi.org/10.1080/1750984X.2021.1964095>
- Sage, G. H. (1989). A commentary on qualitative research as a form of scientific inquiry in sport and physical education. *Research Quarterly for Exercise and Sport*, 60(1), 25–29.
- Sarmiento, J. (2018). Reconstrucción de las principales propuestas teóricas respecto al problema de la científicidad en las ciencias del deporte. *Lúdica Pedagógica*, 1(28), Article 28. <https://revistas.pedagogica.edu.co/index.php/LP/article/view/9429>
- Souza, J. de. (2023). Movement: A praise for physical education and sport. *Movimento*, 29. <https://doi.org/10.22456/1982-8918.121546>
- Struna, N. L. (2007). *Investigación historia en la actividad física*. En *Métodos de investigación en actividad física* (pp. 221–236). [Datos de editor no proporcionados].
- Thomas, D. L. (1976). Sport: The conceptual enigma. *Journal of the Philosophy of Sport*, 3(1), 35–41.
- Toit, R. E. du, & Klerk, W. de. (2022). Guidelines for conducting rapid reviews in psychology research. *Journal of Psychology in Africa*, 32(6), 640–647. <https://doi.org/10.1080/14330237.2022.2121468>
- Vargas Olarte, C. E. (2012). Ciencias del deporte: Evolución de aspectos teórico científicos. *Entramado*, 8(1), Article 1.
- Vicente Pedraz, M. (1998). *Reflexiones sobre el estado de la cuestión epistemológica de los saberes y prácticas del ámbito de la cultura física*. Universidade da Coruña. <https://ruc.udc.es/dspace/handle/2183/9764>
- Weingart, P. (2010). *A short history of knowledge formations*. In R. Frodeman, J. T. Klein, & C. Mitcham (Eds.), *The Oxford handbook of interdisciplinarity* (pp. 3–14). Oxford University Press.
- Williams, A. M., & Ward, P. (2017). Searching for the Holy Grail: Can there ever be such a thing as a 'Grand Unified Theory of sports performance'? *Human Movement Science*, 56, 181–183. <https://doi.org/10.1016/j.humov.2017.04.012>
- Woods, C., & Davids, K. (2023). Thinking through making and doing: Sport science as an art of inquiry. *Sport Education and Society*, 28(5), 579–593. <https://doi.org/10.1080/13573322.2022.2054792>
- Woods, C., Rudd, J., Araujo, D., Vaughan, J., & Davids, K. (2021). Weaving lines of inquiry: Promoting transdisciplinarity as a distinctive way of undertaking sport science research. *Sports Medicine-Open*, 7(1). <https://doi.org/10.1186/s40798-021-00347-1>
- Zeigler, E. F. (1974). *Analysis of the claim that «physical education» has become a «family resemblance» term*. En *Concepts of physical education and sports sciences* (Chap. 4, pp. 43–55). Wingate Institute for Physical Education and Sport.

Cite this article as: Sarmiento Rojas, J. E. & Escobar Díaz, F. A. (2025). The Conceptual or Theoretical Identity in Sports Sciences: A Scoping Review. *Central European Journal of Sport Sciences and Medicine*, 2(50), 103–117. <https://doi.org/10.18276/cej.2025.2-08>