



Redefining the role of doctoral supervisors: a multicultural examination of labels and functions in contemporary doctoral education

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Accepted: 13 December 2023
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Abstract

This study focuses on the changes that doctoral education has experienced in the last decades and discusses the role of doctoral supervisors. The figure of doctoral supervisor continues to be a subject of much debate; therefore, the aim of this study is to provide a universal, global, and common definition that clearly establishes the roles and functions of doctoral supervisors. Employing a multi-method approach, the study utilized the perspectives of linguistic relativism and prototype theory to understand how linguistic and label diversity may influence the perception and approach to supervisory tasks. We examine a corpus of 55 different labels to refer to “doctoral supervisor.” Data was collected from 116 countries, encompassing 47 different languages and 55 distinct labels from Europe, Africa, America, Asia, and Oceania, forming a unique corpus of information. The results reveal a total of 18 functions to be fulfilled by the doctoral supervisor. Additionally, the findings underscore the significance of linguistic influence in conceptualizing the functions associated with the supervisor in various cultural contexts and highlight the necessity for redefining the role of the thesis supervisor. The results hold potential benefits for doctoral schools and supervisors, serving as guidelines for standardizing the functions of the doctoral supervisor.

Keywords Doctoral supervision · Supervisor role · Doctoral supervisor · Academic development of supervisors · Doctoral studies

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Introduction

This study seeks to reveal the importance and influence of language in shaping the definition and attributed functions of *doctoral supervisors*. Our goal is a coherent, universal, and standardized definition to foster effective communication, harmonize expectations, and encourage intercultural exchanges among academics in the doctoral process.

In recent years, doctoral studies have undergone significant changes, leading to a variety of organizational models and validation procedures (Sarrico, 2022). Resignification, a reflective and transformative process, becomes crucial in redefining doctoral studies and the role of the doctoral supervisor. Its modification of the individual's perception (Sánchez Buitrago, 2009) involves giving doctoral studies new meanings and approaches beyond their traditional conception. Particularly, it involves a significant shift in the perception and approach towards the role of the doctoral supervisor, adapting their position and responsibilities to meet the evolving demands of doctoral education and research.

Numerous studies have focused on listing the functions of doctoral supervision but have tended to analyze what supervisors should do rather than what they do (Gruzdev et al., 2020). Although progress has been made in defining guidelines for doctoral studies, particularly regarding their importance in higher education, competencies at this level, and program organization, there is still no explicit and comprehensive definition for the doctoral supervisor. Harmonization efforts at the European level have been promoted through ministerial declarations (Bologna Process, 2003, 2005, 2007, 2009, 2012) and contributions from the European University Association (EUA) (European University Association, 2002, 2003, 2005, 2006). The European University Association, (2002) Trends II study revealed progress in the convergence of doctoral studies, leading to the establishment of doctoral schools or centers and the encouragement of joint supervision of doctoral theses. A subsequent review (European University Association, 2003) recognized the need to define and regulate the supervisor's activities as a crucial step towards uniformity and standardization of doctoral studies.

A definition of what a doctoral supervisor is cannot ignore or disregard the current reality of supervision, and therefore, this study examines the diverse terminology used in 47 different languages for the term doctoral supervisor. We consider it to be very important to analyze the labels that each language uses to name the doctoral supervisor because these labels can condition supervision vision and functions. In our study, we consider the Sapir-Whorf hypothesis (linguistic relativity) that suggests that the language we speak shapes our perception of the world. By analyzing 55 different labels from 116 countries, this study aims to analyze how these labels influence the definition and scope of the functions associated with the role of a doctoral supervisor. The consideration of linguistic relativity in this research serves a dual purpose: (i) unveiling the connections between language and culture and (ii) synthesizing linguistic diversity to achieve an inclusive and applicable definition across various languages and cultural contexts.

The existence of different labels in different languages to refer to the *doctoral supervisor* highlights linguistic diversity and varied cultural interpretations associated with this role. Moreover, along with the existence of diverse descriptions of this figure in the literature, it becomes evident the lack of a precise definition that aligns with these used labels. These aspects make it impossible to ensure equality and uniformity in supervisory tasks. An Italian supervisor, for example, calling himself *relatore* (rapporteur)

may consider his functions to be different from those of a Romanian supervisor labelled *conducator* (conductor). Therefore, we consider necessary to establish a common framework for doctoral education to obtain a solid and clear foundation to adequately understand this role.

This paper is structured as follows. Firstly, we provide a state-of-the-art definition of the doctoral supervisor and the roles associated with this position. Secondly, we describe the methodology of this study by presenting the compilation of the corpus, data collection and the analyses conducted. Thirdly, we present the results of our analysis. Finally, our results are contextualized within the current research landscape, and we highlight the study's relevance for researchers and professionals.

Literature review

Definitions of doctoral supervisor

The definitions of doctoral supervisor in the literature are given in terms of enumeration of duties or actions. Within the regulations governing doctoral education, this style of definition is not different. Additionally, authors use various nomenclatures or labels to refer to the doctoral supervisor, such as *research supervisor*, *coach*, *pathfinder*, *goalie*, *supervisor*, *thesis director*, *principal supervisor* (Bills, 2004; Lee & Green, 2009; Real Decreto 99/2011, 2011; Wichmann-Hansen et al., 2019). The use of these different nomenclatures may impact what is expected to be the actual role of the supervisor. EURODOC, (2004) developed a report for establishing minimum expectations for supervision and found that the literal translation of the word *supervisor* in different European languages had several meanings: it could be a *promoter*, *director*, *guide*, *counsellor*, *instructor*, or *Doktorvater* while other appellatives were associated with relator or mentor. To understand the extent to which this definition has come to be described, we review, without claiming to be exhaustive, some of the definitions that can be found in the literature on doctoral studies and in the regulations, laws, and documents governing on the doctorate.

The European Commission (2005) has established a European Charter for Researchers and a Code of Conduct for the Recruitment of Researchers. This code states that *supervisors* are sufficiently expert in research supervision, have the time, knowledge, experience, and expertise to adequately support the young scientist and provide the necessary progress and review procedures, as well as the necessary feedback mechanisms.

In Spain, the Real Decreto 99/2011, (2011), which regulates the official doctoral studies, in Article 2 defines the *director de tesis* (thesis director) as “the person most responsible for conducting all the research tasks of the doctoral student” and in Article 12 establishes that they is “the person responsible for the coherence and suitability of the training activities, for the impact and novelty of the subject matter of the doctoral thesis in their field and for guiding the planning and adaptation, where appropriate, to that of other projects and activities in which the doctoral candidate is enrolled.” Similarly, according to the United Kingdom's Quality Assurance Agency for Higher Education QAA, (2018) *supervisors* should be given sufficient time, support, and opportunities to develop and maintain their supervisory practice. Supervisors should be sensitive to the varying needs of individual research students and provide the associated support that may be required in different situations.

Bills (2004) defines a *research supervisor* as the person who captures talent, not necessarily develops it. Such a supervisory structure is derived from the traditional teacher/

student supervision model, where doctoral students are expected to acquire skills simply by observing and imitating their *research supervisor*. A more detailed definition can be found in Lee & Green, (2009), where supervision is sometimes interpreted as a form of *coaching*, where the supervisor sometimes encourages the student and sometimes is just standing on the side cheering. According to these authors, a *supervisor* can be defined as a *coach* (pushing the doctoral candidates, giving them instructions), a *pathfinder* (a model, with an ethical obligation to share their knowledge and to accompany the student and task to its completion), or a *goalie* (standing between the student and what they want to run off and do).

Pearson & Brew, (2010) suggest that the *supervisor* is a facilitator of the process in which the doctoral candidate becomes an independent professional researcher, able to adapt to various fields of research, whether in academia or industry. And with the same approach, according to Kiley, (2011), the *principal supervisor* is typically the researcher who has overall responsibility for the successful completion of the doctoral candidate. Additionally, she adds that the *principal supervisor* is also the one who many candidates refer to as *my supervisor* or the person who they turn to for guidance when needed.

To foster a culture of quality and doctoral candidate success, Friedrich-Nel & Mac Kinnon, (2019) established that *supervisors* are those people who effectively manage the supervisory process and meet the challenges of supervision, nurturing, and developing the personal and professional attributes of doctoral candidates to prepare them for employment in an academic setting.

Wichmann-Hansen et al., (2019) assume that a supervisor is a person with experience of supervising or at least co-supervising doctoral candidates and define *principal supervisor* as an experienced supervisor because it is equivalent to a senior academic position (associate professor or professor). For Brentel, (2019), the *main supervisor* is responsible for organizing the formal process of obtaining a doctorate. They are the person whose main task is to supervise, guide, and support the doctoral candidate in their professional activities. The *main supervisor* may delegate supervisory functions to a co-supervisor but remains responsible for communicating and verifying the candidate's progress, especially when there are problems. Alternatively, the *main supervisor* leads the supervisory team and must ensure that the team's communication and responsibilities are clearly defined and documented.

The analysis of the definitions described so far, and the use of different nomenclatures primarily provide us with lists of expectations, tasks, roles, and functions related to what a doctoral supervisor "is" and overlooks what they are supposed "to do."

The roles of doctoral supervisors

Different studies have identified various styles, roles, and skills associated with the supervisor, leading to divergent perspectives on their functions. The lack of consensus regarding specific actions or tasks supervisors should perform in doctoral education is evident in the following review. This dynamic interpretation of roles and functions makes it challenging to understand the true essence of a doctoral supervisor and their exact responsibilities.

From a sociological standpoint, *roles*, as defined by Merton (2002), pertain to the set of expectations and behaviors associated with a particular social position. These *roles* are closely linked to specific social positions and are marked by behaviors that conform to widely recognized social norms (Merton, 2002). Approaching the definition of *role*, in the context of doctoral supervision, Parker-Jenkins, (2016) established the definition of roles as

a set of behaviors, obligations and norms that are conceptualized by people in each social context. On the other hand, Orellana et al., (2016) defined *roles* as the functions and tasks involved in the supervision process.

In recent decades, changes in doctoral studies have significantly impacted the roles of supervisors. Many supervisors are aware of these changes (Taylor, 2012) and have been the subject of analysis on their productivity, backgrounds, and beliefs influencing the supervisory relationship and students' trajectories (Chugh et al., 2021; González-Ocampo & Castelló, 2018). In earlier decades, roles were clearer, with supervisors providing guidance and students responsible for producing seminal theses (Halse & Malfroy, 2010). Today, the perspective of the doctoral candidate on their development and thesis process plays a crucial role in defining the specific role of the supervisor (Bégin & Gérard, 2013).

According to Pearson & Brew, (2010) and Manathunga, (2005), the role of the supervisor should be approached from a perspective that encompasses the specific demands of doctoral studies. In their view, the purpose of doctoral studies is to cultivate competent researchers who can effectively adapt to a professional environment. Additionally, Maxwell & Smyth, (2010) argue that doctoral supervision should be regarded not only as a teaching and learning practice but also as the facilitation of the doctoral candidates' development and knowledge production within the research project. Pearson & Kayrooz, (2004) proposed that supervision can be framed as a series of tasks and responsibilities that can be grouped and operationalized as *expert coaching, facilitating, mentoring, and reflective practice*.

In this research, we classified roles into three perspectives:

- Based on supervisory styles
- Based on academic support
- Based on the exploration of development frameworks

Roles based on supervisory styles

Lee, (2008) stated that for each concept of research supervision, the supervisor should have more prominent activity. They help students efficiently plan and execute their research activities, provide specific knowledge, and act as guardians of learning resources, expert opinions, and networks, while also challenging and evaluating the candidate's research progress and findings critically. Additionally, supervisors act as mentors, guiding students through academic and professional challenges to foster personal and intellectual growth. Moreover, they tailor their approach and level of supervision according to the student's experience, skills, and needs.

Andrew, (2007) presented a model of supervisory styles that includes two distinct roles:

1. The supervisor plays the role of expert and manager, providing specific knowledge and guidance.
2. The supervisor assumes the role of facilitator, fostering student growth and development in a non-directive manner. As the relationship between supervisor and student progresses, this facilitator role tends to become more important and predominant.

Wichmann-Hansen & Herrmann, (2017) noted significant diversity in the terminology employed to delineate the directive role, which is interpreted as a supervisory style. The supervisor acts as *deliverer*, where the supervisor urges the student to produce work.

As *expert coaching*, the supervisor offers expertise on the research topic. In the capacity of *leadership*, the supervisor provides clear guidance. In the role of *academic expert*, the supervisor suggests many of the ideas and methods to be utilized. Lastly, as *project director*, the supervisor formally oversees and controls the research process.

Deuchar, (2008) develops a discussion of supervisory styles and the importance of adaptability. Four paradigms of supervisory styles emerge from his discussion.

1. *Laissez-faire style*. It involves the supervisor as an observer, allowing the candidate to independently manage both the research project and themselves.
2. *Pastoral style*. The supervisor provides only personal support.
3. *Directorial style*. It entails the supervisor offering support in the research project.
4. *Contractual style* requires supervisors and students to negotiate the extent of support needed for both the project and personal aspects.

Roles based on academic support

Various terms like *mentoring*, *coaching*, and *facilitating* have been proposed to describe the nature of supervision in doctoral studies. *Mentor* and *coach* are the most used terms in the literature. The key distinction between them lies in the broader role of the *mentor*, who helps the trainee integrate and adapt to a specific field of knowledge, while the *coach* primarily assists the trainee in completing specific tasks within a defined timeframe (Bégin & Gérard, 2013).

Carriero et al., (2023) emphasize that supervisors can indeed act as mentors, providing guidance on academic research and motivating and guiding young scholars toward specific paths, while also sponsoring projects or publications and supporting fundraising efforts. The differentiation between mentoring and sponsoring is crucial, with mentoring focused on emotional support for personal and professional growth, while sponsoring entails the exercise of influence and power.

Additionally, supervisors adopt different roles in the field of academic publishing: “prey” seekers, managers, manuscript reviewers, and masters (Lei & Hu, 2015). Some actively collaborate as co-authors, co-writing with their students, while others serve as reviewers, offering valuable feedback and comments (Lepp et al., 2013). These findings demonstrate that the supervisor’s role is to support knowledge development in scientific writing and guide students through the writing process in a way that leads to academically desirable results (Augustsson & Jaldemark, 2014).

Roles based on the exploration of developmental frameworks

The importance of having a conceptual framework for understanding the supervision process has been recognized by Vilkinas, (2008). They presented the *Integrated Competency Value Framework* (ICVF) as a conceptual framework for understanding the process. The ICVF describes various roles and associated activities, including six operational roles for the supervisor: *developer*, *deliverer*, *monitor*, *broker*, and *innovator*, and a central role of *integrator*. These roles provide a clear structure for understanding and addressing the supervisor’s responsibilities in the supervision process.

Murphy et al., (2007) developed a framework for examining beliefs related to doctoral supervision and found that divergences emerge along two main dimensions. The first dimension relates to the role of the supervisor, where some hold control beliefs, which

involve directing and taking responsibility for the research, while others endorse guidance beliefs, which focus on merely guiding the research process. The second dimension concerns the primary focus of supervision, where some emphasize task-centered beliefs, focusing on the research tasks to be performed, while others prioritize person-centered beliefs, focusing on the personal development of candidates. These distinctions, along with the interconnected nature of beliefs within each orientation, underscore the significant influence of beliefs in shaping each approach to supervision.

Based on a classic study of supervisor roles (*director, facilitator, adviser, teacher, guide, critic, freedom giver, supporter, friend, manager, examiner*) (Brown & Atkins, 1988), and using ten of the eleven roles identified in that model, Orellana et al., (2016) concluded that there are differences in the perceptions of students and supervisors regarding the main roles played by the supervisor in the doctoral process. While supervisors consider themselves to be *critic, freedom giver, supporter, and director*, doctoral candidates perceived their supervisors as *facilitator, teacher, supporter, and manager*.

Doctoral supervision is a demanding task, both intellectually and in terms of human relationships. For this reason, we consider it essential to distinguish between who a supervisor is and what they do. Lee & Green, (2009), drawing on cognitive linguistics, established that supervision should be understood primarily as a metaphor, as a necessarily elusive practice of naming and framing, of working with and within language.

Method and data

This study aims to comprehend the roles of a thesis supervisor using a function-based approach that recognizes linguistic diversity. The goal is to create an inclusive and adaptable definition applicable to various cultural and linguistic contexts. By analyzing functions from 55 labels in 47 languages across 116 countries, the research provides a deeper understanding of the supervisor's roles, considering specificities and variations in different languages and cultures. Functions are defined as specific supervisory tasks, regardless of the attributed label.

Corpus compilation

To conduct our analysis, we created a corpus of labels designating thesis supervisors in various languages and countries. As there was no global database on doctoral studies regulations, we collected information, country by country, from university web sites offering doctoral programs for all disciplines and continents. In cases where universities did not provide official regulations, we sought additional information from relevant government bodies.

The compilation of the corpus was conducted in three phases:

1. First step. Labels used to refer to the doctoral supervisor from available regulations and guidelines were extracted. We thoroughly examined official Web sites to identify all definitions and details related to the term “doctoral supervisor” as per available regulations and official documents, focusing on sections related to doctoral studies, doctoral school regulations, university regulations, research supervision, and responsibilities of the doctoral supervisor. Entries in the dataset were recorded with country, language, and institution. Labels were geographically classified: 55 from Europe, 33 from Africa,

- 29 from the Americas, 20 from Asia, and 5 from Oceania. Through a final process of classification and consolidation, this study identified a total of 55 different labels coming from 116 countries and 47 languages.
2. Second step. Our objective was to verify and validate the accuracy of the 55 labels. To achieve this, we consulted official dictionaries for each language, recording their definitions. This eliminated any possibility of misinterpretation. We also obtained verbs associated with each label. The selection of verbs was based on their ability to describe commonly understood actions and responsibilities associated with each label in their respective linguistic communities.
 3. Third step. Once the labels and their definitions were verified in their respective languages, their literal translation into English was made. To ensure the accuracy and fidelity of the translations, we relied on dictionaries of the original languages. This meticulous approach ensured that the translations accurately reflected the intended definition of the labels from their original language to English.

The dataset is available at <https://doi.org/https://doi.org/10.34810/data781>.

Datasets

A data classification was conducted before analysis. We classified data in two groups: the first group focused on data in the original language, enabling the derivation of functions from the 55 labels in their respective languages. The second group centered on data in major languages, providing insights into the functions prevalent in languages commonly used in official communications and across countries.

Data focused on original language

In accordance with the linguistic relativity framework, which emphasizes how mother tongue shapes an individual's perception of reality, the first dataset in Table 1 presents a comprehensive collection of 55 labels in their original language and their corresponding English translations.

Cultural influences are reflected in this list of 55 labels, shedding light on the expected roles of the thesis director within their respective linguistic communities. To preserve the principle of linguistic relativity, the direct English translations of these 55 labels were extracted. This decision was made to account for possible unique translations and definitions of the concepts included in these labels, which had not been previously investigated due to the complexities involved in translating them into other languages or the lack of previous research in this regard. Therefore, the English translations in the table represent literal interpretations of the labels.

In addition, a clear distinction was made between two categories of verbs:

1. Verbs derived directly from the labels themselves.
2. Verbs extracted from the definitions in the original language.

This differentiation played a crucial role in the analysis, as the definitions provided valuable supplementary information that was relevant for describing the functions in a comprehensive manner.

Table 1 Data focused on original language

Rank	Language	Supervisor nomenclature	Translated supervisor nomenclature	Verb from the main label	Verb from the definition
1	Albanian	Udhëheqës shkencor	Scientific leader	To lead	To guide
2	Arabic	مُشرف الأطروحة	Thesis supervisor	To supervise	To supervise
3	Armenian	Գիտական ղեկավար	Scientific leader	To lead	To direct
4	Azeri	Elmi Rəhbər	Scientific head	To lead	To guide
5	Bangla	গবেষণা তত্ত্বাবধায়ক	Research caretaker	To care	To care
6	Bulgarian	научния ръководител	Scientific manager	To manage	To direct
7	Catalan	Director de tesi	Thesis director	To direct	To rule
8	Croatian	Mentor	Mentor	To mentor	To supervise
9	Czech	Školitel	Trainer	To train	To manage
10	Danish	Hovedvejleder	Head guide	To guide	To advise
11	Dutch	Promotor	Promoter	To promote	To supervise
12	English	Supervisor	Supervisor	To supervise	To supervise
13	English	Adviser	Adviser	To advise	To advise
14	Estonian	Juhendaja	Instructor	To instruct	To supervise
15	Euskera	Tesi zuzendaria	Thesis director	To direct	To direct
16	Faroese	Høvuðsvegleiðarin	Main guide	To guide	To direct
17	Finnish	Ohjaaja	Guide	To guide	To supervise
18	French	Promoteur de thèse	Thesis promoter	To promote	To promote
19	French	Directeur de thèse	Thesis director	To direct	To direct
20	French	Superviseur de thèse	Thesis supervisor	To supervise	To supervise
21	French	Directeur de recherche	Research Director	To direct	To direct
22	Galician	Director da tese	Thesis director	To direct	To direct
23	Georgian	სამეცნიერო ხელმძღვანელი	Scientific head	To lead	To direct
24	German	Betreuer	Carer	To care	To care
25	German	Doktorvater	Doctor father	To sponsor	To supervise
26	Greek	Ερευνητικός Σύμβουλος	Research Adviser	To advise	To consult
27	Greek	Επιβλέπων Διδάκτορικής	Doctoral Supervisor	To supervise	To guide
28	Hindi	Nirdeshak निर्देशक	Director	To direct	To mentor
29	Hungary	Témavezető	Topic leader	To lead	To guide
30	Icelandic	leiðbeinandi	Guide	To guide	To instruct
31	Irish	Maoirseoir	Supervisor	To supervise	To supervise
32	Italian	Relatore di tesi	Thesis rapporteur	To report	To report
33	Kiswahili	Msimamizi	Manager	To manage	To manage
34	Latvian	Darba vadītājs	Work manager	To manage	To lead
35	Lithuanian	Mokslinis vadovas	Scientific guide	To guide	To lead
36	Macedonian	Ментор	Mentor	To mentor	To guide
37	Malay	Penyelia	Supervisor	To supervise	To manage
38	Norwegian	Veileder	Guide	To guide	To lead
39	Persian Farsi	استاد راهنما	Professor guide	To guide	To guide
40	Polish	Promotor	Promoter	To promote	To supervise
41	Portuguese	Orientador	Guide	To guide	To direct
42	Romanian	Conducător de doctorat	Doctorate conductor	To conduct	To lead
43	Russian	Научным руководителю	Scientific leader	To lead	To manage
44	Setswana	Mookameli	Manager	To manage	To manage
45	Slovak	školliteľa doktorandské	Doctoral trainer	To train	To train
46	Slovene	Mentor	Mentor	To mentor	To guide
47	Spanish	Director de tesis	Thesis director	To direct	To direct
48	Spanish	Tutor de tesis	Thesis tutor	To tutor	To guide
49	Spanish	Asesor de tesis	Thesis adviser	To advise	To advise
50	Swedish	Handledare	Instructor	To instruct	To guide
51	Tagalog	Tagapayo ng disertasyon	Dissertation adviser	To advise	To mentor
52	Turkish	Danışman	Adviser	To advise	To consult
53	Ukrainian	наукового керівника	Scientific manager	To manage	To lead
54	Urdu	Nigraan نگران	Supervisor	To supervise	To supervise
55	Yoruba	Ọgá	Boss	To boss	To boss

Data focused on major languages

A second dataset (Table 2) provides a breakdown of the frequency of occurrence of the labels across the 116 countries from which we obtained information. It is notable that, despite the existence of 55 different labels, some of them appear more frequently, particularly those associated with the English, French, and Spanish.

Table 2 Data focused on major languages

Rank	Languages	Results
1	English	48
2	Spanish	20
3	French	17
4	German, Malay, and Portuguese	3
5	Catalan, Dutch, Greek, Romanian, Setswana, Swedish, and Turkish	2
6	Albanian, Arabic, Armenian, Azeri, Bengali, Bulgarian, Croatian, Czech, Danish, Estonian, Euskera, Faroese, Finnish, Galician, Georgian, Hindi, Hungary, Icelandic, Irish, Italian, Kiswahili, Latvian, Lithuanian, Macedonian, Norwegian, Persian Farsi, Polish, Russian, Slovak, Slovene, Tagalog, Ukrainian, Urdu and Yoruba	1

Methodology

Frequency

The methodology started with analyzing data in the original language (Table 1) to address the research objective and identify the functions of a thesis supervisor. Verbs were then extracted from the dataset, specifically from the “verb from the label” and “verb from the definition.” These verbs were selected based on their ability to describe common actions and responsibilities in their respective linguistic communities. A frequency analysis was subsequently performed for each verb, counting its occurrences in the dataset. This exhaustive list of verbs offered an initial understanding of the roles a thesis supervisor should fulfill.

Prototype theory

We adopted the *Prototype Theory* (Rosch, 1973) as the analytical framework for *data focused on major languages* (Table 2). This choice has provided us with a deeper understanding of how categories are formed and how prototypes represent the essential characteristics associated with the role of the thesis supervisor. Our aim was to gain a more comprehensive understanding of this role in the context of doctoral studies and compare the results with those from the *data focused on original language* (Table 1).

The prototype theory suggests that categories are represented by central prototypes embodying essential category features. Rosch and Mervis (1975) demonstrated that categorization relies on family resemblances and shared features rather than strict definitions, highlighting the role of perceptual and conceptual similarity.

Prototype theory, as applied in cognitive psychology, is pivotal for forming and structuring concepts and categories, facilitating efficient information processing and cognitive economy (Hampton, 2006). In linguistics, it sheds light on linguistic categorization, language structure, and the categorization of linguistic phenomena. Goldstone & Kersten, (2003) delve into the cognitive processes of categorization and concept formation, highlighting prototypes as fundamental representations. They also explore the interplay between concepts and language, revealing how language shapes conceptual

understanding and abstract communication, while concepts reciprocally shape language. Moreover, prototypes serve as reference points for studying multilingual data, as emphasized by Taylor, (1995) and Watson, (2019). The research of Löhr, (2020), Pollack & Anichenko, (2022), and Zeifert, (2022, 2023) continually advances our understanding of prototype theory and its practical applications.

Prototype theory distinguishes between two types of categories:

- *Prototypes* serve as reference points for categorization, capturing essential shared characteristics among category members. They function as cognitive templates, aiding object or concept classification based on resemblance to the prototype (Rosch, 1973).
- *Categories* are mental representations and organizational frameworks for grouping items, events, or ideas with shared attributes. They are not universally fixed but constructed from perceptual and conceptual similarities, cognitive processes, and cultural influences (Rosch & Mervis, 1975).

To apply prototype theory in our study and refine function classification, we created a prototype model.

- **Prototype identification.** The frequency analysis of data centered on the primary languages (Table 2) revealed the prominence of English, Spanish, and French in labels and official communications within academic and governmental institutions. From this, four prototypes emerged: *supervisor*, *directeur*, *tutor*, and *director*. Chosen for their high frequency and representation of common role characteristics, these prototypes became representative examples in our research.
- **Category identification.** To refine our prototype model categories, we incorporated synonyms in the original language for each label. Utilizing Sketch Engine software, based on distributional semantic theory (Kilgarriff et al., 2014), we automatically identified synonyms. This approach expanded our research by encompassing a range of terms associated with the selected prototype labels in the context of doctoral studies. It enhanced inclusivity and extended our research scope. Using similarity percentages provided by Sketch Engine, we categorized members as either closely or distantly related within each prototype, resulting in a more precise and coherent prototype model.

The results of these two steps are displayed in Table 3, indicating the label's language, the corresponding language prototype, synonymous labels, similarity percentages, and associated verbs. In total, across the three primary languages, we collected 62 labels, encompassing both prototypes and categories.

We employed Prototype Theory in our research for multiple reasons:

- Its ability to generalize and simplify complex information allowed us to pinpoint the most representative and characteristic elements of the doctoral supervisor concept.
- It streamlined categorization by enabling classification based on similarities and resemblances with identified prototypes, simplifying organization and relationship identification among different functions.
- Its flexibility and adaptability acknowledge that concepts can vary and have nuances in different contexts, promoting a broader, more open understanding while avoiding rigidity. This also accommodated the inclusion of new functions or adjustments in our definition.

Table 3 Prototype theory output

Rank	Language	Label	Similarity	Verb from the label	Rank	Language	Label	Similarity	Verb from the label
1	ENG	Supervisor	Prototype	To Supervise	32	FRA	<i>Directeu</i>	Prototype	To direct
2	ENG	Coordinator	0.367	To coordinate	33	FRA	<i>Responsable</i>	0.354	To be responsible
3	ENG	Administrator	0.340	To administrate	34	FRA	<i>Adjoint</i>	0.325	To assist
4	ENG	Assistant	0.339	To assist	35	FRA	<i>Président</i>	0.318	To preside
5	ENG	Advisor	0.290	To advise	36	FRA	<i>Chef</i>	0.313	To lead
6	ENG	Inspector	0.281	To inspect	37	FRA	<i>Général</i>	0.307	To command
7	ENG	Leader	0.261	To lead	38	FRA	<i>Fondateur</i>	0.273	To found
8	ENG	Manager	0.258	To manage	39	FRA	<i>Administrateur</i>	0.248	To administrate
9	ENG	Representative	0.252	To represent	40	FRA	<i>Professeur</i>	0.245	To teach
10	ENG	Chief	0.246	To lead	41	FRA	<i>inspecteur</i>	0.233	To inspect
11	ENG	Teacher	0.240	To teach	42	FRA	<i>Patron</i>	0.223	To boss
12	ENG	Assessor	0.228	To assess	43	FRA	<i>Représentant</i>	0.212	To represent
13	ESP	<i>Tutor</i>	Prototype	To Tutor	44	ESP	<i>Director</i>	Prototype	To direct
14	ESP	<i>Educador</i>	0.385	To teach	45	ESP	<i>Jefe</i>	0.608	To boss
15	ESP	<i>Instructor</i>	0.367	To instruct	46	ESP	<i>Profesor</i>	0.592	To teach
16	ESP	<i>Docente</i>	0.342	To teach	47	ESP	<i>Presidente</i>	0.584	To preside
17	ESP	<i>Coordinador</i>	0.330	To coordinate	48	ESP	<i>Representante</i>	0.576	To represent
18	ESP	<i>Asesor</i>	0.324	To advise	49	ESP	<i>Responsable</i>	0.554	To be responsible
19	ESP	<i>Supervisor</i>	0.320	To supervise	50	ESP	<i>Maestro</i>	0.537	To teach
20	ESP	<i>Académico*</i>	0.315	To share knowledge	51	ESP	<i>Líder</i>	0.528	To lead
21	ESP	<i>Mentor</i>	0.305	To mentor	52	ESP	<i>Compañero</i>	0.511	To work in partnership
22	ESP	<i>Administrador</i>	0.303	To administrate	53	ESP	<i>Investigador</i>	0.487	To investigate
23	ESP	<i>Profesor</i>	0.291	To teach	54	ESP	<i>Especialista</i>	0.481	To specialize
24	ESP	<i>Cuidador</i>	0.288	To care	55	ESP	<i>Gerente</i>	0.477	To manage
25	ESP	<i>Especialista</i>	0.284	To specialize	56	ESP	<i>Experto</i>	0.468	To show expertise

Table 3 (continued)

Rank	Language	Label	Similarity	Verb from the label	Rank	Language	Label	Similarity	Verb from the label
26	ESP	<i>Investigador</i>	0.283	To investigate	57	ESP	<i>Coordinador</i>	0.466	To coordinate
27	ESP	<i>Consejero</i>	0.280	To counsel	58	ESP	<i>Colaborador</i>	0.462	To collaborate
28	ESP	<i>Gestor</i>	0.277	To manage	59	ESP	<i>Autoridad</i>	0.454	To authorize
29	ESP	<i>Colaborador</i>	0.276	To collaborate	60	ESP	<i>Consejero</i>	0.452	To counsel
30	ESP	<i>Organizador</i>	0.271	To organize	61	ESP	<i>Docente</i>	0.447	To teach
31	ESP	<i>Maestro</i>	0.270	To teach	62	ESP	<i>Asesor</i>	0.447	To advise

Results

Frequency results of actions associated to labels

To identify thesis supervisor functions, we conducted a frequency analysis of verbs extracted from both the 55 labels and their definitions (Table 1). The outcomes in Table 4 present a quantitative depiction of the actions linked to each label, supplying valuable insights into the primary activities within this role.

“Supervise” is the predominant primary action in all languages, featuring in 13 labels as a primary action, in 4 as a secondary action, and in 1 as a tertiary action. Additionally, “direct” and “guide” rank are the second and third most common actions, underscoring their significance in doctoral supervision. “Lead” follows as the fourth most common, reinforcing its relevance. Frequent appearances of “manage” and “advise” highlight their roles in guidance and counseling. Verbs ranked 7 to 18 have lower frequencies, suggesting variations in how doctoral supervisor functions are perceived across linguistic and cultural contexts. While less frequent, these verbs provide insights into additional dimensions of the role, which different linguistic contexts consider relevant and offer valuable information about complementary aspects of the role.

This frequency analysis reveals the multifaceted nature of thesis supervisor functions, emphasizing their synergistic relationship with other previously overlooked actions in the literature and normative documents. These observed results are significantly influenced by the principle of linguistic relativity, underscoring the substantial impact of the labels’ native languages. This phenomenon illustrates that the prioritization of verbs is closely tied to their linguistic and cultural origins. The prominence of

Table 4 Frequency results of data focused on original language

Rank	Verb	Total frequency
1	To supervise	18
2	To direct	17
3	To guide	17
4	To lead	11
5	To manage	10
6	To advise	8
7	To mentor	5
8	To care	4
9	To promote	4
10	To instruct	3
11	To train	3
12	To boss	2
13	To consult	2
14	To report	2
15	To rule	1
16	To conduct	1
17	To sponsor	1
18	To tutor	1

specific verbs is rooted in unique linguistic nuances, underscoring the role of language in shaping research outcomes.

Prototypical models

Incorporating prototype theory and synonymy enhanced our representation of the supervisor’s functions, providing a more comprehensive and accurate perspective. The prototypical models, depicted in Fig. 1, were developed for this study. Initially, we selected the four most representative labels from each language and designated them as prototypes at the center of each model:

1. *Supervisor* for English.
2. *Directeur* for French.
3. *Tutor* and *director* for Spanish.

Subsequently, we placed the corresponding categories, guided by the synonymy values in Table 3, in a position relative to the center. We organized them based on their proximity, prioritizing those with greater similarity. In total, 58 synonyms were identified for evaluation through prototype theory:



Fig. 1 Prototypical models. Three levels of categorization have been established for each prototype model

1. Eleven synonyms were obtained for *supervisor*.
2. Eleven synonyms for *directeur*.
3. Eighteen synonyms for *tutor*.
4. Eighteen synonyms for *director*.

In the *English prototype model*, the *supervisor* is the central figure responsible for *supervising* the doctoral candidate's research work. The levels of categorization are:

- *Level 1*: involves a direct focus on *research supervision and management*. Categories such as *coordinator*, *administrator*, and *assistant* describe roles that encompass organization, administrative management, and additional support.
- *Level 2*: carries a broader connotation of *direction and leadership*. Categories such as *advisor*, *inspector*, *leader*, and *manager* focus on providing thematic guidance, evaluating progress, leading projects, and managing resources.
- *Level 3*: reflects an *institutional and evaluative representation*. Categories such as *representative*, *chief*, *teacher*, and *assessor* imply roles related to representation, authority, teaching, and evaluation of research work.

In the *French prototype model*, the *directeur* is the central figure responsible for *directing* the student's research work. The levels of categorization are:

- *Level 1*: focuses on *research direction and supervision*. Categories such as *responsible* and *adjoint* refer to roles of assuming responsibility and providing assistance. *Président* is associated with a role of directing or being in charge in the context of the thesis.
- *Level 2*: implies a broader scope of leadership and overall management. It encompasses labels such as *chef*, *général*, *fondateur*, and *administrateur*. These verbs imply the execution of tasks related to exerting authority within the doctoral student relationship, establishing thesis guidelines, and carrying out roles in direction and administration.
- *Level 3*: specific roles of professor, evaluator, and representative. This category includes labels such as *professeur*, *inspecteur*, *patron*, and *représentant*. These verbs signify involvement in functions like serving as a professor and thesis director, assessing research work, taking on leadership roles, and representing the doctoral candidate in the academic context.

In the first *Spanish prototype model*, the *tutor* is the central figure responsible for tutoring the student's research work. The levels of categorization are:

- *Level 1*: focus on *education, instruction, and direct supervision* of the thesis. Categories such as *educador*, *instructor*, *docente*, *coordinador*, *asesor*, and *supervisor* have specific roles in education and supervision.
- *Level 2*: carries a connotation of *broader roles in the academic field and thesis management*. It includes labels such as *académico*, *mentor*, *administrador*, *profesor*, *cuidador*, and *especialista*.
- *Level 3*: specific functions of *research, counseling, and organization*. It groups labels such as *investigador*, *consejero*, *gestor*, *colaborador*, *organizador*, and *maestro*.

In the second *Spanish prototype model*, the *director* is the central figure responsible for directing the student's research work. The levels of categorization are:

- *Level 1*: focus on *leadership functions* and *direct responsibility* in thesis direction. It includes categories such as *jefe*, *profesor*, *presidente*, *representante*, *responsable*, and *maestro*.
- *Level 2*: broader aspects of the *academic field*, such as *collaboration*, *research*, and *management*. It includes labels such as *líder*, *compañero*, *investigador*, *especialista*, *gerente*, and *experto*.
- *Level 3*: specific functions of *coordination*, *counseling*, and *collaboration* in the development of the thesis. It groups labels such as *coordinador*, *colaborador*, *autoridad*, *consejero*, *docente*, and *asesor*.

From prototypical models to verbs: frequency results

Starting from the 62 labels that make up the prototypical models (prototypes and categories) in the three languages considered, we extracted the verb associated with each of these tags and calculated its frequency. The results are shown in Table 5.

These 30 verbs extracted from the prototypical models in the three most representative languages (Table 5) were compared with the 18 verbs identified in the original language labels and their definitions (Table 4). The outcome of this comparison is presented in Table 6, with matching verbs highlighted in bold.

In essence, the compilation of verbs derived from the prototypical models served to affirm and validate the significance of the 18 verbs extracted from the comprehensive analysis of the 55 original labels. This set of 18 verbs, identified through this process, provides the foundation for establishing the expected functions of a doctoral supervisor.

Table 5 Frequency results of prototypical models to verbs

Rank	Verb	Frequency	Rank	Verb	Frequency
1	To teach	9	16	To preside	2
2	To lead	4	17	To specialize	2
3	To administrate	3	18	To supervise	2
4	To advise	3	19	To assess	1
5	To coordinate	3	20	To authorize	1
6	To manage	3	21	To care	1
7	To represent	3	22	To comman	1
8	To assist	2	23	To found	1
9	To be responsible	2	24	To instruct	1
10	To boss	2	25	To mentor	1
11	To collaborate	2	26	To organize	1
12	To counsel	2	27	To share knowledge	1
13	To direct	2	28	To show expertise	1
14	To inspect	2	29	To tutor	1
15	To investigate	2	30	To work in partnership	1

Table 6 Functions of the thesis supervisor confirmed by prototype theory

Rank	Verb
1	To supervise
2	To direct
3	To guide
4	To lead
5	To manage
6	To advise
7	To mentor
8	To care
9	To promote
10	To instruct
11	To train
12	To boss
13	To consult
14	To report
15	To rule
16	To conduct
17	To sponsor
18	To tutor

Discussion

Functions vs. definitions and roles

The preliminary objective of this study was to determine the functions that a doctoral supervisor must fulfill. The finding of 18 functions that should be attributed to the doctoral supervisor represents a significant advancement in the field of doctoral supervision. This is because our functions go beyond the traditional definitions of a doctoral supervisor, which are usually based on their formal title or position. While previous literature has focused on what a supervisor “is” in terms of roles, general responsibilities, and academic position (Wichmann-Hansen et al., 2019), our 18 functions reveal what a supervisor actually “does” to actively engage in the research process of the doctoral student. By comparing our 18 functions with the definitions and roles from the literature, we identified existing gaps and limitations. We observed that only half of the functions explicitly coincide with those mentioned in the literature.

We found that the function *to guide* is related to the concept of providing appropriate support and guidance to the student (Andrew, 2007; Brentel, 2019; Brown & Atkins, 1988; European Charter for Researchers and on a Code of Conduct for the Recruitment of Researchers, 2005; Halse & Malfroy, 2010; Kiley, 2011). Similarly, the function *to manage* highlights the importance of planning and organizing activities that the supervisor must fulfill in the research process (Andrew, 2007; Brown & Atkins, 1988; Friedrich-Nel & Mac Kinnon, 2019; Lei & Hu, 2015; Orellana et al., 2016). On the other hand, the function *to supervise* is related to the process of supervising research towards the doctoral candidate (Brentel, 2019; Halse & Malfroy, 2010; Anne Lee, 2008). Additionally, the function *to*

mentor involves helping the doctoral candidate integrate and adapt to a specific field of expertise (Bégin & Gérard, 2013; Anne Lee, 2008; Pearson & Kayrooz, 2004).

Regarding guiding the research tasks of the doctoral student, we have identified that the functions *to direct* and *to conduct* have also been identified (Brown & Atkins, 1988; Deuchar, 2008; Orellana et al., 2016). Additionally, it appears the function *to advise*, which is related to providing recommendations and advice to the doctoral candidate (Brown & Atkins, 1988), the function *to sponsor*, that is related to sponsoring projects or publications and supporting fundraising efforts (Carriero et al., 2023), and the function *to lead*, related to leading the supervision team (Brentel, 2019). Lastly, the function *to instruct* has also been identified in the literature which emphasizes teaching and developing specific skills for the doctoral candidate (Lee & Green, 2009).

However, we identified some discrepancies and omissions. The functions *to care*, *to promote*, *to train*, *to boss*, *to consult*, *to report*, *to rule*, and *to tutor* have not been explicitly detailed in existing literature, but their inclusion depends on the interpretative lens employed. These supplementary functions may encompass complementary dimensions overlooked in prior research. Therefore, with our expanded set, it becomes apparent that conventional descriptions may fall short in comprehensively portraying the complexity and full extent of actions undertaken by a doctoral supervisor.

From prototype to functions

The methodology based on the prototype theory played a fundamental role in our research by allowing the identification of the most representative and characteristic elements within the concept of the doctoral supervisor. It streamlined the categorization and classification of the functions according to similarities with the identified prototypes, simplifying the organization process and allowing us to discern the relationships between the different functions. Consequently, we summarized the set into 30 functions (cf. Table 5), which effectively represent the core actions that characterize the doctoral supervisor in the three languages analyzed. Notable similarities include a primary focus on research supervision and management, encompassing aspects of organization, administrative oversight, and additional support, highlighting a broader understanding of leadership and the representation of institutional and evaluative responsibility.

The flexibility and adaptability of this methodology allowed us to recognize that the concept of doctoral supervisor may have variations and nuances in different contexts and languages, fostering a broader and more open understanding. So, if we can generate a new definition based on this methodology, it will represent a significant achievement. We have been able to validate and confirm 10 out of the 18 functions identified early in the literature (cf. Table 6). But there are still 8 functions do not reference before that must be included in the functions that a doctoral supervisor must perform.

A definition of doctoral supervisor

Defining the role of a doctoral supervisor with clarity, accuracy, and precision has posed a long-standing challenge in higher education research. While some supervisors recognize the evolving landscape of higher education and the changing nature of their responsibilities (Taylor, 2012), this research has, for the first time, revealed a significant number of essential functions that the doctoral supervisor must execute in the development of a doctoral thesis.

According to Medina Guerra, (2003), a definition is an interpretative construct based on the use of words. Lara (2004) classifies explanatory definitions as those that highlight real differences in vocabulary and text, corresponding to the actual use of speakers, allowing for a precise understanding of the defined term. These definitions have a heuristic function, enriching semantic comprehension, and act as an interpretative device, exemplified using the label “*supervisor*” in English. They also have a cultural function, understanding the meaning within the cultural context. Meaning is not simply limited to reference to real objects; it is an inherent phenomenon of the language itself. An effective explanatory definition is thus a cultural definition that reflects the particularities of the linguistic community.

Based on this concept of an explanatory definition, we establish the definition of a doctoral supervisor, delineating the 18 functions identified during our research. The sequence of these 18 functions follows the frequency order obtained in Table 4:

1. To supervise: involves overseeing and providing general direction to the doctoral candidate’s research process, ensuring the fulfillment of thesis objectives and the quality of the work.
2. To direct: signifies providing guidance and leadership in the development of the doctoral thesis, ensuring that guidelines are followed, and planned outcomes are achieved.
3. To guide: refers to providing advice and support in designing and executing the research project, ensuring that the doctoral candidate stays on the right track.
4. To lead: implies taking a leadership and motivational role in the research process, inspiring and encouraging progress.
5. To manage: means handling the resources and time related to the thesis, ensuring proper efficiency and organization.
6. To advise: involves providing expert recommendations and advice to enhance the quality and relevance of the research.
7. To mentor: refers to guiding and supporting the doctoral candidate in developing their academic and professional skills.
8. To care: signifies showing concern and attention towards the doctoral candidate’s academic and emotional well-being during the research process.
9. To promote: involves fostering the doctoral candidate’s progress and success, supporting their achievements and efforts in research.
10. To instruct: refers to providing specific instructions and guidance on technical and methodological aspects of the research work.
11. To train: means providing training and development of relevant skills for research and academic work.
12. To boss (be in charge of): implies being responsible for supervising and directing the work of the research student, making decisions, and providing guidance and direction to ensure research and academic tasks are accomplished.
13. To consult: refers to providing professional or expert advice to enhance the focus and quality of the thesis.
14. To report: signifies communicating and sharing the progress and results of the research with the doctoral candidate and other stakeholders.
15. To rule: governing or exercising authority and control over doctoral candidate. It can also imply taking decisions, setting regulations, and being in a position of power or leadership.
16. To conduct: refers to guiding and directing the doctoral candidate during the research process.

17. To sponsor: assumes responsibility for the actions, statements, and obligations of the doctoral student throughout the learning period, additionally ensuring the protection of the student during this phase.
18. To tutor: implies guiding and supporting the doctoral candidate in a more individualized manner in developing specific skills and knowledge.

From the above functions, we propose a definition for the concept of “*doctoral supervisor*”:

Definition: (place the label in your native language): is the person who accompanies the doctoral candidate throughout the thesis development process, taking an active role and fulfilling the following functions: they oversee and provides general direction to the doctoral candidate’s research process, ensuring that thesis objectives are met and maintaining work quality. They offer guidance and leadership during thesis development, ensuring adherence to guidelines and desired outcomes. Additionally, they provide advice and support in research design and execution, ensuring the doctoral candidate stays on track. They also take a leadership and motivational role, inspiring progress and ensuring efficient resources and time management. Furthermore, they offer expert recommendations to enhance research quality and relevance. They guide and support the doctoral candidate’s academic and professional skills development, showing concern for their well-being and fostering success in research. Moreover, they give specific instructions and guidance on technical and methodological aspects of the research work. They are responsible for supervising and directing the doctoral candidate’s work, making decisions, and providing guidance to achieve research and academic goals. Additionally, they provide professional advice to improve the focus and quality of the thesis. They communicate and share research progress and results with the doctoral candidate and other stakeholders, while ensuring compliance with academic and research standards. Finally, they guide and direct the doctoral candidate throughout the process, assuming responsibility for their actions and protecting them during the learning period.

The objective of utilizing linguistic relativism in this research to create a definition is to acknowledge and respect the diversity of cultural and linguistic perspectives in shaping the meaning of a doctoral supervisor. The evidence and data we worked with in this research have aided us in understanding that language reflects an interpretation of human wisdom and carries a multitude of cultural elements that are reflected in higher education. By applying the approach of linguistic relativism in our definition, we avoid imposing a singular view and embrace the multiplicity of meanings in different cultural and linguistic contexts. Thus, the definition of a doctoral supervisor we propose becomes more flexible and contextualized, sensitive to the diverse interpretations within the academic community.

Conclusions

The knowledge society’s paradigm positions doctorate holders as pivotal actors in research and development (R&D) generation and transfer, bridging the gap between R&D institutions and society. Universities play a central role in preparing future doctoral graduates, but the evolving requirements of doctoral education, as indicated by the Dublin Descriptors for third cycle degrees, present new complexities. Meeting these challenges requires professionalizing doctoral supervision, aligning it with institutional policies.

Considering the transformative changes in doctoral education, a process of “resignification” in doctoral supervision is emerging. Resignification calls for a shift in the university community’s mindset and the specific training of supervisors to meet the demands of the evolving supervision model. In this context, the roles and functions of key stakeholders are instrumental. This paper primarily focuses on the supervisor’s role.

Our analysis of 55 labels in 47 languages addresses a problem: while the functions of the supervisor have evolved significantly, the label remains unchanged. We claim that a definition of supervisor cannot ignore or disregard the reality of supervision today. To account for the reality of supervision today, we propose a definition close to/ the actual practices, while emphasizing resignification. Supported by linguistic relativity, which underscores the intimate relationship between linguistic influences, cultural norms, and the individual styles of speakers, our research unveils the connections between language and culture. This reveals the richness and complexity of linguistic diversity attributed by each culture and country into the function of a doctoral supervisor through various labels. Consequently, this enables the formulation of a more flexible and context-sensitive definition of a doctoral supervisor, reflecting the multiplicity of meanings within diverse cultural contexts. The aim is to regulate and facilitate the supervisor’s work, ensuring success. Our investigation highlights that the supervisor’s role is more active and dynamic than previously understood in the literature on roles.

With our work, we do not intend to change the label with which supervisors are called in different languages, of course, but we do intend to change its meaning so that a doctoral supervisor, whatever they are called, always and everywhere perform the same functions. Only in this way can we begin to ensure that the doctoral degree has the same value and meaning wherever it is obtained. While some studies suggest that increased regulation in supervision may challenge the supervisor’s prominence (Cardoso et al., 2022), this study presents an innovative perspective by identifying and detailing a total of 18 crucial functions for this role. Of these functions, 10 are confirmed through prototype theory, and 9 through literature review. Hence, it is imperative to acknowledge and consider all these 18 functions, as they address complementary aspects that have not been fully identified until now, signifying the true extent of actions performed by a doctoral supervisor.

The redefinition of the “thesis supervisor” is imperative, requiring the assignment of new roles, functions, and updated value to align with evolving demands in doctoral education and research. In general, redefining doctoral studies aims to transform them into meaningful learning experiences that have a positive impact on academia and society at large, taking a broader and more creative perspective on their purpose and possibilities.

One pathway to achieve this redefinition of the supervisor’s role is to provide specific training to enable doctoral supervisors to perform their role effectively. Our doctoral supervisors should not learn in isolation or lack the tools to fulfill their roles. These training programs should focus on the necessary competencies identified in our research and contribute to the professionalization of this profession. The utility of our research findings we believe will serve a starting point in academic development workshops for supervisors. We believe it will enhance discussions regarding supervision during training sessions, fostering a more comprehensive understanding and discussion of supervisory practices. Consequently, supervisors will be better prepared to guide their doctoral candidates through the research and academic formation process.

Furthermore, it is important to acknowledge that while this definition of the doctoral supervisor may be appealing, it remains largely a theoretical construct. Therefore, to uphold the worldwide quality of doctoral supervision, it is imperative for institutions that can expend the doctoral degree to establish explicit regulations and guidelines. Consequently, the necessity to enhance doctoral regulations by implementing clear guidelines and standards becomes evident, ensuring coherence and excellence in doctoral supervision. Additionally, the establishment of a comprehensive global database for doctoral studies will facilitate transparency, collaboration, and innovation among institutions. Finally, embracing the suitable term for thesis supervisor in their respective native languages will foster inclusivity, honor cultural diversity, and promote effective communication within the global academic community.

Limitations and ideas for future research

Due to the absence of a consolidated global database, we limited this study to the labels from regulations of universities or institutions with information available on the Internet. We consider this to have been an important limitation of our research, since we were unable to include universities or countries where, despite having university regulations, the corresponding information was not available on their websites. Consequently, these institutions were excluded during the multicultural analysis. For future research, broadening the scope to cover a larger number of higher education institutions, together with a longitudinal study, could provide a more complete understanding of changes in the roles of doctoral supervisors and their impact on the success of doctoral students. In addition, institutional language often prioritizes goals and aspirations rather than accurately reflecting practical realities. Therefore, in the future, more empirical research will be conducted that directly examines the real experiences of candidates, supervisors, including co-supervisors in practice. Moreover, exploration of evaluation systems to measure the effectiveness of supervisors and co-supervisors is warranted. Finally, investigating the influence of academic development workshops for supervisors on behavioral changes in the performance of their duties is another crucial area for research .

Authors' contribution All authors contributed equally to the study conception, design and writing of this paper. All authors read and approved the final manuscript.

Funding Open Access funding provided thanks to the CRUE-CSIC agreement with Springer Nature. This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 945413 and from the Universitat Rovira i Virgili (URV).

Data availability The dataset is available <https://doi.org/10.34810/data781>. License/Data Use Agreement [Creative Commons Attribution 4.0 International License.] CC BY 4.0.

Declarations

Competing interests The authors have no competing interests to declare that are relevant to the content of this article.

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