Research Methodology Courses in Advanced Studies in Education: Trends from the Portuguese Case

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The identification and characterisation of all course syllabus on research methodologies in education in advanced studies in education allows to present the current Portuguese teaching and learning scenario in this field for the first time. The approach for the development of this empirical work was a national survey of all master's and doctoral programmes in education and in teaching, coding and translating the information. The data collected was validated with the respective higher education institution, the master or doctoral coordinator and the teacher responsible for the research methods teaching. A qualitative based methodology through descriptive statistical analysis enables a presentation of trends in the design and organisation of the course syllabus. The results show a research knowledge that is fragmented and not clear. The descriptions of course syllabus undervalue the epistemological and methodological issues inherent in the construction of scientific knowledge in education. Privilege is given to the operationality of the methodology with a view to developing a scientific project.

Keywords: higher education, research methodologies, education and teaching programmes, master course syllabus, doctoral course syllabus

INTRODUCTION

Teaching research methodologies in education in Portuguese advanced programmes in Education is increasingly becoming an epistemic object of reflection. Teaching in the higher education system, since the Bologna process in 2007, has been the focus of research. The different scientific areas, composed by various characteristics that permeate them, have reinforced this teaching scenario. Research methodologies in education, although not yet conceived as a scientific area by the higher education system in Portugal, are becoming interpreted as knowledge of their own. The processes of understanding the world and contemporary societies, overwhelmed by information and the ways of acting interpretatively in the face of what is perceived, have generated emphasis on research methodologies in education in master's and doctoral programmes in Education in Portugal. The education of students in this field, although available, still reveals insufficient room for the identification of their characteristics and formulations as constituent knowledge of the higher education system (in relation to who teaches and who learns). This paper intends to be a contribution for the identification and characterisation of research methodologies in education courses' syllabus, acting as a product that encourages reflection about its formulations (of scientific knowledge, research competence and pedagogical practices). In Portugal, an innovative project financed by a Portuguese agency with international funds and entitled Research Methods in Advanced Studies in Education is studying the teaching and learning of research methodologies in education since January 2022 (of which this paper is an output). The project general aim is to identify and provide research-based principles and guidelines for the design of research methods courses in Education, that will be put together as a framework. A first result already published (Matos, Piedade, Freitas, Pedro, Dorotea, Pedro, & Galego, 2023)) providing a synthesis of the state of the problem based on the literature review, concludes that the construction of a research-based scientific culture is fundamental in advanced studies in education and teaching. From this premise and within the scope of the same project, this paper is developed.

The aim of this paper is to identify and characterise research methodologies in education courses' syllabus from the area of education and teaching in Portuguese master and doctoral programmes. To operationalise this study a qualitative methodology is used.

The paper is organised into different sections. The first one, presenting the state of the art, highlights that there are only a few publications (in the accessed databases from 2007 to 2022) directed to the focus in question (the course syllabus of research methodologies in education in advanced studies in education). In a second section, the methodology is detailed by the processes adopted, highlighting criteria for the identification and selection of the 'cases' under study, as well as the construction of the process for their characterisation. In a third section, a synthesis of the database built with the data collected is presented, introducing the results. The presentation of results is sequentially presented considering the specificities of the paper's aim relative to the general, masters and doctoral programmes. The paper ends with a discussion of the results and respective research conclusions.

Teaching and Learning Research Methodologies in Education: The Setting for Curricular Offers in Educational Higher Education Courses

To contextualize the teaching and learning of Research Methodologies in Education (RME) within the curriculum of master's and doctoral programmes in education, it becomes relevant to consider instructional design theory as a guiding principle in curriculum development. According to Lee and Jang (2014), Instructional Design (ID) encompasses the creation of instructional materials that form the RME course syllabus. Thus, ID involves an externalization of distinct 'educational factors' to shape instructional content (Lee & Jang, 2014). In the context of RME teaching and learning, the presence of a research methodology program with its specific educational factors is pivotal, fostering a symbiotic relationship between educators and learners. Teaching and learning RME can be understood in the literature around three main themes. The first is concerned with methodological knowledge. The second one is about research skills. The third main theme focuses on pedagogical practices. As highlighted by Pionera et al. (2020), concerning knowledge, skills and practices while emphasizing the study of writing competencies, the establishment of diverse instructional methods within educational course design facilitates effective ways to teach and learn. Recognizing that RME course syllabus are design by teachers, and validated and formalized by higher education institutions, underscores the institutional-level development of ID strategies. Moussa-Inaty, Atallah, and Causapin (2019) emphasize that institutions bear responsibility and possess the requisite awareness to enhance the development of instructional materials, including course syllabus and their specific components, to optimize teaching and learning outcomes. From these premises, advancements are made in the state-of-the-art about teaching and learning RME regarding its structure.

Based on the thematic organisation of methodological knowledge, research skills and pedagogical practices in REM, as constitutive elements of the ID of RME course syllabus, trends of this teaching-learning process will be highlighted. For this reflection to aggregate localised knowledge, it is considered pertinent that before elaborating the specific characteristics for each of these three mentioned dimensions, the general scenario that currently constitutes this teaching-learning of RME is presented, formulated as pitfalls. It is important to state that the literature review was based only on open access papers and reports, in the main international and Portuguese scientific databases, published between 2007 and 2022. Studies focused on the characterisation of RME course syllabus are scarce.

The literature shows that anxiety and 'fear' of learning RME (mainly quantitative methodology) is a key component for the (un)motivated students in social sciences advanced study courses (Howard & Brady, 2015; Nind, 2020; Saeed & Al Qunayeer, 2021). This is considered one of the most crucial pitfalls in teaching-learning RME. It becomes problematic to understand that this is a possible scenario as a starting point for learning RME. This scenario becomes more complex when it is understood that the inner subject of RME is itself a complexity. According to Nind et al. (2019) the complexity of the methodological-epistemological understanding and its applicability in everyday life is another pitfall. These results derive from the understanding that RME course syllabus have impractical characteristics and are situated in a more abstract

panorama of their experimentation. From these two major pitfalls in teaching-learning RME it can be assumed that the knowledge is fragmented, the students are moved by discouragement forces and the kind of pedagogical practice and interaction between who teaches and how learn is formulated based on isolation and misunderstandings. From this generalised reflection, different studies have advanced with the study of teaching and learning in RME, seeking to reveal trends.

Concerning the methodological knowledge, the literature shows that when RME courses syllabus promote collaboration commitments between students and teachers the complexity of research methods become more understandable. This is most effective when the pedagogical practices of teachers focus on students' experiences. These commitments are better advocated when students' previous experiences are incorporated into their learning, in relation to personal experiences (various life experiences), as well as academic experiences (Lewthwaite & Nind, 2016). At stake is the promotion of epistemic-methodological literacy. Another way to achieve such literacy, through collaboration commitments, can be found in empathic relationships between teachers and students during supervision and tutorial guidance moments (Ehiyazaryan-White, 2012).

The second main theme, as previously stated, is about research skills. The literature shows that for research understanding and development it is necessary to be aware and go through different scientific paradigms, specific characteristics of designing research and their particular approaches as well forms and contents related to their dissemination. According to Secret, Bryant & Call-Cummings (2017) the RME courses syllabus are constituted, mainly, by principles of scientific texts reading (written in different academic formats), the research questions development (from different methodological approaches) and critical reflection (based on individual, peer, and group activities). Based on the same authors, the characteristics of research competences to carry out research include understanding the epistemological and methodological differences between quantitative and qualitative methodologies, understanding the ontological foundations relating to the ethical principles of research and their specific terminologies and how to write research texts. When these principles and characteristics are the basis of RME courses syllabus, the students' learning experiences of methodological understanding increase (Knipe et al., 2018).

Concerning to the trends of pedagogical practices (as the third main theme) identified in the literature it can be said that active learning processes with the student-centred approaches makes it possible to achieve the referred methodological knowledge and research competencies. According to Bell (2016) these pedagogies allow students to feel more comfortable with RME courses syllabus counteracting the anxieties described above. However, such practices reveal some challenges for those who teach, as well as for those who learn. Some challenges highlighted in the literature on RME pedagogical practices, in this paradigmatic concept of RME teaching-learning, are the temporal and spatial organisation of practical exercises in group activities during the course. The choice of platform interaction (either face to face and/ or online) impacts these times, spaces, and exercises. According to Lu & Cavazos Vela (2015) whether through distance formats (online) or face-to-face (in classrooms) the RME teaching is effective

in any of the learning modalities. However, some disadvantages can be discussed. The literature shows that the pedagogical practices of teachers responsible for teaching RME need to recognise the variation in the individual educational needs of each student (Luo, 2017). In this regard, one approach to achieve this challenge is through an peer authorial construction of research understanding (Freitas, Matos, Piedade, Teodoro, & Serradas Duarte, 2024).

From this trending landscape and contrary to the types of practices, interaction, commitment, and knowledge that characterise the pitfalls in teaching-learning RME a new culture can be identified. Regarding pedagogical practices, now constituted by active and collaborative pedagogies where learners can act as experts and teachers as learners create possibilities to perceive a scientific culture organised through student-centred approaches. Knowledge in this type of culture is, therefore, practical knowledge, where RME must be conceived in a practical way, increasing students' scientific autonomy. The establishment of a culture focused on teaching and researching RME, or, in other words, the development of guidelines for ID of RME course syllabi, remains limited in the literature (Matos, Freitas, Estrela, Galego, & Piedade, 2023).

METHOD

The aim of this paper is to identify and characterise RME course syllabus from the area of education and teaching in Portuguese master and doctoral programmes. For that purpose, the main research question is: How are RME courses syllabus organised in Portuguese master's and doctoral programmes?

To operationalise this issue, two specific research questions were formulated: What are the generic characteristics of the RME courses' syllabus? What are the emerging trends of objectives, learning outcomes, programmes, and teaching/ working methods in RME course syllabus?

The approach taken can be described as a survey (serving as a form of an observational study) of the existing course syllabus on RME in the Portuguese master and doctoral programmes. According to Cohen, Manion & Morrison (2007), a survey can be understood as a way of gathering large-scale data in order to make generalisations. From this concept, this study is framed as a qualitative study that engages in large-scale identification and characterisation of empirical work.

It is assumed that the course syllabus contents reflect the teachers' choices and decisions regarding what they believe represent the methodological knowledge appropriate for students. Despite numerous research-based guidelines aimed at organizing a more efficient instructional design for teaching and learning in different scientific fields, there are no mandatory rules that restrain the teachers' orientation in defining the course syllabus orientations, therefore Higher Education Institutions (HEI) are scientifically free and responsible for the design of the RME course syllabus. However, all HEI need approval from an agency responsible for programmes accreditation to have their programmes in action. To this end, the programmes submitted for evaluation by the HEI follow a set of guidelines that need to be fulfilled. What is in dispute is not the scientific content, but the organisational form.

Data collection followed a process of the identification and selection of the course syllabus on RME included in the database created for national master's and doctoral programmes. The criteria used for construction of the study data basis followed the criteria that are described below. Finally, it was possible to have a large corpus of data that represent the raw material (at a national level) used in the analysis.

For the purpose of analysis, the process of methodological construction of the categories was based on three sequential steps: (i) the definition of a priori categories - closely related to the structure of the course syllabus' description (e.g. courses objectives, learning outcomes, themes) that serve the initial phase of the analysis, (ii) the creation of new categories emerging from an in-depth analysis of the course syllabus' description, and (iii) an articulation and harmonisation of the a priori with the emerging categories. This produced a final structure of categories that are shown in the description below.

To ensure the reliability and accuracy of the instruments and procedures applied to gather data, the validation process was conducted through three steps. Firstly, the relevance of the mentioned items was examined among all authors. Additionally, the results of the authors' examination of the items' relevance were reviewed by other team members of the project to which this study belongs. For instance, originally, each item was accompanied by a description and an illustrative quote. After revisions, this material was reconsidered by the authors and subsequently removed. The same review process was then applied to the established criteria (as detailed in the following section). It was ensured that there were no errors and that the consistency of the criteria allowed for a clear understanding of the items. Finally, the process of designing the instruments (items and criteria) and recording information was completed. Following these steps allows for the validation of instruments for data collection, strengthening the overall validity and integrity of the study.

Criteria for programmes identification and selection: reaching out research methods in education course syllabus

The process was initiated by the identification and selection of criteria and their application to the programmes (master and doctoral programmes) where it was possible to record course syllabus. programmes were identified from two Portuguese databases: the Agency for Assessment and Accreditation of Higher Education (A3ES) and the General Directorate for Higher Education (DGES). These open access databases make it possible to identify all recognised and valid programmes in Portugal. The data collection period ran between 3rd and the 7th of January 2022. The selection criteria of programmes to be included was determined as follow: Legal aspect of HEI: public and private; Type of HEI: university and polytechnic; Academic field: education, teaching, pedagogy; Study cycle of the programmes: master's and doctoral programmes; Scientific area of the programmes: education and teaching in all scientific areas; Registration of programme: only currently active and accredited courses by the A3ES.

To guarantee the total access to course syllabus' identifications of all educational master and doctoral programmes of HEI' individual websites of HIE were consulted. After this procedure, all identified programmes' coordinators were contacted via email with the

aim of confirming the information collected and/or requesting information when it was not publicly identified in the websites of A3ES and DGES. This effort was possible through open access contact information in HEI with a round of three contacts, distributed between February and May 2022. The decision for programmes' identification with this method was crosschecked with open access information available in the two used institutional sources to avoid overlapping and incorrect exclusion. After the criteria application for Master and Doctoral programmes identification, the eligible programmes were identified (N=368).

After having selected the programmes, at a second stage the course syllabuses were identified. From 368 programmes, 154 programmes were excluded based on refusal to disclose information about RME course syllabus (N=7), no public information and no response from programme coordinator regarding to the RME course syllabus (N=45) and the programme being development without RME course syllabus (N=102). The final record is 214 programmes identified. The programmes are organised into masters' programmes (N=195) and doctoral programmes (N=19). After this identification, the RME course syllabus associated with each of them were identified. There are 265 RME course syllabus. The RME course syllabus number (N=265) exceeds the number of programmes (N=214) because there are programmes that have more than one RME course syllabus.

Database of research methods in education syllabus: construction process and courses characterization

The information collected about the RME course syllabus (N=265) was organised in a database by filling out information on different indicators: programme name; programme type (master or doctoral programme); National Classification of Education and Training Area (CNAEF); HEI name; HEI location; programme coordinator; RME course syllabus coordinator; programme web location, observation, and other information. The indicators were constructed based on the A3ES course formulation guidelines. After the registration of all the information related to each programme (N=214), it is possible to present its global and general characterisation. This task was carried out by three people and reviewed between them.

The 19 doctoral programmes are distributed across programmes in education (N=15) and in teaching (N=4). The CNAEF areas are education sciences; teacher and trainer education in technological areas; teacher education in specific subject areas; arts - programmes not classified in another training area; history and archaeology; teacher/trainer education and education sciences. The 19 programmes have their HEI distributed over different geographical areas such as Lisboa, Coimbra, Porto, Vila Real, Castelo Branco, Évora, Aveiro, Funchal and Braga.

Within the 195 master programmes, 109 programmes in teaching and 86 programmes in education were identified. The programmes (N=195) have 21 CNAEF registered areas: Educational Sciences; Basic Education Teacher Education (1st and 2nd Cycles); Teacher Education on Technological Areas; Teacher Education on Specific Subject Areas; Teacher Education and Educational Sciences; Psychology; Sociology and other studies; Environmental Sciences; Social and Behavioural Sciences; Early Childhood

Educator Education; Tourism and Leisure; Arts - programmes not classified elsewhere; Social Work and Guidance; Public Health Services; Philosophy and Ethics; Sports; Health; Management and Administration; Mathematics; Performing Arts; Foreign Languages and Literatures. The courses are distributed through 20 Portuguese districts: Aveiro; Porto; Vila Real; Évora; Braga; Lisboa; Castelo Branco; Beja; Bragança; Coimbra; Portalegre; Santarém; Setúbal; Viana do Castelo; Viseu; Leiria; Faro; Funchal; Guarda; São Miguel Island.

Hereafter only RME course syllabus (N=265) will be referred to as the empirical corpus of this work.

Database of research methods in education course syllabus: criteria for identification and selection of RME course syllabus

The identification process of the course syllabus records (N=265) derived from the programme selection allowed the construction of a specific database. The process took place from two sets of criteria. The first criteria established was in an objective description of yes or no with the objective of ascertaining whether specific information for each indicator existed. The indicators were: objectives; programme; learning outcomes; working methods; assessment; mandatory literature.

The second criteria served to structure the database. Its structure gathers different types of information including the study plan; ECTS number; study typology; contact hours; objectives; learning outcomes; working methods; pre-requirements; programme content; teaching methods and learning activities; assessment; and mandatory literature of reference. These 12 indicators are fully detailed in the supplementary material table n.º 1.

Once the criteria were established and validated by two team members the RME course syllabus began to be analysed. The material analysed refers to the information that was collected in each course syllabus for each indicator. The process of analysis of the information was based on three sequential dimensions: pre-existing (of initial analysis), emerging (of in-depth analysis) and conclusive (of triangulation of the two). The information gathered was categorised based on a sample of 30 RME course syllabus (pre-existing categories) by individual work of three people. After that process the team met, supported by two reviewers. From that process, categories were defined to proceed with their identification in the remaining RME course syllabus. During the data collection, information that was not previously defined was considered (emerging categories). After collecting 35% of the total sample (N=92) the same team reached agreement between the two stages of categorisation, establishing the final categorisation. For each category created, relating to master and doctoral programmes, an original quote from a course syllabus was recorded as an example to enhance the understanding of the material collected and categorised.

The indicator should be understood as a dimension under analysis, which is part of a wider set with other ambivalences. The category should be understood as a target element of analysis that integrates a set of other sub-categories, all referring to the same indicator group.

From this process of collecting and analysing the empirical material it was possible to identify the elaborated categories as the first results of this paper. Following these results, a detailed analysis and interpretation was carried out taking the categories that emerged in the RME course syllabus of the master's and doctoral programmes, by counting the number of occurrences.

FINDINGS

The sample is constituted by 265 RME course syllabus that were identified as valid and active. The 265 RME course syllabus are distributed by 42 RME course syllabus in doctoral programmes (N= 19) representing 16% of the sample and by 223 RME course syllabus in master programmes (N=195) representing 84% of the sample. The specific percentages of this distribution according to the type of programme (education or teaching) are from the 42 RME course syllabus in doctoral programmes 83% are located in education programmes type and 17% in teaching programmes type; and from the 223 RME course syllabus in master programmes 46% are from education programmes type and 54% from teaching programmes type.

The next section shows the results obtained by application of a priori categories. The following categories were considered: objectives; programme contents; learning outcomes; working methods and teaching methods. The other two categories have not been considered: assessment; mandatory literature. The justification for this decision stems from the exclusive pertinence of the categories included for discussion, considering the paper's aim. From the 265 RME course syllabus analysed, the following records were found regarding the presence of the several constitutive items in the course description: objectives (N=182); programme contents (N=259); learning outcomes (N=228); and working methods and teaching methods (N=240).

From these results, of the 265 RME course syllabus only nine do not refer to the programme contents (98%). It is considered that, given the regulatory requirements for the programmes' accreditation (which requires the inclusion of programme contents), the absence of this information does not mean its non-existence. It is about (public) transparency of the information given about the courses. In these nine cases, the information was not accessed. As for the objectives, there are fewer records, 182 out of 265 curricular units (69%).

The specific records distributed by doctoral programmes and master programmes (in education and in teaching) allow to observe that doctoral programmes have 42 RME course syllabus including descriptions of objectives (86%), programme (98%), learning outcomes (86%) and working methods (95%). These high percentages of occurrence as descriptions included in the RME course syllabus are not observed in the masters' programmes. For the master programmes in education (N=102) the higher percentages of occurrence are 46% of programme descriptions, 42% of learning outcomes as well working methods, and 30% of percentage of occurrence on objectives' descriptions. The number of categories' occurrences in masters in teaching are similar to the master's in education. The full results are in the table n. º 2 of the supplementary materials.

Categories description: objectives, learning outcomes, programme contents, working methods and teaching methods

The specific descriptions of the general categorization of the results of the RME course syllabus regarding objectives, learning outcomes, programme contents and working and teaching methods can be found in the tables n. ° 3, 4, 5 and 6, respectively. For each category are elaborated specific descriptions that act as indicators. The category objectives in RME course syllabus are organised in seven areas: global scientific introduction; specific scientific introduction; critical-scientific thinking; scientific autonomy; scientific operationality; scientific writing; scientific presentation; and research project leading to an academic degree. The seven areas organised in the category objectives are mainly subordinated to the general concept of introducing scientific knowledge (epistemological reflection) and promoting research skills (focused on methodological and ontological issues).

The learning outcomes is another category are formulated as an integral component of RME course syllabus organised in five areas: understanding scientific foundations; understanding scientific operationalities; applying knowledge; analyse knowledge; writing and presenting science; and personal-professional development. This category is formulated on the grounds of understanding knowledge and of applying the knowledge obtained.

The programme contents, as the third category integrated on RME course syllabus, is categorised in five areas: extensive scientific knowledge; circumscribed scientific knowledge; modes and models; design, develop and apply; and writing and presenting. These five areas portray the generality of what guides the RME course syllabus, from the understanding of scientific fundamentals to its operationality.

Finally, the category working methods is also organised in specific areas: seminar; theoretical; theoretical and practical; practical and laboratory; and tutorial orientation. Teaching methods as RME course syllabus are organised in eleven areas: exposition debate; class discussion; critical analysis of diversified materials and resources; practical exercises; work instruction; mentoring; virtual tools; exposition; debates; case study; flipped classroom.

Trends in RME: objectives, learning outcomes, programme contents and working and teaching methods

The indicators to reveal for each category (objectives, learning outcomes, programme contents, and working and teaching methods) are in reference to the occurrences of the 265 RME course syllabus. For this results section it will present only the indicator with major and minor percentages in RME course syllabus. The detailed results can be found in the table n. ° 7, 8, 9, and 10 in the supplementary materials, respectively to categories of objectives, learning outcomes, programme contents, and working and teaching methods. After this presentation the results will be detailed for doctoral and master programmes, in their specific areas (education and teaching).

Objectives, learning outcomes, programme contents and working methods and teaching methods in doctoral programmes

From the total of 42 RME course syllabus in doctoral programmes, 35 are from education (83%) and seven from teaching (17%), 36 records (86%) refer to course syllabus' objectives. This section presents the categories under analysis and the number of occurrences identified for each indicator.

In the category of objectives, it is possible to verify that the indicator with the highest occurrence is scientific operationality with 28 occurrences (78%) and the indicator with the lowest number of occurrences is specific scientific introduction, accounting for only two records out of 36 RME programmes (6%). This result suggests that when formulating objectives for RME courses, teachers tend to focus on operational and pragmatic issues rather than on a rationale for research, e.g., perspectives of science and its place and role in society.

Regarding the learning outcomes (36 records in 42 syllabus) the highest indicator occurrence is the understanding scientific foundations with 34 records corresponding to 94%. With the exception of the indicator personal-professional development which had zero record, the category with less occurrence is writing and presenting science with 19 records corresponding to 53% of presence in all RME course syllabus.

Regarding the category programme contents in RME course syllabus of doctoral programmes, of the total 42 course syllabus, 41 indicate in the programme that the highest indicator number of occurrences is designing, develop and apply with 31 records (76 %). On the other hand, the indicator circumscribed scientific knowledge has the lowest number of occurrences with five records (12 %).

Regarding the working methods, there is evidence that teachers are aware of the importance of articulation of practical approaches with theoretical frameworks. The higher percentage of doctoral programmes analysed follow a theory-practice teaching approach (N=31), representing 78% in contrast with zero records on only theoretical teaching approaches. In the indicator practical and laboratorial teaching, 18 RME course syllabus follow this approach (45%), 28 records on seminar approach (70%) and four records on tutorial approach (10%).

In relation with working methods, in the category teaching methods, the most used specific method is class discussion with 25 records (63%). The least used methods are debate, case study and flipped classroom, all with only one record corresponding to 3%. This shows, on one side, a lack of diversification of methods and on the other side an apparent valorisation of the traditional sequence exposition-discussion.

Objectives, learning outcomes, programme contents and working methods and teaching methods in masters programmes

This section presents the results of an identical analysis conducted for the doctoral programmes. The results are presented sequentially, first education type, then teaching type, for all indicators in each category. The detailed results can be found in the table n. ° 11, 12, and 13 in the supplementary materials, respectively to categories of objectives, learning outcomes, and programme contents.

Regarding the objectives, it can be identified as the indicator with the most and least number of occurrences for each master area. In the area of education, it is counted 66 RME course syllabus and 80 in the teaching area. The indicator in category objectives in education area showing the highest number of occurrences is scientific operationality with 59 records (N=66) representing 89% of the RME course syllabus. The indicator objectives with the fewer occurrences is the scientific presentation with nine records (N=66) meaning that only 14% of the RME course syllabus focus on that category.

For the teaching area, the indicator of category objectives with the most number of occurrences is global scientific introduction with 55 records (N=80) representing 83% of the total number. The indicator with the lowest occurrence number is specific scientific introduction with 10 records (N=80) representing 13% of the total number of RME course syllabus.

The indicator of the category of learning outcomes with more occurrences in the education type is tied between understanding scientific foundations and applying knowledge (each with N=93, representing 99% of the learning outcomes in RME course syllabus in education). The indicator with the lowest number of occurrences in education type is personal-professional development (N=3, 3%). The relevant difference between the two types of master programmes refers to professional-personal development. This is explained by the sort of profession-oriented nature of the masters' programmes in teaching whose study plan includes several courses in the domain of education, curriculum development, assessment and didactics.

The category programme contents, shows the indicator with the highest number of occurrences, and therefore, with major impact on the RME course syllabus in both types is modes and models - in education with 100% occurrence (N=102) and in teaching with 91% (N=107). The indicator circumscribed scientific knowledge is the one with the lowest number of occurrences in the education type (N=15, 15%) and in the teaching type (N=26, 22%). No significant differences exist between the two types of master programmes.

Regarding the category teaching methods in masters programmes in education type the results shows the following records: exposition debate N=80 (86%); class discussion N=33 (35%); critical analysis of diversified materials and resources N=56 (60%); practical exercises N=40 records (43%); work instruction N=29 (31%); mentoring 10 (11%); virtual tools N=8 (9%); exposition N=13 (14%); debates N=4 (4%); case study N=2 (2%); flipped classroom N=1 (1%). This indicates a prevalence of exposition and discussion and exercises. In the same category for master programmes in teaching, there is no significant difference, therefore suggesting that teaching methods across courses (with common teachers, in several cases) do not reflect the nature of the programmes as more research-oriented or more teaching practice-oriented.

DISCUSSION

The purpose of this article was to present an analytical picture of the way Portuguese RME courses in advanced studies in education are presented, identifying its course syllabus on objectives, learning objectives, programme contents, and working and

teaching methods. We deem these five elements of the RME course syllabus essential for ID to teach and learn research methods. This organizing framework of ID paves the way for establishing a 'guiding culture' for teaching and learning RME.

For the doctoral programmes, the results indicate that, in terms of objectives, RME courses tend to value operational and pragmatic issues rather than on the discussion of background and a rationale for research in education. Based on the study of Nind et al. (2019), it can be understood that this tendency becomes more noticeable in the teaching and learning of RME due to the complex scenario of what is the methodological and epistemological understanding of research methodologies. According to the same authors, this tendency stems from a more abstract understanding of this domain (Nind et al., 2019). This is coherent with the result that points to the underrepresentation of objectives related to personal and professional development. The orientation seems to be more of a preparation for the development of a doctoral thesis – interpreting preparation as a strictly separated and previous phase – therefore creating a sense of disconnection between objectives and contents in the course description. The issue is how selected contents serve the objectives of the course – something that is not clear in most doctoral RME courses. However, the description of learning outcomes shows a more balanced articulation between issues that refer to foundations of research and pragmatic objectives. This result is in line with the findings of Secret et al. (2017) and Knipe et al. (2018), since it is understood that most of the activities promoted in the research skills component of the course syllabus are formulated aiming the 'learning outcomes with applicability'. The results regarding the doctoral programmes show that learning outcomes are linked to data analysis and scientific writing. In this sense, it can be suggested that this may be because teachers who create and design RME courses tend to value learning outcomes (formulated in terms of students) then general objectives (formulated in terms of the RME course itself). The absence of literature on this specific topic in doctoral programmes implies that this suggestion should be considered for future research - especially given the central understanding of the importance of learning outcomes in advanced programmers (Nind et al., 2019).

Most of the doctoral RME courses tend to undervalue epistemological and methodological issues inherent to the construction of scientific knowledge in education. This seems to be in contradiction with the evidence that RME courses' descriptions indicate that teachers are aware of the importance of articulation of practical approaches with theoretical frameworks. Not surprisingly, RME courses show a lack of diversification of teaching and working methods with students and an apparent valorisation of the traditional sequence exposition-discussion seems to be the prevalent mode. This result means that the pedagogical practices of teachers are not being motivated by student-centred pedagogical approaches, as also stated by Luo (2017). This result is key to putting into perspective teachers' views on why this happens. In a recent paper, by the same team of the Research Methods in Advanced Studies in Education project (Matos, Freitas, Estrela, Galego, & Piedade, 2023), it is understood that the time and space allocated to this learning can imply the types of participation possible between teachers and students. According to Luo (2017), another understanding for this result of lack of diversification of teaching and working methods is based on the teacher's expertise's. The study conducted by Luo (2017) revealed that

students found that some educational experiences in the research methodology courses can only be achieved through the invitation of guest speakers, researchers, and teachers.

For the Master RME courses, the results show that master programmes in teaching do not value the dimension of research. It should be noted that the analysis in this article focused on the 'proposed' objectives, learning outcomes, programme contents, and teaching methods and not on teachers' practices. As it can be understood that many of the teachers who teach RME courses in professional-oriented master programmes in teaching also teach in master programmes in general education. It is possible then that adjustments are made in practice according to the type of master programme. This would deserve a deeper analysis as it is understood that the two types of programmes differ clearly in the second year – the master in education includes the preparation of a research-oriented dissertation and the master in teaching includes a report that is profession-oriented and is focused on the analysis of a period of supervised practice by the student in a real class. Currently, there is no specific literature that presents reflections or results on that matter.

For both types of master programmes (teaching and education), the results show that their descriptions include a wide scope of the contents denoting a concern with informing students about research in education. It is not possible to interpret that students are not exposed to research reports although the explicit mention of a great variety of contents and topics point to a large part of teaching time devoted to presentation of those topics.

CONCLUSION

This article was organised taking in consideration the aim (identify and characterise RME course syllabus) and the main research question, presenting the results and the possible interpretations of how RME course syllabus are organised in Portuguese master's and doctoral programmes. In a way, from the results, it becomes explicit that the results interpretation allows the understanding of the need for further research on this issue. However, it is considered that the overall article, from its state of the art on teaching and learning RME, with its methodological description and presentation and interpretation of results, makes it possible to answer the main research question.

Both in the case of Doctoral as well as Master RME courses' descriptions, it is concluded that research knowledge is presented as fragmented, lacking a clear roadmap that helps the teachers to make sense of the real important and crucial issues. In addition, it is not clear in the RME courses description what kind of modes of interrogation should be stimulated and intentionally addressed with the participation of students. In fact, there is a lack of orientation regarding students' participation in the RME course activities. Most of the RME courses' descriptions, provided by the HEI, position the teacher in control, delivering the course and do not properly consider students' agency. It is not clear if and how students' previous personal and academic experiences are incorporated into their learning in RME courses.

To conclude, it must be recalled that the analysis that provided the data and the results presented in this article focused only on the courses description as a starting point to

map the situation of RME courses in Portugal. In another report (Freitas, Matos, Piedade, Teodoro, & Serradas Duarte, 2024), the teachers' perspective on how they implement the syllabus courses is analysed in detail. As key actors, students should also be heard. This is an upcoming task in the near future, in this way putting together three dimensions of the problem of designing and implementing modes of interrogation in research methods: students voice and perceptions, teachers' practices and the RME course design as a key structuring resource.

LIMITATIONS

While our study provides valuable information on the issue under discussion, it is important to acknowledge its limitations. One notable limitation is the size of the sample, which does not encompass all the master's and doctoral programs identified. Out of the 368 programs, 154 did not disclose their course syllabus. We made several attempts to access this information using different methodologies, as described in our study. Additionally, the timeframe of the study (between January and May 2022) may have constrained the accessibility of the information. Another limitation was the non-consideration of other constituent items of the analysis, such types of assessment in RME course syllabus or the bibliographical references underlying the curricular programs. However, we believe that the selection made allows for a significant and coherent presentation of the material. Despite these limitations, our study represents the first presentation of national-level data on this subject, contributing to the existing literature and laying the groundwork for future research in this area.

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