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Original Article

Developing research skills in training sports professionals: a reflective approach

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Abstract
Sport and physical exercise are vital components of preventive measures against illnesses, promoting well-being and a high quality of life within communities. To achieve these goals, educational actions through sports practise must be implemented, considering the unique characteristics and needs of the participants. Understanding the true nature of the sports educational process requires in-depth investigation, leading to interventions that incorporate knowledge and techniques from the sports sciences. As a result, nurturing research competencies among sports professionals within their educational paths becomes crucial.This study reflects on recent methodological approaches in educational-sports research and their potential in the academic settings of Sports and Exercise Sciences degree courses. One approach that stands out is Mixed Methods Research, which combines qualitative and quantitative methods to gain a comprehensive understanding of complex phenomena in sports education. By utilising both types of data, researchers can explore the nuances of participants' experiences and gather statistical evidence to support their findings. This integrative approach allows for a more holistic analysis, strengthening the credibility and reliability of the research outcomes. Moreover, the inclusion of critical-reflexive components in educational-sports research adds depth and context to the findings. By encouraging researchers to critically examine their assumptions, biases, and positionality, this approach acknowledges the influence of personal perspectives on the research process and outcomes. It fosters a more self-aware and accountable approach to research, promoting transparency and authenticity in reporting results. The academic contexts of Sports and Exercise Sciences degree courses offer fertile ground for fostering research competencies among aspiring sports professionals. Incorporating research-oriented modules, seminars, and workshops into the curriculum can provide students with essential tools and skills for conducting rigorous and insightful research. By engaging students in hands-on research projects, they can apply theoretical knowledge to real-world situations, developing their analytical and problem-solving abilities. Integrating research competencies into the educational paths of sports professionals is vital to advancing the field of sports education. The adoption of Mixed Methods Research and critical-reflexive components enhances the quality and depth of educational-sports research. By nurturing research skills in academic settings and fostering collaboration with established researchers, we can cultivate a new generation of sports professionals who are equipped to contribute meaningfully to the well-being and development of individuals and communities through sports and physical exercise.
Keywords: **sport, physical exercise, preventive safeguard, well-being, educational actions.**

Introduction

Sport and its related activities constitute a significant aspect of social, cultural, and economic life in many urban centres. They are promoted as a tool of policy in a series of initiatives aimed at revitalising the territory and fostering social renewal. Several studies have analysed the value of sports in this context, highlighting how the development of sports infrastructure within communities can contribute to their requalification (Thornley, 2002) and bring about economic and social benefits arising from major sporting events (Gratton et al., 2005; Nichols & Ralston, 2012).

A related and relatively understudied area of sports policy for urban and social requalification is the use of sports in programmes aimed at reducing youth unemployment and social exclusion (Glyptis, 1989; Long & Sanderson, 2001). Such projects have been developed in various European countries, influenced by the policies undertaken by Europe and the inclusion policies of national governments, regions, and municipalities (Hylton & Totten, 2008).

Human and cultural promotion, starting with the youth, is one of the most important and urgent fields to address with an extremely qualified, unified action. Physical and sports activities have seen significant diffusion, an increase in practitioners, and a broadening of educational variables. They play a decisive role in ensuring a healthy and beneficial activity, gradually prepared through a correct process of training and the ongoing development of physical and sports activities (Cereda, 2015).

The physical education and sports received in schools and leisure time, besides being an advantage for maintaining an active lifestyle, serve as a stimulus and an opportunity to continue studies and, given current

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opportunities, for reintegration into the workforce (Green, 2014). Cultural promotion through a programme of socio-motor activities within the overall reality of young people's existence aims to focus on the cognitive elements through which a reorganisation and reappropriation of "free time" and even those concretely definable as "working hours" are still possible, as well as interactions among individuals, objects, and institutions.
In this context, the sports instructor plays a crucial role as an educator. Therefore, besides teaching the correct execution of a movement, setting the appropriate motor load, and outlining the path to achieve a goal, the instructor educates individuals in togetherness, coexistence, overcoming difficulties, helping one another, and facing challenges with honesty, loyalty, and commitment. The act of overcoming and engaging in confrontation should be seen not as a means of seeking vengeance against others but as a journey of self-discovery and transcendence.

The training of highly qualified socio-motor operators with a broad and specific educational background is of paramount importance. They should be capable of aiding the youth in making conscious choices regarding their activities. Their role must not be confined to a generic or superficial education, simply promoting physical movement, or providing individuals with pre-determined environments, means, and opportunities.

In this perspective, the intervention of specialists focused solely on individual sports techniques appears to offer limited prospects within the educational context (Cereda, 2018). It calls for reflection on the processes of training and professional qualification of sports instructors, as well as the content that should shape individuals' lives, with the highly intricate task of promoting social good, preventing school dropout and unemployment, and facilitating social and work reintegration.

This entails not only comparing the stakeholders involved at the national and European levels but also presenting an opportunity for the inclusion of new participants, perhaps reaching out to those classified as NEET (Not engaged in Education, Employment, or Training) - young individuals who are neither employed, nor studying, nor enrolled in training programmes.

Scientific evidence demonstrates that motor and sports activities play a positive role in the lives of millions of Europeans, and when practised non-competitively, they can contribute to an individual's well-being (Oja et al., 2015). As motor and sports activities gain popularity, an emerging yet underdeveloped economic sector has the potential to bring even more benefits to nations and citizens: benefits in terms of health, economy, and employment (Zintz, 2013).

Enhancing the standing of sports instructors: role-based competency approach

A qualification corresponds to a formal certification of competence based on precise reference standards conferred by the relevant authorities. It can be acquired through one or more of the following means: a formal course or a combination of diverse educational paths; the recognition of previous learning experiences (both formal and non-formal); or the acknowledgment of a qualification obtained abroad. One significant limitation that many national sports training systems in Europe have exhibited is the prevalence of qualifying training based on an academic subject approach and the traditional calculation of hours.

Sports instructors operate in various contexts, entailing different degrees of responsibility, expertise, complexity, and autonomy. They carry out their functions in numerous and diverse ways. In terms of remuneration, they may serve as volunteers or be employed part-time or full-time. As for their target audience, they can train both children and high-level athletes, amateurs, or professionals. Similar to athletes, instructors construct their experiences over time, and a substantial part of their learning occurs through hands-on work. Greater experience and skill are often accompanied by higher levels of responsibility and more intricate roles.

Analysing these roles leads to defining the fundamental competencies necessary to meet their requirements. This, in turn, proves beneficial in refining the characteristics of instructor training and, on a broader scale, can open up more employment opportunities (in the case of paid instructors) and enhance their standing (in the case of volunteers). Clear terminology concerning roles also serves as a foundation for developing training programmes and qualifications that have a significant impact on acquiring professional-related competencies. Such clarity can assist training service providers, be they federations or educational institutions, in emphasising and connecting the qualifications obtained by instructors to a common reference system. This system must have a clear application in the operational context in which the work is carried out.

A qualification corresponds to a formal certification of competence in accordance with specific reference standards issued by the competent authorities. It can be attained through one or more of the following avenues: a formal pathway or a combination of diverse educational routes; recognition of prior learning (both formal and non-formal); and informal experiences; as well as recognition of a qualification obtained abroad. A significant limitation observed in many European national sports training systems has been the prevalence of qualifying formations based on a "subject-based" logic and traditional hour-based calculations.

Sports instructors operate in various contexts, each requiring distinct levels of responsibility, expertise, complexity, and autonomy. They can carry out their functions in diverse ways: in terms of remuneration, they may serve as volunteers or receive compensation; they may work part-time or full-time; concerning their recipients, they may coach children, high-level athletes, amateurs, or professionals. Similar to athletes, instructors build their expertise over time, with a substantial portion of their learning occurring through practical

experience. Greater experience and proficiency are often accompanied by higher levels of responsibility and more intricate roles.

Analysing these roles leads to defining the fundamental competencies necessary to fulfil their requirements. Such an analysis, in turn, proves valuable in better outlining the characteristics of instructor training and, within a broader framework, can create multiple occupational opportunities (in the case of paid instructors) and enhance positioning (for volunteers). A clear terminology regarding roles also provides a foundation for the development of training programmes and qualifications, greatly influencing the acquisition of professional-related skills. This clarity assists those providing training services, be they federations or educational entities, in underlining and aligning the qualifications obtained by instructors with a common reference system. This system must be effectively applied within the operational context in which work is carried out.

The role of sports instructors: knowledge and competencies

The role of the sports instructor can be described as a constant application of interpersonal and intrapersonal professional knowledge to enhance the skills, confidence, and relationships of individuals in specific operational contexts (Gilbert & Côté, 2013). These three fundamental areas of knowledge are as follows:

1. professional knowledge (the content of knowledge and how to teach it);
2. interpersonal knowledge (related to the ability to connect with others);
3. intrapersonal knowledge (based on self-awareness and self-reflection).

Each of these areas of knowledge forms the foundation of the instructor's competencies to perform their work, which can be divided into:

- functional competencies, enabling the meeting of specific situational needs;
- task-related competencies, enabling the execution of specific and defined tasks.

Functional competencies refer to adopting an approach focused on guiding and improving students within a particular organisational and social context. It acknowledges that teaching a sport is a complex and dynamic activity that extends beyond the place of activity and is not simply accomplished by transferring knowledge and skills from the instructor to the student. Essentially, instructors must be trained to understand, interact, and engage with the environment in which they operate. Instructors fulfil a series of tasks that require diverse competencies. Among the main ones are needs analysis, defining an overall vision, devising a strategy, creating an action plan, organising and managing people, defining progress indicators, the educational process, relationship management, conducting technical lessons, appropriate instruction for adults and children, interpreting and reacting in real-life situations, self-evaluation, and innovation.

While instructors may develop their functional competencies through practise and experience, the competencies related to their tasks should be provided through educational courses (Mantovani, 2015).

The most exemplary formations are not necessarily the longest ones, but those that provide competencies truly corresponding to the needs of the activities carried out by the qualified individuals. In this context of comparison and harmonisation of formative processes and professional recognitions, social and professional pedagogical competence is called upon, founded and matured in the field, for a different vision of academic titles, one that fully appreciates the culture, competence, and preparation that serve as prerequisites for obtaining the said academic degree (Blezza, 2013).

To avoid pedagogical and ethical failure, the formative paths and their respective contents for sports practitioners must encompass a clear set of ideas and tools, guided by internal methodological and operational guidelines within a lifelong education project, constructed with a new coherence. This should activate a proposal of versatile physical-sporting activities informed by a clear and precise cultural choice that places the integral person at the heart of the experience. In this case, it is unadvisable to pursue exaggerated forms of exalting technical specialisation with an absolute focus on the outcome. Instead, methods should be developed that foster genuine life experiences, thereby situating the human being within their specific personal-community dimension at the centre of bodily-motor and sporting experiences. This means bringing such an experience back to its reality as a "means," prioritising the potentialities that define human beings (commitment, willpower, intelligence, creativity, respect, love, religiosity, etc.), and reintegrating it into the context of the individual and social life's flow, with its autonomy and dialectical capacity, to participate in cultural and formative processes without any instrumentalization of power, prestige, or commerce.

The educational proposal concerning formative processes for sports instructors should simultaneously take into account the differences that characterise the uniqueness and individuality of each person, recalling that motor and sporting activities are also a means of integration and individual growth. Standing by the individual also means choosing those marginalized by current social models, individuals who have no opportunity to achieve tangible, economic, or ideological results. The educational function of the sports instructor finds qualifying elements not only in their inherent professionalism but also in the specific relationships and interactions with the young, without forgetting the family, which is directly involved in the pedagogical project.

The reflective model: integrating education and practise in sports coaching

The transformations that have affected society and the changing relationship between health and illness have deeply influenced the motivations and interest in sports practise, which has evolved from a strictly competitive phenomenon to a tool for promoting well-being and social inclusion (Bakiko et al., 2020; Kolokoltsev et al., 2021). Recognising the significance of sports activity and/or physical exercise as essential factors for healthy lifestyles, a more inclusive and adapted "sport for all" approach has been embraced, tailored to the peculiarities and needs of different segments of the population. This approach significantly contributes to disease prevention as well as the promotion and enhancement of conditions that foster the well-being and quality of life within the community.

Sports practise and motor activities need to be redefined within educational processes that enable individuals to "exercise greater control over their health and improve it" (World Health Organization, 1986). Implementing educational actions through sports becomes essential, aiming to unlock the potential of individuals and leading to positive adaptations that foster the adoption of healthy lifestyles from a preventive and promotional perspective for their well-being.

Therefore, the teaching of sports practise entails an embodied knowledge within the work of the sports professional, a wisdom that, beyond the technical-practical knowledge related to the discipline and/or the organisation of training sessions and physical exercise, is predominantly tacit and concealed in the implicit variables of educational action (Patey et al., 2019; Cereda, 2023a). Training, the term used to indicate the realm of teaching sports practise and/or physical exercise, is defined by a majority of scholars as an educational practise (Burgueño & Medina-Casaubón, 2020; Farias, Valério & Mesquita, 2018; Chu et al., 2022), a pedagogically organised process (Branquinho, Forte & Ferraz, 2022), multilateral, directed towards the holistic education of the athlete, which requires specific organisation to be carried out as a systematic, complex, and comprehensive action on an individual's personality and physical state (Otte et al., 2020; Cope et al., 2022). It is a pedagogical process of personality education oriented towards seeking balance in its various facets (Cereda, 2018). As such, it represents a space for sharing and generating knowledge of profound heuristic value, demanding investigation and comprehension of what truly transpires during the sports educational process to contribute to the enhancement of the practise itself.

There is a need for sports educators capable of daily investigating contexts to design, implement, and verify solutions suitable for emerging and specific needs, willing to embrace doubt, investigation, and knowledge. The expert in Sports and Exercise Sciences must assume the role of a reflective professional (Cereda, 2023b) to achieve an effective integration of their dual role as a technician and educator, for which it is fundamental to explore and understand the environment in which they operate and adapt their role as an educator to the nuances presented by the setting. As emphasised in the European Union's communication (2017a), even though a considerable portion of teaching activities in higher education take place in institutions engaged in research, such research is not adequately utilised for teaching purposes, and university students are often not involved in research activities. This limitation restricts students' opportunities to engage with current subjects and thus develop their research capabilities.

Hence, it would be of utmost importance, even in the curricula of Sports and Exercise Sciences courses, to employ didactics grounded in research that allow aspiring professionals to cultivate valuable research skills. These skills should not only enable them to acquire knowledge and comprehend the diverse current trends in the sports industry, intercept new needs and interests, design and manage data collection techniques, examine and interpret information, and develop research reports, but also to deeply investigate, through the application of qualitative techniques, the educational needs beyond mere technical and practical aspects of the members within the sports groups they work with (Cereda, 2023c).

This relevance stems from the fact that experts Sports and Exercise Sciences are among those professionals who, albeit not always consciously, play an educational role in people's life paths. As such, they must offer practical and specific solutions to the challenges they encounter. It is therefore imperative to respond to the European skills agenda for sustainable competitiveness, social fairness, and resilience (European Union, 2020) by transforming European universities into the European Space of Education and Research. This transformation involves developing permanent and innovative teaching and learning processes.

This specifically corresponds to the expected learning outcomes at level 7, as indicated in the European Qualifications Framework (EQF), encompassing highly specialised knowledge, some of which is cutting-edge in a professional or academic domain, serving as a foundation for original thinking and/or research. Demonstrating critical awareness of knowledge-related issues within a specific field and at the intersection of different domains Possessing the specialised problem-solving skills required in research and/or innovation to develop new knowledge and procedures while integrating insights from diverse fields efficiently managing and transforming complex and unpredictable work or study contexts, necessitating novel strategic approaches. Taking on the responsibility to contribute to knowledge and professional practise or to evaluate group performance strategically (European Union, 2017b)

In accordance with the guidance provided by European documents, this work aims to introduce a reflection on the primary methodological approaches to research in the educational and sports domains, as well as the prospects for training in these approaches within bachelor’s degree programmes in Sports and Exercise

Sciences, with a particular emphasis on Mixed Methods Research and the critical-reflexive component. These approaches enable the integration of various knowledge domains in sports sciences and their inherent complexity, which cannot be entirely reduced to purely technical aspects.

Quantitative and qualitative methods in sports studies

Engaging in research within the realm of sports entails, first and foremost, adhering to the principle of interdisciplinarity and cooperation that characterises the sciences of sports (Harriss, MacSween & Atkinson, 2019). The diverse disciplines that converge on sports are supported by various theoretical frameworks and the development of distinct research methods and investigations. This necessitates the application of a diversity of research approaches, fostering the development of theories and paradigms that underpin the specialised training of professionals possessing knowledge and competencies capable of meeting diverse societal demands and designing educational interventions through sports (Balagué et al., 2017; Elliott-Sale et al., 2021).

Initially, research in this field was oriented solely towards physical-sporting performance, bounded and controlled by variables, employing standardised data collection techniques such as tests, structured questionnaires, psychophysiological measures, and systematic observations aimed at identifying reproducible and replicable training practises (Zhang & Zhang, 2022; Thompson et al., 2022). The introduction of qualitative methodology in the study of sporting phenomena allowed for understanding and adapting sports practises to the specific needs of individuals and communities, thereby enhancing the outcomes derived from quantitative research (Heinemann, 2007).

Further evolution has indeed been achieved with the introduction of mixed-methods research in sports studies. This approach involves the integration and complementation of quantitative and qualitative methods in a study, wherein data of both types are collected, analysed, and combined. It is founded on the amalgamation of the inductive approach to concept generation with deductive logic. Scholars such as Gobo et al. (2021), Zurc and Laaksonen (2023), Camerino, Castañer, and Anguera (2014), Thompson et al. (2022), and Ghiara (2020) have explored and advocated for this method.

A growing body of literature demonstrates that this approach enables a holistic understanding of human motor behaviour and the complexity inherent in the study of physical activity and sports (Ryba et al., 2022; Caldwell et al., 2023). Tariq and Woodman (2013) and Tenny et al. (2023) have described the emergence of this novel approach as a silent revolution that has led to a more balanced perspective. Neither quantitative nor qualitative methods are considered inherently superior; instead, their integration yields more precise knowledge, better aligning with the new demands, even in the sporting domain. This integration assists in corroborating, refining, or challenging explanations of phenomena (Ryba et al., 2022).

Mixed Methods Research employs diverse combinations of procedures (multimethod, mixed methods) and models of triangulation (of data, theories, etc.), accompanied by the utilization of techniques for data collection ranging from observation (Anguera et al., 2017) to field diaries, interviews, structured questionnaires, standardized tests, and psychophysiological evaluation (Sparkes & Smith, 2013; Camerino, Castañer, & Anguera, 2014). Qualitative-quantitative integration is a process that gathers, analyses, and connects quantitative data (the state of physical performance at a given moment in reality) and qualitative data (the process of evolution and understanding of sports activity) within the same study to better comprehend a phenomenon (Thompson et al., 2022).

However, it is essential to bear in mind that quantitative data collection techniques are mostly standardised and objective, with variables of a quantitative nature measured using interval scales, allowing for study replicability and result generalisation (Jones, 2022). On the other hand, the purpose of the qualitative-interpretative paradigm is to delve deeper and shed light on the needs, beliefs, ideologies, values, and opinions of sports activity recipients or those who engage in it to better understand the specific context (needs, resources, interests, motivations, problems, etc.) in which sports educators, coaches, instructors, teachers, and sports directors operate. This knowledge aids in adequately designing activities and the teaching-learning process, improving, enhancing, and making it more effective from an educational standpoint (Denzin & Lincoln, 2018; Zurc & Laaksonen, 2023).

Qualitative approaches applied to research in sports contexts encompass a range of methodologies, including case study, action research, biographical method, grounded theory, phenomenology, and ethnography. These approaches employ various instruments, such as interviews, life histories, diaries, focus groups, descriptive and participatory observation, and open-ended questionnaires (Sparkes & Smith, 2013; Pitney & Parker, 2009; Heinemann, 2007). The coach, physical education teacher, or sports educator, by employing these tools, should and can function as a researcher capable of structuring the inquiry process in alignment with the reference paradigm and the overall research objectives. They accomplish this by formulating guiding questions for interviews and/or focus groups and using instruments like observation sheets and diaries.

Data collection in qualitative research is an especially delicate phase, as it involves engaging with the participants. This necessitates the researcher to assume the role of a facilitator during activities such as conducting focus groups (Stewart & Shamdasani, 2014; Krueger & Casey, 2015) and interviews while maintaining objectivity, remaining neutral, and refraining from expressing judgements, transferring meanings, or imposing personal interpretations tied to their own values, references, and experiences. The facilitator moderates

discussions not to achieve group consensus but rather to bring forth diverse perspectives. To achieve this, the researcher must follow the free flow of participants' reflections, encouraging their involvement, supporting the dialogic dimension through clarifying questions, redirecting discussions during moments of impasse, and respecting the value of silence as a space for useful contemplation, leading to additional information and more comprehensive and nuanced explanations, as well as the creation of new meanings (Sparkes & Smith, 2013).

Objectivity must be maintained in the process of analyzing contents, intended as an interpretive and critically reflective process (Schön, 1983, 1987), which requires nurturing the necessary mental acuity in coaches through habits of reflection, inquiry, and critique (Harvey et al., 2023). This mental acuity must also be applied in techniques of descriptive and participatory observation, necessitating a researcher who not only observes but actively engages (physically, cognitively, socially, sensually, and/or emotionally) in the daily life and culture of those to whom the research is directed. This entails a critical-reflexive attitude that enables perceiving the functioning of individuals, culture, and society. In qualitative research, the subjective experiences of study participants are thus just as significant as the researcher's subjectivity. This includes the manner in which they themselves influence the conduct of the research and the interpretation of the results (Gobo, 2015).

The connections between the self and the investigation often shape many aspects of the research process, from selecting the topic to the way data is reported and interpreted (Sparkes & Smith, 2013; Heinemann, 2007). The concept of researcher reflexivity represents a means through which qualitative researchers can transform the "problem" of subjectivity into an opportunity (Ide & Beddoe, 2023). Through it, it becomes possible to construct research projects based on the mixed method and to trace an organic and integrated synthesis of qualitative and quantitative data capable of representing the complexity of the studied phenomenon and providing specific indications for building effective sports practises from both educational and technical perspectives.

The dialogic nature of coach reflection: shaping educational environments

The etymological root of the word "reflective" harkens back to folding back upon oneself. In terms of research, this can be translated as a thoughtful and conscious analysis of the intersubjective dynamics between the researcher and the researcher. Reflectivity demands critical self-reflection on how the social background of researchers, their assumptions, positioning, and behaviour impact the research process. It entails recognising how researchers construct their research findings (Ide & Beddoe, 2023). According to Reddy et al. (2019), reflectivity is the activity of turning back upon oneself, or the action of assuming the role of the other in examining oneself, and it refers to engaging with oneself in the narrative of someone else, enabling the imagination of how this other perceives it. Being reflective also means being able to consider the presence we establish in the field through our methods. In summary, reflectivity means seriously considering the researcher as a conscious being—a being that is evidently and inevitably present in the research process.

The work of the American scholar Donald Schön (1983, 1987) has facilitated the dissemination of the theme of reflectivity in the approach to issues concerning the relationship between practise, reflection, and education in the realm of education professionals. For this reason, Schön's theories are now the subject of study for researchers who analyze the science of education from a humanistic perspective. The necessity of a curriculum for professional training based on real practical situations that foster reflection and the foundational concept of Donald Schön's theory of reflectivity have led to the restructuring of the initial training of sports coaches (Brooks et al., 2020; Gilbert & Trudel, 2004, 2006).

This model, when applied to training, implies that practice is perceived as a starting point for cultivating reflection. Practice serves as a means to contemplate actions through thoughtful deliberation on concrete problem situations and to initiate and support the process of exploring potential solutions. Within this model, reflection is deemed necessary and paramount, as it nurtures the very essence of thought and enhances actions.

Authors who have embraced the reflective model in the context of training have underscored the need to transform reflection into a continuous attitude for the coach as a professional (Gilbert & Trudel, 2006) and as a researcher. Through reflection upon their actions, the coach becomes, in essence, a researcher within the practical setting, connecting teaching to learning. This implies that training becomes an everlasting quest, forever intertwined with action.

In this harmonious interplay, knowledge from the "academic world" (and from science) and knowledge derived from practise merge together. The coach, therefore, draws upon science, studies, and documents scientific theories of training, and then applies them to everyday experiences. In this manner, they can acquire the foundational and specific knowledge that consistently evolves through practise and field experiences.

While the model of technical rationality emphasises the distinction between knowing and doing, between the researcher's knowledge and that of the professional, the reflective model does not differentiate between these two elements in training. In fact, the reflective model seeks to cultivate the pedagogical competencies of sports coaches so that they may consciously choose how to organise their work and evaluate it. According to Schön, it is crucial to draw a parallel between the activities of the professional and those of the researcher so that these two roles may enhance their practise by better understanding it. From this perspective, the coach, as a professional, engages in reflection on their practise and transforms into a researcher.

The coach's reflection is not confined to a series of linear steps or predefined procedures; rather, it possesses a dialogic nature and endeavours to find solutions to concrete and specific problems. It is not projected as a set of rigid rules and predetermined formulas, but rather as a far more intricate entity. Reflection serves as a dialogic tool, allowing the researcher to constantly engage with the context in which they operate. This reflection empowers them to conceive of sports as an educational environment for shaping new generations, a realm of educational inquiry where knowledge is perpetually sought and imparted through the sharing of wisdom.

The reflective model, thus, breaks away from some of the fundamental principles of technical rationality, which portray coaches as mere transmitters of information and athletes as mere recipients of content and data. Training represents an opportunity to apply scientific knowledge within a social context, integrating it into a cultural and community research project of educational sports conceived through the visionary lens of social transformation, following the theories of Antonio Gramsci and Paulo Freire. These authors believe in the transformative and uplifting potential of praxis when we act consciously within the framework of ethical and moral values accepted by society. These values serve as a guarantee of their preservation and the tools through which equity and social justice can be built.

In short, research and experimentation lay the groundwork for critical reflection on practise and its transformation into an action capable of mobilising different forms of knowledge. Transforming a specialised theory of reflective learning into knowledge always entails a clear commitment to pedagogical research. Reflective practise, while not capable of solving all the problems of training as conceived in contemporary society, serves as a preamble and starting point for the development and pedagogical implementation in this field attitude towards experimenting with new solutions.

In brief, research and experimentation serve as the prerequisites for critical reflection on practice and its transformation into an action capable of mobilizing diverse forms of knowledge, essential for operating in accordance with the principles of interdisciplinarity and cooperation that underpin the epistemology of sports sciences. The reflective model entails strategies of training and action grounded in community rather than individualistic approaches. Within this framework, education is conceived as a set of formative practises that refer to a collective dimension and aim at professional emancipation. This emancipation seeks to achieve full autonomy in generating specific knowledge and values inherent to the profession itself. Therefore, the training model,

Conclusions

The broad recognition of sports as an instrument capable of addressing the manifold and diverse psychophysical and educational needs of individuals necessitates the development of research competencies in the educational paths of sports professionals. This will enable the construction of alternative and innovative intervention proposals, integrating the knowledge and techniques of sports sciences. The silent revolution initiated by Mixed Methods Research presents an opportunity to foster such integration. However, for these methods to be fully and effectively implemented, they cannot be divorced from a critical-reflective approach.

Therefore, the training in research competencies for sports professionals must no longer be limited to mere technical control but should open up to a realm of knowledge production, transformation, and mobilisation within a practical-reflective perspective. In this context, the expansion and development of the relationship between scientific knowledge and practise are achieved through a creative and open attitude towards experimenting with new solutions.

In brief, research and experimentation serve as the prerequisites for critical reflection on practice and its transformation into an action capable of mobilizing diverse forms of knowledge, essential for operating in accordance with the principles of interdisciplinarity and cooperation that underpin the epistemology of sports sciences. The reflective model entails strategies of training and action grounded in community rather than individualistic approaches. Within this framework, education is conceived as a set of formative practises that refer to a collective dimension and aim at professional emancipation. This emancipation seeks to achieve full autonomy in generating specific knowledge and values inherent to the profession itself. Therefore, the training model, conceived as research based on reflective practise, rests on the conception of the coach as a skilled professional able to integrate the roles of both technician and sports educator.

This model enhances the epistemological potential of practise for the development of reflective intelligence that allows the coach to distance themselves from any possible instructional model based on the mere application of often routine and uncritically analysed teaching strategies. It opens up new mental processes that enable the discovery of solutions to problems through the cultivation of additional knowledge and innovative techniques derived from the here-and-now of the training situation. The knowledge produced from this understanding is always contextualised and approaches the description of a critical comprehension of problems, striking a balance between a scientific and hermeneutic approach, technique, and interpretation. This knowledge serves as a prelude to a constructivist and simultaneously deconstructivist epistemology of practise, as it is founded on the assumption that formative practise consists of subjective and communal actions that can be continually reconstructed to uncover hidden implicit errors and values.

Coach training programmes should consistently embrace an orientation that fosters and values reflective competencies, surpassing the limitations of a technically rationalistic perspective that relies on an illusorily

objective and objectifying view of coaching. Indeed, the reflective model opposes the range of currently dominant technical models in sports coaching education that solely target the development of instrumental knowledge in the coach, restricting themselves to the technical aspects of sports.

The practical-reflexive perspective fosters in the coach a genuine and authentic professional mentality capable of integrating technical aspects with educational, social, and political dimensions that inevitably impact the coaching action. Embracing such a perspective during university education and in the development of research skills will enable the formation of professionals equipped with a comprehensive attitude towards addressing and handling problems and organisational principles that connect knowledge and give it meaning (Cereda, 2023a).

This attitude should be cultivated from the early years of university studies to fully attain the levels of learning envisaged by level 7 of the EQF (European Union, 2017c). Consequently, it is crucial in the bachelor's programs in Sports and Exercise Sciences to employ research-based didactics, understood as a critical-reflexive practice, allowing coaches-in-training to work towards striking a balance between a scientific and hermeneutic approach, as well as between technique and interpretation, as mentioned earlier. Universities should strive to foster continuous and innovative teaching and learning processes (CE, 2020) that transcend the confines of formal education and trigger lifelong, lifewide, and lifedeep learning endeavours.

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