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Publications Department.

E-MAIL: [podium@upr.edu.cu](mailto:podium@upr.edu.cu). | Director: Fernando Emilio Valladares Fuente  
Email: [fernando.valladares@upr.edu.cu](mailto:fernando.valladares@upr.edu.cu)

*Translated from the original in spanish*

**Review article**

## **Interdisciplinarity in the training of Physical Culture Bachelor: Its history and trends**

### **La interdisciplinarietà en la formación del Licenciado en Cultura Física: su historia y tendencias**

### **Interdisciplinaridade na formação do Bacharelato em Cultura Física: a sua história e as suas tendências**

**Yolanda Valdés André**<sup>1\*</sup>  <https://orcid.org/0000-0002-9469-2006>

**Jerry Bosque Jiménez**<sup>1</sup>  <https://orcid.org/0000-0001-5978-8187>

**José Francisco Estradé Martínez**<sup>1</sup>  <https://orcid.org/0000-0002-3362-0682>

**Daymara Guerra Bouza**<sup>1</sup>  <https://orcid.org/0000-0002-0109-0488>

**Claudia Rodríguez Almeida**<sup>1</sup>  <https://orcid.org/0000-0001-7992-5425>

<sup>1</sup>"Marta Abreu" Central University of Las Villas. Faculty of Physical Culture. Havana, Cuba.

\*Corresponding author: [yoliar1963@yahoo.es](mailto:yoliar1963@yahoo.es)

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## ABSTRACT

The present society and its complex character, demands the training of increasingly competent and integral professionals capable of providing solutions to multiple and difficult social problems; this has required universities to review the difficulties and contradictions that are still present in this regard. In the field of physical activity and sport, the professional who works in the basic link in Cuba requires a solid interdisciplinary training, which the university as a training entity should promote, but has not always achieved, since it has not reached the desired levels in this aspect. To know how it has been in its historical development and to characterize the main tendencies of interdisciplinarity in the professional training of the Bachelor of Physical Culture, objective of this work, is of total importance to take pertinent actions and to direct such training with an interdisciplinary character. To achieve this, the results of completed research on the subject were analyzed from an analytical, interpretative or critical perspective of the authors, which allowed, as an opinion article or debate, to present the following text, in order to achieve an understanding of the developed topic.

**Keywords:** Interdisciplinarity; professional training; historical trends.

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## RESUMEN

La sociedad actual y su carácter complejo, demanda la formación de profesionales cada vez más competentes e integrales capaces de dar solución a múltiples y difíciles problemas sociales; esto ha exigido a las universidades revisar las dificultades y contradicciones que aún se presentan en este sentido. En el ámbito de la actividad física y el deporte, el profesional que se desempeña en el eslabón de base en Cuba, requiere una sólida formación interdisciplinaria, que la universidad como ente formador debe propiciar, pero no siempre ha logrado, en tanto no ha alcanzado en este aspecto los niveles deseados. Conocer como ha sido en su devenir histórico y caracterizar las principales tendencias de la interdisciplinaria en la formación profesional del Licenciado en Cultura Física, objetivo de este trabajo, reviste total importancia para tomar acciones pertinentes y enrumbar dicha formación con un carácter interdisciplinario. Para lograrlo, se analizaron los resultados de investigaciones terminadas sobre la temática desde una perspectiva analítica, interpretativa o crítica de los autores, que permitió en calidad de artículo de opinión o debate, presentar el siguiente texto, para lograr una comprensión del tema desarrollado.

**Palabras clave:** Interdisciplinaria; Formación del profesional; Tendencias históricas.

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## RESUMO

A sociedade atual e o seu carácter complexo, requer a formação de profissionais cada vez mais competentes e integrais capazes de dar solução a múltiplos e difíceis problemas sociais; isto tem exigido às universidades que revejam as dificuldades e contradições que ainda são apresentadas neste sentido. No campo da atividade física e do desporto, o profissional que trabalha no elo básico em Cuba requer uma sólida formação interdisciplinar, que a universidade como entidade formadora deve promover, mas nem sempre alcançou, uma vez que não atingiu os níveis desejados neste aspecto. Saber como tem sido no seu desenvolvimento histórico e caracterizar as principais tendências de interdisciplinaridade na formação profissional do Licenciado em Cultura Física, objetivo deste trabalho, é de total importância para tomar ações pertinentes e dirigir esta formação com um carácter interdisciplinar. Para tal, os resultados da investigação



concluída sobre o tema foram analisados a partir de uma perspectiva analítica, interpretativa ou crítica dos autores, o que permitiu, como artigo de opinião ou debate, apresentar o seguinte texto, de modo a alcançar uma compreensão do tema desenvolvido.

**Palavras-chave:** Interdisciplinaridade; Formação profissional; Tendências históricas.

## INTRODUCTION

Before 1959 there were only three universities in Cuba: La Real y Pontificia Universidad de La Habana, founded in 1728; La Universidad de Oriente, in the city of Santiago de Cuba, created in 1947 and La Universidad Central "Marta Abreu", in Las Villas, which was established five years later in the city of Santa Clara, so that professional training was limited and only the richest sectors of society had access to it.

Associated with these events was the triumph of the Cuban Revolution, which, as **Horruitiner points out (2006)**,

It inherited "(...) an elitist, bourgeois university marked by an encyclopedic repetitive teaching full of archaic academic concepts, lacking an experimental basis and alien to the real needs of the economic and social development of the country" (p.9), so that numerous changes aimed at rethinking new objectives in the search for a more scientific approach to teaching and a diversification of careers that responded to the economic and social demands of the nation were essential.

To achieve these goals, the network of higher education centers was expanded to cover the entire national territory. In 1976, the Ministry of Higher Education (MES in Spanish) was created as the entity in charge of directing educational policy at this level of education and determining the guiding principles and ideas (the unity between education and instruction, the link between study and work) for the training of professionals.

The importance of the training of university professionals in Cuban Higher Education is highlighted by **Horruitiner (2006)**, **Valera (2010)**, **Castellanos (2016)**, **González (2016)** and **Barrabia (2017)**, considering it as a unique process that is developed in higher education centers to comprehensively prepare the student in a given university career and is based on three essential dimensions: instructive, developmental and educational. An example of this is found in the pedagogical careers, which are based on a broad profile model with a system approach and integrative character, which is translated through the model of the professional in which the disciplines play a fundamental role.

The relationship between the disciplines and the professional training process in Cuban higher education constitute a binomial, an indissoluble unity, an aspect emphasized by the Cuban pedagogue **Horruitiner (2006)** when he states that:

"In higher education the professional approach of each discipline carries implicitly, in its essence, the need for its interdisciplinary approach. It is erroneous, therefore, to consider professional approach and interdisciplinarity as two different aspects of professional training" (p.9).



Interdisciplinarity is given, as **Addine (2004)** emphasizes:

"By the nexus or links of interrelation and cooperation between disciplines on the basis of common objectives. This interaction brings about new integrative qualities, not inherent to each discipline in isolation, but to the whole system they form and leads to a more integrated theoretical organization of reality... it is a principle that makes possible the significant process of enriching the curriculum and the learning of the participants that is achieved as a result of recognizing and developing the existing relationships between the different disciplines of a study plan, through the components of the didactic system. (p.23)."

Thus, interdisciplinarity according to **Álvarez, M. (2004), Fiallo (2004), Gutiérrez (2004), Posada (2004), Perera (2009), Carvajal (2010), Ortiz (2012), Lenoir (2013), Cepeda, Díaz and Acosta (2017), González (2017) and Valdés (2019)**, includes not only the relationships that can be established between the knowledge systems of one discipline or another, but also those links that can be created between, the aspects that integrate the programs of the disciplines (objectives, skills, values etc. ) materialized through the curriculum and that exert a positive influence on the training of a competent professional capable of efficiently solving any problem that may arise in his or her daily work.

The Universidad de Ciencias de la Cultura Física y el Deporte "Manuel Fajardo" has not been oblivious to this reality and throughout history this relationship has been evidenced, which begins in an insipient way with the Triumph of the Revolution, when the possibility of applying science and technique to Physical Education and sports is given, as well as its subsequent extension to the social sphere, The Ministry of Education was created and through the General Direction of Physical Education, sports equipment began to be distributed throughout the country, at the same time that school sports organizations were reorganized at different levels of education with a true national projection.

In 1961, once the most pressing needs were covered and after the creation of the National Institute of Sports, Physical Education and Recreation (INDER in Spanish) as the highest organism for the training of professionals in Physical Education and Sports, the regular courses of the Higher School of Physical Education (ESEF in Spanish) "Comandante Manuel Fajardo" began, in the seat that had been occupied by the School of Instructors and Sports Officials "Troadio Hernández" inaugurated on November 23, 1960. In fact, the ESEF would not open its doors until 1963 due to the preparation that a group of young people were receiving in the extinct Union of Soviet Socialist Republics (USSR) which allowed a qualitative leap and the beginning of school courses. During this stage, the creation of Provincial Schools of Physical Education began (EPEF in Spanish).

Subsequently, the educational development of the country with thousands of high school graduates, the increase of provincial schools of Physical Education, the impetuous boom acquired by sports and the need to requalify high school graduates in a world where scientific and technical knowledge was constantly revolutionized, constituted the need for the ESEF to begin its degree courses in 1973. These courses have been maintained until today with numerous variations, due to the fact that working as a graduate in Physical Culture demands an integral training.

The Bachelor's Degree in Physical Culture is an eminently pedagogical career, it requires a professional with particular qualities of his personality when acting in dissimilar contexts with different age groups, so he must acquire knowledge, develop professional skills, abilities, and values, which will guarantee an adequate performance in all its spheres of action, an aspect highlighted by **Mendoza (2007), Ilisástigui and López**



(2010), Hechavarría and Oroceno (2013), Matos, Mena, and Tejera (2016), Garbey (2017), Domínguez, González and Hernández (2017), Almiral and Zaldívar (2018), and Hernández (2018).

The relationship between interdisciplinarity and the training of the Physical Culture professional is reflected through the analysis of the different study plans and is illustrated through the present article which objective is to characterize the main historical tendencies of interdisciplinarity in the professional training of the Physical Culture graduate.

For this study, a qualitative methodology is assumed through the technique of content analysis (or qualitative document analysis), this procedure has allowed characterizing a series of written data in order to classify and order the intraining around the stated objective. The study plans "D" and "E" designed for the training of physical culture professionals were analyzed, emphasizing the treatment given to interdisciplinarity in each of them. On the other hand, 16 professors with 40 and 45 years of experience in the training of this professional, who have worked in the training process developed by generations of previous study plans, such as "A", "B" and "C", were interviewed.

In order to highlight the main historical trends that characterize interdisciplinarity in the training of the Bachelor in Physical Culture, the indicators established by Mendoza (2007, p.48) were assumed, which are as follows:

- The interdisciplinary conception in the pedagogical training of the Bachelor in Physical Culture.
- The integration of the academic, research and labor in the pedagogical training of the Physical Culture graduate.
- Use of interdisciplinary methods and procedures.

## DEVELOPMENT

Talking about the history of interdisciplinarity in the training process of the physical culture professional is always a complex and debatable subject, in this sense it is legitimate to try to follow certain criteria, in this case it follows Mendoza (2007), in his thesis in option to the scientific degree of Doctor in Pedagogical Sciences titled: "Didactic model of the interdisciplinary training of the Physical Culture graduate", which placed in context and allowed to propose new stages, which are illustrated below.:

- First stage: from 1973 to 1990. Approach to interdisciplinary relations.
- Second stage: from 1990 to 2003. Interdisciplinary cooperation in the disciplines of pedagogical training.
- Third stage: from 2003 to 2016 Broad profile with a system approach and integrative character. Improvement of all disciplines and emergence of new disciplines.
- Fourth stage: from 2016 to the present. Relevance in the integral training of the country's professionals, higher level of essentiality of the disciplines.



## First stage: from 1973 to 1990. Approach to interdisciplinary relations

In December 1973, by Resolution 448 of the Ministry of Education, the Higher Institute of Physical Culture (ISCF in Spanish) was created with a formative process that included scientific work for students, at the same time that it delivered to society a professional capable of facing the challenges that society faces due to changes in science and technology.

The ISCF would ensure the training and improvement of teachers for a period of four years in three fundamental profiles: Sports, Physical Education and Recreation in correspondence with the objectives established by the Cuban System of Physical Culture and Sports. Two faculties were created, the Faculty of Physical Education and Recreation and the Faculty of Sports, so it was necessary to establish differences in terms of training profiles, stipulating 140 hours for each subject, which were organized according to the logical and systemic order of the contents, in this period the interdisciplinary conception was insufficient, each teacher considered the contents of his subject as a plot without establishing links between these and other subjects and without considering that the training process is directed towards a subject on which many subjects have an impact.

It can be considered a first attempt at interdisciplinarity as highlighted by **Mendoza (2007)** through labor practice and the research component, but in the opinion of the aforementioned author this was very simple, a criterion that we share, noting that in this first stage the labor component prevailed over the research component, since this practice was materialized in productive tasks such as the elaboration of sports equipment or other activities related to this sphere.

When the Ministry of Higher Education (MES) was created in 1976, in September 1977, the teaching-learning process in Higher Education began to be organized and the "A" Study Plan came into force in the ISCF, with four years of duration and two specialties: Physical Education, with three specializations and Sports with eight specializations; this division conditioned the training of a professional with a narrow profile, because the graduate in one of them did not acquire the indispensable knowledge to practice in another. The objectives were rather performance oriented, restricting the pedagogical training by dividing the career in specializations and therefore limiting the relationship and proper integration between the contents, skills and values of the subjects, being insufficient interdisciplinarity.

Although to some extent the integration of contents is encouraged, professionals were trained with a narrow profile, where the knowledge transmitted through the pedagogical training subjects was scarce and was insufficiently irradiated in the professional's modes of action, but not in the specializations.

The Plan of Study "A" corresponding to the Bachelor's Degree in Physical Culture, more than 50 % of the teaching organization forms were lectures, theoretical activities predominated in the programs of the subjects; these documents of guiding character together with the methodological plans were centralized nationally and there were scarce links between the work and pedagogical component, as well as the interdisciplinary relationship that was almost null between almost all the subjects of the curriculum.

Also at the same time, in the Higher Pedagogical Institutes, specialists were trained with a different study plan conceived for five years with emphasis on pedagogical training through the use of methods and procedures in accordance with the development of pedagogical sciences, where Physical Education prevailed over sports.



Study Plan "A" fulfilled its function and in September 1981 Study Plan "B" was implemented as part of the improvement of Cuban higher education, with the purpose of eliminating the insufficiencies evidenced in the study plan that preceded it, leveling the curriculum of the Higher Pedagogical Institutes and the Higher Institute of Physical Culture with a view to improving the professional training of the graduates of these two institutions.

A very important aspect of this Plan of Study "B" was the inclusion of the course for athletes, in which countless athletes, members of national and youth teams, today glories of Cuban sports, enrolled.

In this new conception of the study plan at the ISCF, although the pedagogical, didactic, psychological, and theory and methodology contents of Physical Education and Sports are increased, they are structured in an isolated manner without an interdisciplinary conception that would allow the adequate articulation of contents, skills and methods, obviating the appropriate integration between the academic, labor and research components.

At this stage, the first signs of interdisciplinary relations in the subjects of the pedagogical training in the Bachelor's degree in Physical Culture are produced, which are specified from the conceptions of **Mendoza (2007)** in:

- In the study plans "A", "B" the interdisciplinary approach of the subjects of the pedagogical training for this period evidences difficulties that limit the articulation and coherence of the subjects in the curricular map of the career, this location took place in dependence of the faculties conceived in the plan (Physical Education, Recreation and Sports) they varied of semester, in amount of hours, subjects and objectives.
- The programs had a nationally centralized character with a great overload of conceptual contents without links between them, with the labor component and with the exercise of the profession, which denotes a poor interdisciplinary relationship, the transmission of knowledge was linear, from each of the branches of knowledge with a parcelled conception.
- The scientific methodological work does not constitute a premise for the approach, cooperation and integration of knowledge, skills, values, modes of action, methods and productive procedures in the subjects of pedagogical training and the exercise of the profession.

### **Second stage: from 1990 to 2003. Interdisciplinary cooperation in the disciplines of pedagogical training**

The improvement of the study plans continues and the "C" study plan begins to be applied. Its objective is to train a professional with a broad profile, with a solid basic training that allows him/her to act in the different spheres of action in accordance with the model of the professional. It is important to emphasize that this study plan includes disciplines structured from the curricular organization by broad areas of knowledge.

In the curricular map, the disciplines that enhance the pedagogical training of the Physical Culture professional decreased by a considerable percentage compared to the previous plan and are not always placed according to the logic of the teaching-learning





process and the necessary contents of the preceding subjects, which limited the development of the process with an interdisciplinary approach.

In the disciplines of pedagogical training, interdisciplinary aids or collaborations are intensified, including in the pedagogical groups some topics on interdisciplinarity in the teaching and methodological scientific work, but this does not materialize as a primary element for teachers and students where it is indispensable as part of the teaching-learning process an integrative approach of reciprocal cooperation between disciplines and subjects, which is materialized through interdisciplinarity.

Emphasis is placed on the inter-subject relationship and its extrapolation in the essential logic of the profession, including the master programs of "Languages, Computers, Scientific Training, Teaching Practice and Theory and Methodology of Physical Culture".

A significant step was the fact of declaring the Research Labor Practice as the main integrating discipline of the career, in which the academic, labor and investigative components were included in all semesters, however, it lacks programs constituted by subjects, the contents of this discipline are granted to the disciplines of the exercise of the profession, which limits its link with the psycho-pedagogical disciplines, affecting significantly in the training of the professional pedagogical skills indispensable in the career.

The role of the Research Work Practice as a means of articulation in the physical culture career is enhanced from the 2001-2002 academic year when a department is created with professors from all disciplines for teaching and methodological advice and this discipline is no longer attended by those of the exercise of the profession, however, there were still few links that enhanced the discipline based on the model of the professional.

According to **Mendoza (2007)** at this stage, interdisciplinary cooperation in the disciplines of pedagogical training constituted a fundamental objective in the scientific-methodological work during the teaching-learning process, which was evidenced by the inter-material relationship carried out by some teachers, many of whom had insufficient interdisciplinary methodological preparation to face and implement ways of thinking and proceeding in an integrated manner in the teaching-educational process and within the pedagogical group.

**Hernández (2018)**, synthesizes the novel elements of this study plan in the professional physical culture highlighting the following:

- Principle of integration of the academic, work and research components as the basis of the curricular design.
- Elimination of the concept of chairs and substitution by teaching departments and an organization in twelve disciplines with subjects that favor a greater integration of the different areas of knowledge.
- The planning during the course of study of teaching practice by students in the four areas of action.
- The incorporation to the evaluation system of exams and course work in the disciplines.



- The articulation between professional training and postgraduate education, through the transfer of specialties to postgraduate education figures, together with master's and doctoral degrees, among other important changes.

In 1997, the Ministry of Higher Education (MES), oriented university centers throughout the country to improve the "C" study plans, which were modified as part of the continuous improvement of science and technology, maintaining the conception of the broad profile and redesigning the curriculum taking as a reference the new demands of social and economic development of the country.

The modified plan of Study "C" for the training of Physical Culture professionals began to be applied in the 2001-2002 academic year, after being presented before a tribunal of experts from the MES, the Inder or other organizations considered to be users according to the career opportunities. This new study plan also exhibited valuable elements, which are cited by López (2001) and are reflected as follows:

- Integrate as curricular paradigms a mixed design.
- The research work practice begins in the first year, with a practice of familiarization with context studies, and represents 31.75 % of the total time of the career.
- The intra and interdisciplinary relations are established from a concept of transferring skills and abilities from one sphere of action to another: Physical Education, Recreation, Therapeutic Physical Culture and Basic Sports, which perfects the conception of the broad profile of the career.
- A whole strategy is introduced at the level of subjects, disciplines and academic year for the training of values in university professionals, taking into account the call made in this regard by UNESCO at the International Conference on the XXI century, in 1998.
- The new intraining technologies are introduced integrated to the content of the disciplines of the career as essential work tools.
- The evaluation system has an integrating conception of scientific and methodological knowledge, as well as the whole career, based on the principle of integration of the academic, labor and research components.

In spite of the notorious aspects of the modified Study Plan "C" and the positive results obtained in its application, there are still deficiencies detected by a group of specialists regarding the levels of systematicity of the course, year, discipline and subject, which do not allow a logical derivation and integration of the objectives as a guiding category; furthermore, the main integrating discipline of the course does not establish an adequate relationship between the disciplines of the pedagogical training and the integrating subjects are not determined by semesters, which limits the concretion of interdisciplinarity.



### **Third stage: from 2003 to 2016. Broad profile with a system approach and integrative character. Improvement of all disciplines and emergence of new disciplines**

With the objective of creating a new curriculum model to take universities to other spaces, the first steps were taken to make a new stage in Cuban universities known as the "Universalization of Higher Education, which came about as a result of the Battle of Ideas in Cuba.

For this purpose, a fourth generation of study plans was initiated and the process of improvement of Cuban higher education continued. In September 2003, the Board of Directors of the MES approved the base document for the elaboration of the "D" study plans, which promotes the integration to this improvement of the changes that are taking place in some university careers, where the pedagogical model maintains a comprehensive training with a broad profile based on a basic training, which guarantees the preparation of a professional capable of providing solutions to the main problems that will arise in the different spheres of his or her performance.

The Plan of Study "D" designed for the training of physical culture professionals comes into effect in September 2003 with two modalities, regular day course and course by meeting, this is based on a theoretical-methodological model integrating a humanist and historical-cultural base, for which the educational aspects in the training process constitute priority elements, in close and indissoluble unity with the instructional aspects and the link between study and work, in its different possible modalities, based on a system approach with the improvement of curricular strategies and the possibility of an intermediate exit at the end of the third year of the course.

In order to achieve the aforementioned purposes, after a deep study by a group of specialists, all the disciplines of the career are improved and new disciplines are created, such as: Morpho Biomechanics, Psychopedagogy, Theory and Practice of Physical Education, Theory and Practice of Sports Training: Morpho Biomechanics, Psychopedagogy, Theory and Practice of Physical Education, Theory and Practice of Sports Training, with a view to achieve in the twelve disciplines of the career greater disciplinary and interdisciplinary integration from the structural, functional and conceptual redesign and the creation of new more integrative subjects such as: Biological Foundations of Physical Exercise, Combat Sports Workshops, Management Technologies and Adapted Physical Activity, among others.

In Study Plan "D" the need for an interdisciplinary training of the physical culture professional is evidenced, which will allow him/her to give answers to the most frequent problems that arise in the basic link with a creative, transforming and integrating vision, but such purposes are still insufficient, and among the main tendencies of this stage, as specified by **Mendoza (2007)**, the following are evident:

- The disciplines of pedagogical training conceived in this study plan aim at the intentionality of interdisciplinary approach and integration in the system of knowledge, skills and values, but not in methodologies, procedures or methods that promote such approach.
- The teaching and methodological scientific work in its conception contains as fundamental objectives the establishment of interdisciplinarity and different forms of methodological scientific improvement are introduced for the interdisciplinary preparation of the pedagogical group.



- Interdisciplinarity in the concretion of the teaching-learning process is limited by the insufficient systematic actions that allow a logical interdisciplinary process in students and teachers.
- Teaching tasks are implemented in the second and third year with an integrating, interdisciplinary character, essentially in the final evaluations of subjects, disciplines and years, integrating exams are introduced.
- The designed evaluations have not been preceded by a systematic process with an interdisciplinary approach and the adequate preparation of the personal components of the process is not established.

And it is in this historical context that from the school year 2009-2010 the center becomes known as the University of Physical Culture and Sport Sciences. "Manuel Fajardo" (UCCFD in Spanish).

#### **Fourth stage: from 2016 to the present. Relevance in the integral training of the country's professionals, higher level of essentiality of the disciplines**

The UCCFD assumes the new policy guidelines of the Party and the Revolution in April 2016, which calls for the preparation of a new study plan, the "E" Study Plan. The content of these guidelines required higher education to carry out a thorough review of the training and development programs for Cuban professionals, in correspondence with the new scenarios and complex conditions that were envisioned for the coming decades of the 21st century. These analyses resulted in the proposal of a set of policies for the improvement of the continuing education process of Cuban professionals.

In light of these transtrainings in the pedagogical professional training, a new study plan will begin in the 2016-2017 school year for the training of Physical Culture Graduates, of four years for the regular course modality and five years for the course by encounter, this reduction demanding after an analysis in the career, discipline and subject collectives the elimination of some subjects whose contents passed to the graduate course and the integration of others as is the case of "Theory and practice of games and rhythmic education" in a new subject called: "Rhythmic and ludic education", another example was the subject Preschool Physical Education that joined "Theory and methodology of Physical Education". Both subjects integrate the discipline "Theory and practice of Physical Education".

It is important to highlight that this new study plan emphasizes the interdisciplinary approach of the disciplines for the development of professional skills from the treatment of transversal axes deployed through interdisciplinary curricular strategies and through the strengthening of methodological teaching work.

#### **Importance of methodological teaching work for the realization of interdisciplinarity and the training of the professional at this stage**

Despite all the efforts made, at this stage there are still insufficient actions to promote interdisciplinarity and achieve the training of an integral professional, and the MES and the UCCFD are persistent in their efforts to constantly improve the curricula, However, in order for interdisciplinarity to materialize in practice, a unified effort is needed from the directors and professors, from the conception of the curriculum of the career, the groups of years and disciplines to the subjects, aspects that are emphasized in the



UCCFD and are highlighted in the Regulations of teaching and methodological work in Higher Education through Resolution No. 02/18 of the MES. 02/18 of the MES.

Methodological work is fundamental for the practical realization of interdisciplinarity in the university context, so that in the first section of Chapter II of the aforementioned resolution the aspects to be taken into account for the realization of methodological work in higher education are specified, highlighting in Article 21 that the methodological work is collective, will have as an essential feature the systemic approach, will be carried out for all types of courses and in each of the subsystems or organizational levels which are as follows: career collective, year collective, discipline collective, interdisciplinary collective when necessary, and subject collective.

This section deals with the functions of each of the subsystems or organizational levels and the importance of interdisciplinarity as a priority element in the training of the university professional, as follows are examples from the article:

Article 26: The main functions of the Disciplinary Committee shall be as follows:

a) Guarantee that the methodological work carried out in the discipline prioritizes its professional approach and the training of values in students from the contents of the subjects that integrate it, in correspondence with the educational strategy of the career (Resolution No. 02/18 of the MES, p.10).

b) Achieve an adequate methodological approach for the development of the discipline following the methodological and organizational indications of the program, taking into account its contribution to the fulfillment of the general objectives of the career and those of the year in which its subjects are developed. Attend to intra, inter and transdisciplinary links, and the integration of curricular strategies in their contents (Resolution No. 02/18 of the MES, p.10).

As part of the methodological teaching work, the discipline's collective must foresee the professional approach from the contents of the subjects, and this article also states the need to take into account the interdisciplinary links so that, if necessary, the university careers can create interdisciplinary collectives that are constituted: "with the purpose of achieving coherent approaches in the integration and systematization of contents from different disciplines or from other needs that arise in the development of the training process" (Resolution No. 02/18 of the MES. Article 30, p.10).

All the methodological work developed is articulated by means of a system that is concretized in the teaching-learning process by means of the subject group that must achieve the fulfillment with quality of the general objectives of the subject, in close link with those of the discipline and of the year in which it is taught, which is stated in article 31, specifying among the main functions of the subject group:

a) Guarantee the appropriate methodological approach for its development, following the methodological and organizational indications of its analytical program, paying attention to the professional approach of its content, the role played by curricular strategies, as well as the links with other subjects of the discipline itself and with other related subjects of the career (Resolution No. 02/18 of the MES, p.14).



The subject collectives should outline strategies, tasks or other actions to favor interdisciplinarity in the teaching-learning process of the different subjects that make up the disciplines, which will allow the training of a competent professional capable of efficiently solving any problem that may arise in their daily work. For this it is necessary to make university teachers aware so that they do not see the contents they teach as fiefdoms or isolated plots where the knowledge system of one subject predominates over the other, all knowledge is important, the value of them is in the way of transmitting them articulating them in such a way that the necessary ones are integrated so that the student, who is only one, can understand, base, create and transform what will allow him to give solutions in the most effective way to the problems he faces once graduated and during his training process.

Physical culture professionals have a great challenge that is materialized in the training of new generations, hence the need to increase professional skills deepening methods and actions, so that they can fully comply with their object of work based on the development of physical, sports and recreational activities with children, adolescents, young people, adults and seniors in order to meet the needs, motives and interests of physical development, community sports practice (Sport for All), recreation and prophylactic and therapeutic purposes, adolescents, young people, adults and the elderly with the purpose of satisfying needs, motives and interests of physical development, community sports practice (Sport for All), recreation and with prophylactic and therapeutic purposes, aimed at improving the health and quality of life of the population, where interdisciplinarity plays a fundamental role.

To know how interdisciplinarity has been in its historical development in the professional training of Physical Culture Graduates and the need of methodological work for such purposes, is of total importance to take pertinent actions and to direct such training with an interdisciplinary character.

## CONCLUSIONS

From the analyses carried out and based on the assessments of [López \(2001\)](#); [Mendoza \(2007\)](#) and [Hernández \(2018\)](#), the following stand out among the main historical trends of interdisciplinarity in the training of Physical Culture Bachelor's Degree in Physical Culture:

In the conceptions of the "A" and "B" study plans, the relationship between the disciplines was limited, especially in the pedagogical training subjects; rather, an insipient inter-material relationship was reflected with emphasis on theoretical contents; the relationship between the labor component and the subjects of the profession was scarce.

In the modified Plan of Study "C", the disciplines of pedagogical training constituted a fundamental objective in the scientific-methodological work and some positive results can be seen in their application, but there are still deficiencies in terms of the levels of systematicity of the course, year, discipline and subject, limiting the logical integration of all the components of the teaching-learning process, which hinders the realization of interdisciplinarity.

Although Study Plan "D" represents an advance in relation to previous designs, with the objective of forming a professional with a broad profile supported by an integrating theoretical-methodological model, for which new disciplines and subjects arise,



interdisciplinarity is restricted in the realization of the teaching-learning process, as there are insufficient systematic actions between disciplines and subjects that allow for a logical interdisciplinary process in students and teachers.

Study Plan "E" emphasizes the interdisciplinary approach of the disciplines for the development of professional skills through the treatment of transversal axes deployed through interdisciplinary curricular strategies, for which it is essential to strengthen the methodological teaching work carried out in the career, year, discipline, interdisciplinary and subject collectives.

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The authors declare not to have any interest conflicts.

**Authors' contribution:**

**Yolanda Valdés André:** Conception of the idea, literature search and review, instrument making, instrument application, compilation of information resulting from the instruments applied, statistic analysis, database preparation, general advice on the topic addressed, drafting of the original (first version), review and final version of the article, article correction, authorship coordinator, translation of terms or information obtained, review of the application of the applied bibliographic standard.

**Jerry Bosque Jiménez:** Literature search and review, instrument application, compilation of information resulting from the instruments applied, general advice on the topic addressed, review and final version of the article, article correction, translation of terms or information obtained, review of the application of the applied bibliographic standard.

**José Francisco Estradé Martínez:** Literature search and review, instrument application, compilation of information resulting from the instruments applied, general advice on the topic addressed, review and final version of the article, article correction, review of the application of the applied bibliographic standard.

**Daymara Guerra Bouza:** Literature search and review, instrument application, instrument application, compilation of information resulting from the instruments applied, review and final version of the article, review of the application of the applied bibliographic standard.

**Claudia Rodríguez Almeida:** Literature search and review, instrument application, instrument application, compilation of information resulting from the instruments applied, statistic analysis, general advice on the topic addressed, review and final version of the article, article correction, review of the application of the applied bibliographic standard.



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