PODIUM
Journal of Science and Technology in Physical Culture

UNIVERSITY EDITORIAL

Volumen 17
Issue 3
2022

University of Pinar del Río "Hermanos Saíz Montes de Oca"

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ISSN: 1996–2452 RNPS: 2148
PODIUM Journal, September-December 2022; 17(3):1155-1173

Original article

Didactic games: an alternative for interdisciplinarity in the training of Physical Culture professionals

Juegos didácticos: una alternativa para la interdisciplinariedad en la formación del profesional de la Cultura Física

Jogos didáticos: uma alternativa para a interdisciplinaridade na formação de profissionais da Cultura Física

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Received:2022-03-04.
Approved:2022-09-26.

How to cite item: Quiñones Bravo, Y., Valdés André, Y., Maceo Betancourt, Y., & González Campello, A. (2022). Juegos didácticos: una alternativa para la interdisciplinariedad en la formación del profesional de la Cultura Física/Didactic games: an alternative for interdisciplinarity in the training of Physical Culture professionals. *PODIUM - Revista de Ciencia y Tecnología en la Cultura Física, 17*(3), 1155-1173. Recuperado de https://podium.upr.edu.cu/index.php/podium/article/view/1282

ISSN: 1996–2452 RNPS: 2148
PODIUM Journal, September-December 2022; 17(3):1155-1173

ABSTRACT

Introduction: The training of the Physical Culture professional needs a systematic and comprehensive process in which interdisciplinarity is essential, hence the need for this research due to the shortcomings in the treatment required by the subject at the University of Sciences of the Physical Culture and Sport (UCCFD) "Manuel Fajardo".
Objective: The objective was to propose didactic games that favor interdisciplinarity in the process of training Physical Culture professionals through the Rhythmic and Ludic Education subject.
Materials and methods: A sample of 225 first-year students belonging to the regular day course and 17 teachers of the subject was selected. Research methods and techniques were used, among which the following stand out: historical-logical, analytical-synthetic, functional structural systemic, documentary analysis, survey, specialist criteria and the empirical distribution of relative and absolute frequencies, which allowed the design of ten didactic games considered. as a way to promote interdisciplinarity by the criteria of ten specialists.
Results: The didactic games are structured with a logical, methodological and systemic order in correspondence with the contents of the disciplines and subjects of the first year of the Bachelor's degree in Physical Culture.
Conclusions: The validation reveals the potentialities of interdisciplinarity for the training of Physical Culture professionals.

Keywords: Interdisciplinarity; Didactical games; Physical Culture Professional.

RESUMEN

Introducción: La formación del profesional de la Cultura Física necesita de un proceso sistemático e integral en el que la interdisciplinariedad es fundamental, de ahí la necesidad de la presente investigación por las carencias en el tratamiento que exige el tema en la Universidad de Ciencias de la Cultura Física y el Deporte (UCCFD) "Manuel Fajardo".
Objetivo: El objetivo consistió en proponer juegos didácticos que favorezcan la interdisciplinariedad en el proceso de formación del profesional de la Cultura Física mediante la asignatura Educación Rítmica y Lúdica.
Materiales y métodos: Se seleccionó una muestra de 225 estudiantes de primer año pertenecientes al curso regular diurno y 17 profesores de la asignatura. Se utilizaron métodos y técnicas investigativas entre las que se destacan: histórico-lógico, analítico-sintético, sistémico estructural funcional, análisis documental, encuesta, criterio de especialistas y la distribución empírica de frecuencias relativas y absolutas, los que permitieron diseñar diez juegos didácticos considerados como una vía para favorecer la interdisciplinariedad por el criterio de diez especialistas.
Resultados: Los juegos didácticos se estructuran con un orden lógico, metodológico y sistémico en correspondencia con los contenidos de las disciplinas y asignaturas del primer año de la carrera Licenciatura en Cultura Física.
Conclusiones: La validación revela las potencialidades de la interdisciplinariedad para la formación del profesional de la Cultura Física.

Palabras clave: Interdisciplinariedad; Juegos didácticos; Profesional de la Cultura Física.

SÍNTESE

Introdução: A formação do profissional de Cultura Física necessita de um processo sistemático e integral no qual a interdisciplinaridade é fundamental, daí a necessidade da presente pesquisa devido às deficiências no tratamento que o sujeito exige na Universidade de Cultura Física e Ciências do Esporte (UCCFD) "Manuel Fajardo".
Objetivo: O objetivo consistia em propor jogos didáticos que favorecessem a interdisciplinaridade no processo de formação do profissional de Cultura Física através do tema Educação Rítmica e Lúdica.
Materiais e métodos: Uma amostra de 225 alunos do primeiro ano pertencentes ao curso diurno regular e 17 professores da disciplina foram selecionados. Foram utilizados métodos e técnicas de pesquisa, incluindo: histórico-lógico, analítico-sintético, sistêmico-estrutural funcional, análise documental, levantamento, critérios de especialistas e a distribuição empírica de freqüências relativas e absolutas, o que permitiu projetar dez jogos didáticos considerados como uma forma de favorecer a interdisciplinaridade pelos critérios de dez especialistas.
Resultados: Os jogos didáticos são estruturados com uma ordem lógica, metodológica e sistêmica em correspondência com os conteúdos das disciplinas e disciplinas do primeiro ano do curso de graduação em Cultura Física.
Conclusões: A validação revela o potencial da interdisciplinaridade para a formação do profissional de Cultura Física.

Palavras-chave: Interdisciplinaridade; Jogos didáticos; Profissional de Cultura Física.

INTRODUCTION

The 21st century brings with it important advances, which allows Cuban Higher Education to continue focused on maintaining its modern university paradigm. For this reason, constant transformations of the study plans are carried out, among them the Study Plan "E" of the Degree in Physical Culture, which is based on a pedagogical model that allows the exit to four spheres of action such as Physical Culture Therapeutics, Recreation, Sports Training and Physical Education. The latter materializes in the discipline Theory and Practice of Physical Education.

This high house of studies is distinguished for being a pedagogical university par excellence, where the student must be able to gradually acquire essential professional skills in their training, in correspondence with the particularities of the pedagogical model and the characteristics with which the learning of students, for this it is necessary to develop a teaching-learning process with a marked interdisciplinary character.

A group of authors have researched the subject, among which the following stand out: Fiallo (2004), Perera (2009), Lenoir (2013), González (2017), Valdés (2019, 2021) and Ortiz (2020), who agree that the relationships between the disciplines include not only the links 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 make up the programs of the disciplines (objectives, skills, values, etc.) materialized through the curriculum and that exert a positive influence on the formation of a competent professional capable of efficiently solving any problem that arises in their daily actions.

Fiallo (2001) proposes Inter objects and interdisciplinary articulation nodes as premises for interdisciplinary work and, considering the nature of interdisciplinary articulation, establishes three types of nodes:

- Type one potential node: when it refers to highly structured content and can serve as a basis for articulation with other content identified in other disciplines (Fiallo, 2001).
- Type two potential node: when it refers to unstructured content and can be the point of convergence and/or application of content from other disciplines (Fiallo, 2001).
- Type three potential node: when type 1 or 2 nodes cannot be established, however, it has the possibility of integrating with other potential nodes and constituting a new content with a higher level of integration or professional generality (Fiallo, 2001).
- From these positions and that of the type two potential node, the contents included in the proposed didactic games are specified. Two dimensions are established:
- The didactic dimension: considered as the modeling of the interdisciplinary strategy to be developed, taking into account, among other aspects, the functions of the didactic components and the relationship between general didactics and that of each discipline (Perera, 2009).
- The pedagogical dimension: corresponds to the classroom and to the rest of the activities of the curriculum where the didactic model elaborated through interdisciplinary methodological work is put to the test (Perera, 2009).

Once these dimensions materialize in practice, the comprehensive training (knowledge, skills, values, aptitudes and feelings) of university students will be guaranteed, hence the need to establish an articulated, systematic and coherent teaching process related to the current context, an aspect that Carvajal (2010) emphasizes by highlighting the meaning of interdisciplinarity in this context by stating:

Higher Education is the basis for the strategic role that the sustainable development processes of the countries of Latin America and the Caribbean must play. As part of its social responsibility, it must put urgent issues facing humanity on its agenda. This imposes the need to guide the technical-scientific knowledge, and all the critical capacity in the perspective of the humanitarian ideals of freedom, social justice, peace and human development. In this sense, interdisciplinarity, more than a term, must be a pedagogical strategy, which implies conceptualizing the purposes and planning of the process, with a previous evaluation of the educational system as a starting point, (p.19).

Lenoir (2015) alludes that: "Interdisciplinarity, in the strict sense, designates the effective interactions woven between two or more disciplines and their concepts, their methodological procedures, techniques, etc. Therefore, it is not compatible with any cumulative perspective, because it imposes real interactions", (p.53).

The aforementioned definition is assumed by the author because interdisciplinarity cannot be conceived in a particular way for each discipline, it demands a teaching-methodological work where cooperation prevails from the groups of the career, year,

discipline and subject to materialize in the classroom through the proper performance of the teacher.

González (2017) summarizes the assessments cited by highlighting that in Higher Education "(...) interdisciplinarity contributes to generating flexible thinking, improves learning skills and increases the skills to access knowledge and integrate dissimilar contexts" (p.131).

To access knowledge and integrate dissimilar contexts in Higher Education, the link between interdisciplinarity and the training process is essential, they constitute a binomial, an indissoluble unit. The training process has been conceptualized by authors such as: Perera (2000, 2009, Valdés (2005), Horruitiner (2006), Castellanos (2016), Barrabia (2017) and González (2017). From different points of view, everyone perceives training as a derivation of an activity-communication system, systematic and logical, which allows the subject to act in a conscious and creative way, and guarantees their preparation.

In the 21st century, the Cuban university has a great challenge, due to the fact that society faces increasingly complex problems, which demands a competent professional, with a comprehensive training that enables him to resolve the contradictions that are manifested in the reality, revealing the links that unite apparently isolated phenomena, an aspect emphasized by Cepeda *et al.* (2017) the following:

> The interdisciplinary conception is a goal to be achieved from the university professional model. This is determined through the coordination of educational influences and the coherent combination of work from each subject of the curriculum based on the achievement of the objectives of each year, as an aspiration or tendency to the logical unity of knowledge (p.26).

The author specifies that in the face of such a challenge, the "Manuel Fajardo" University of Physical Culture and Sports Sciences must prepare an increasingly comprehensive graduate, in which interdisciplinarity plays a fundamental role; however, this has not been conceived as such, which has been demonstrated in the different curricula of this university career.

The proper performance of the Physical Culture professional in all its spheres of action is highlighted by Mendoza (2007) when he states that the training process "(...) focuses its attention on the treatment of diversity and comprehensiveness of content in the different disciplines of the study plan, as well as the personality qualities that distinguish this professional from others" (p. 48).

Valdés (2019) adapts the assessments made by Mendoza (2007) in his thesis in option to the scientific degree of Doctor of Pedagogical Sciences entitled: "Didactic model of the interdisciplinary training of the Bachelor of Physical Culture", highlights the main historical trends that characterize the training of the Physical Culture professional, reflecting stages for its study:

1. First stage: from 1973 to 1990. Approach to interdisciplinary relations
2. Second stage: from 1991 to 2002. Interdisciplinary cooperation in the disciplines of pedagogical training

3. Third stage: from 2003 to 2015. Broad profile with a system approach and an integrating character. Improvement of all disciplines and emergence of new disciplines

4. Fourth stage: from 2016 to the present. Relevance in the comprehensive training of professionals in the country, higher level of essentiality of the disciplines.

Valdés (2019) underlines that the declared stages were conceived on the basis of the transformations carried out by the Ministry of Higher Education and the meaning that interdisciplinarity has in the different study plans that have been prepared for the pedagogical training of the career.

The Theory and Practice of Physical Education discipline has a high level of representation in the first two years of the degree; brings together 11 subjects of the exercise of the profession that are part of the programs of Physical Education and School Sports.

One of the subjects that integrates the discipline is Rhythmic and Ludic Education, which is taught in the second semester of the first year and encourages the student to develop the professional pedagogical skills necessary to impart the contents of Physical Education at the different levels of education with emphasis on the first cycle of Primary Education in which games and rhythmic activities constitute fundamental contents.

The aforementioned is achieved through the integration of the preceding and necessary subjects that guarantee the integral formation of the student; however, despite all the aspects raised, there is evidence of fragmentation of the contents of the program of the Rhythmic and Ludic Education subject, for which the objective is to propose didactic games that favor interdisciplinarity in the process of training the Culture professional. Physics through the Rhythmic and Ludic Education subject.

MATERIALS AND METHODS

This research was developed at the "Manuel Fajardo" University of Physical Culture and Sports Sciences, located in Havana province, Cuba. A population of 428 students from 15 first-year groups, belonging to the regular daytime course of the 2018-2019 academic year, was selected, from which a random sample of 225 students was selected, representing 53% of the population.

The methods and techniques used in the research are:

The historical-logical: It allowed defining the main historical trends of interdisciplinarity in the training process of the Bachelor of Physical Culture, its evolution and development since the creation of the "Manuel Fajardo" Higher Institute of Physical Culture to the present.

The analytical-synthetic analysis led to completing the tasks planned in the construction of the conceptual theoretical framework, through the specialized bibliographic search highlighting the common aspects and the differences of its parts, as well as the analysis, explanation and systematization of the main conceptions of the terms interdisciplinarity, and educational games.

The functional structural systemic made it possible to organize the didactic games based on the methodological structure and the hierarchy of each of them, their dynamics and their operation, so they were described from the order of implementation of the contents of the Rhythmic and Ludic Education subject from the simplest to the most complex.

The documentary review facilitated the study of official documents such as the Study Plan "E", the programs of the disciplines that are taught in the first year of the career, the Program of the Rhythmic and Ludic Education subject, the models of the controls to classes (a total of 24 control models were reviewed for classes belonging to the professor of the Rhythmic and Ludic Education subject who taught in the 2018-2019 academic year) and the integrative extra-class work of the Rhythmic and Ludic Education subject in the academic year 2018-2019, which aims to teach part of a Physical Education class in correspondence with the contents of the Physical Education Programs for the first cycle of primary education. The analysis was carried out with the objective of knowing the treatment of interdisciplinarity in the Degree in Physical Culture and specifying and selecting the contents to be included in the didactic games that are proposed in the research.

The interview made it possible to collect the different criteria on the current state of interdisciplinarity in the first year of the Physical Culture career of the coordinator, heads of disciplines and the main professors of the year.

The survey was used to compile criteria on the way in which interdisciplinarity is conceived in the training of the Bachelor of Physical Culture by the 17 teachers who taught the subject Rhythmic and Ludic Education in the academic year (2018-2019).

Dimensions and indicators used in the research

Based on the theoretical aspects addressed in this study and the aims of the research, for the diagnosis, the dimensions and indicators were adapted, which includes the curricular dimension and the Methodological Teaching of; the Cognitive dimension is evaluated using the indicators of Posada (2002) (Table 1).

Table 1.- Dimensions and indicators used in the research

Variable	Dimension	Indicators
interdisciplinarity in the training process of the Bachelor of Physical Culture	curriculum	Conception of interdisciplinary work based on professional training
		The Role of Goals
		The organization of curricular content
		The forms of organization of the Study Plan
		Treatment of interdisciplinarity in the programs of the disciplines taught in the first year of the degree.
	Cognitive Posada (2002)	Intradisciplinary and interdisciplinary relationships (Total subjects and disciplines)
		Applies content to specific situations
		Compare knowledge with each other
		Identifies ideas, essential knowledge (knowledge invariants)

		Organize ideas using concept maps, graphic charts, diagrams, or other means.
		Describes examples based on the theories studied
		Contribute new ideas
	Teaching methodological	State of the treatment to interdisciplinarity from the methodological conception in the group and the disciplines of the first year
		Preparing teachers for interdisciplinary work
		Way of working of interdisciplinarity in the teaching-learning process of the subject Rhythmic and Ludic Education

Curricular dimension: the existing circumstances of the career design for the establishment of interdisciplinary relationships in the context of the teaching-learning process were assessed. Those that appear reflected in the previous table are determined as indicators and are evaluated qualitatively based on the analysis carried out on the "E" Study Plan of the career, the programs of the disciplines that are taught in the first year, emphasizing in the program of the subject Rhythmic and Ludic Education.

Cognitive dimension: takes into account the formation of integrated knowledge in students and the skills they have developed to establish interdisciplinary relationships, between the content learned in the different subjects. The indicators are evaluated indistinctly quantitatively and qualitatively on the basis of the results obtained through the analysis carried out on the integrative extraclass work of the Rhythmic and Ludic Education subject.

Methodological teaching dimension**:** it is used to determine the treatment of interdisciplinarity in the teaching-learning process, from the conception of the group of year, discipline and in the subject Rhythmic and Ludic Education in the first year of the career.

For the analysis of this dimension, the indicators that appear in table number one are used, from which a qualitative analysis of the results obtained was carried out.

The taxation matrix presents the double-entry table that relates the knowledge system of the Rhythmic and Ludic Education subject with the knowledge systems of the disciplines taught in the first year of the career as stated in the Study Plan " AND". In the particular case of the investigation, a simple matrix was created with the objective of identifying the type two interdisciplinary articulation nodes of the aforementioned subject. Six taxation matrices were elaborated that relate the contents of the Rhythmic and Ludic Education subject with various disciplines and subjects of the first year of the Bachelor of Physical Culture career (Table 2).

Table 2.- Disciplines and subjects that are included in the contribution matrixes

disciplines	subjects
Biological Foundations of Physical Activity	Morphology Biochemistry
Methods of Analysis and Research of Physical Culture	Computing and Data Analysis Research methodology
Cuban history	Cuban history History of Physical Culture

The questionnaire to specialists was applied with the aim of validating the didactic games through a questionnaire in the form of a table adapted according to the object of study of the investigation.

RESULTS AND DISCUSSION

Supported by the aforementioned methods, interdisciplinarity is specified as a research variable in the training process of the graduate in Physical Culture, it is operationalized through three dimensions:

In the curricular dimension that aims to analyze the conception of interdisciplinary work based on professional training, as well as the treatment of interdisciplinarity, for which an analysis of Study Plan "E" was carried out, with emphasis on the disciplines, which are included in the first year of the Degree in Physical Culture and in the Program of the Rhythmic and Ludic Education subject, through which it is intended to favor interdisciplinarity through the game that constitutes one of its fundamental contents.

It's important pointing that:

- The theoretical-practical elements that support interdisciplinarity should be included in greater depth, because these are limited.
- They must contain more precise actions to promote interdisciplinarity in the training process of Physical Culture professionals.
- Interdisciplinary articulation nodes are not specified.

The methodological teaching dimension allowed to determine the treatment of interdisciplinarity in the teaching-learning process, from the conception of the group of year, discipline and in the subject Rhythmic and Ludic Education in the first year of the career for which an analysis was carried out. of the models of observations to classes of the Rhythmic and Ludic Education subject, as well as of the interviews and surveys applied to the subjects of the sample under study. After analyzing the aforementioned documents, it was found that interdisciplinary work by teachers of the Rhythmic and Ludic Education subject is limited, which affects the lack of skills of first-year students in the academic year 2018-2019, to establish interdisciplinary relationships between the content learned in the different subjects.

The cognitive dimension aims to analyze the formation of integrated knowledge in students and the skills they have developed to establish intra and interdisciplinary relationships between the content learned in different subjects.

From a population of 428 students representing a total of 143 extra - class assignments of the Rhythmic and Ludic Education subject delivered, belonging to 15 groups of the first year of the regular daytime course, five assignments per group were randomly selected for a total of 75 analyzed assignments. representing 52 % of the total belonging to 225 students. The table shown below reflects the subjects and disciplines present in the works analyzed (Table 3).

Table 3.- Total subjects and disciplines reflected in the students' work

Total of works	%	Disciplines that are reflected in the works analyzed	Subjects that are reflected in the works analyzed
30	40%	A discipline	Three subjects
		Theory and Practice of Physical Education	Basic Gymnastics, Athletics Rhythmic and Ludic Education
18	24%	two disciplines	Three subjects
		Biological Foundations of Physical Activity	Morphology
		Theory and Practice of Physical Education	Basic Gymnastics Rhythmic and Ludic Education
16	11%	two disciplines	four subjects
		Biological Foundations of Physical Activity	Morphology Biochemistry of Physical Exercise
		Theory and Practice of Physical Education	Basic Gymnastics Rhythmic and Ludic Education
11	15	Three disciplines	Five subjects
		Biological Foundations of Physical Activity	Morphology
		Methods of Analysis and Research in Physical Culture	Computer Science and Data Analysis in Physical Culture
		Theory and Practice of Physical Education	Basic Gymnastics Athletics Rhythmic and Ludic Education

After the analysis carried out through the indicators of Posada (2002), it was found that the students do not identify the invariants of knowledge, they are not able to organize the ideas they reflect, they do not use means that allow establishing links between the subjects, they do not compare, nor do they apply the declared contents to specific situations and the examples they describe are insufficient.

Given the limitations identified, it was determined to establish the interdisciplinary relationship, so six matrices were elaborated through which potential type two interdisciplinary articulation nodes were specified, due to the fact that the contents were not structured, nor were they common; however, they were applicable to substantiate various contents of the Rhythmic and Ludic Education subject (Table 4).

Table 4. - Type two potential interdisciplinary articulation nodes

Subjects / Contents		
Rhythmic and Ludic Education (Theory and Practice of Physical Education)	History of Physical Culture (History of Cuba)	Morphology (Biological Foundations of Physical Activity)
Games in the different socio-economic formations	Physical activity in socio-economic formations	
Methodology for the introduction of rhythm through the fundamental movements and steps		Bones, joints and muscles involved in movement

In the table above, the nodes of interdisciplinary articulation are evidenced, which provide the meeting and contact points that facilitate the interdisciplinary articulation between the subjects Rhythmic and Ludic Education, History of Physical Culture and Morphology, thus enabling the selection of the contents to integrate in the didactic games proposed in the present investigation.

Due to the foregoing, the creation of didactic games was determined to facilitate this relationship. To support them, the criteria of different authors were taken into account, in the particular case of the objectives and planning, the elements proposed by Chacón (2008) were chosen.

Among the objectives can be mentioned the following:

- Pose a problem that must be solved at a level of understanding that implies certain degrees of difficulty.
- Strengthen in an attractive way the concepts, procedures and attitudes contemplated in the program.
- Offer a means to work as a team in a pleasant and satisfying way. Reinforce skills that the student will need later.
- Educate because it is a means to familiarize students with the ideas and data of many subjects.
- Provide a stimulating environment for both intellectual and emotional creativity.
- The planning elements proposed by Chacón (2008) are shown below:
- Define the objectives, be clear about what the teacher wants the students to achieve through the game.
- The activity will allow the evaluation of the student, the processes and the minimum skills that will be developed throughout the execution of the activity, to achieve the expected knowledge.
- Take into account what organizational forms would be the most suitable for distributing the group, to ensure the effectiveness and greater results of the activity.

- Select the most appropriate materials and equipment for the type of game, in such a way that its presentation is capable of attracting the attention of the student.

The methodological steps used for the description of the elaborated games are shown below:

Number: they are listed according to the calendar plan of the Rhythmic and Ludic Education subject in correspondence with the contents that are included.

Name: name of the game to develop. It must be related to the contents of the subjects to be included in the game.

Objective: it must be clear and precise, highlighting the contents of the subjects that are integrated into the game.

Subjects (disciplines): the subjects which contents are included in the games and the name of the discipline to which they belong are reflected in parentheses.

Materials: all the implements to be used in the game should only be the necessary ones.

Organization: everything related to the distribution of students, the location of the materials to be used if necessary, and organizational forms and procedures are included.

Development: it is the explanation of the game in an understandable way.

Rules: all the aspects that the students must take into account for the game to develop successfully are explained.

Variations: after the game has been developed, the teacher can perform variations and the introduction of new rules. The variant consists in that, using the same organization, the displacements can be changed, the complexity increased, etc., as long as the established objective is met.

Diagram: it is the graphic representation of everything that happens in the game, it must be as explicit and precise as possible.

A first version of the 10 didactic games elaborated was delivered to a group of ten specialists with a structured questionnaire. They issued criteria to validate them:

Regarding the structure used for the description of the games, 100 % consider the names of the games appropriate in correspondence with the contents to be developed; three games (3, 6, 7) were evaluated as inadequate by 20 %, given the need to reformulate the objectives for the accuracy of the content; games eight and ten were evaluated as inadequate by 50 % because the explanation of the game was not clear in the writing of the development; and games two, five and seven were rated as inadequate by 70 % with the recommendation to review the symbols used to make the diagrams for a greater understanding of the game.

Reflecting the subjects and disciplines that are included in the games as part of their description is qualified as adequate by 80 %, highlighting the importance they gave to the games aimed at consolidating the contents of the different subjects of the year, which they considered very useful for the acquisition of specific pedagogical skills.

In general, 100 % of the specialists rate the structure used for the description of the games as adequate by including number, name, objective, subject, materials, organization, development, rules, variants and diagrams, the logical and systemic order of them according to the level of complexity.

The didactic games were qualified as adequate by 100 % of the specialists for the promotion of interdisciplinarity through the Rhythmic and Ludic Education subject, because they constitute a pleasant way to integrate knowledge and make students reflect in the search for information to provide solutions to activities through collective work.

Subsequently, the appreciations and suggestions were analyzed and perfected. Below is a sample of the educational games developed:

Game No.1

Name: Morpho-Skip.

Subjects (disciplines) that are integrated into the game: Rhythmic and Ludic Education (Theory and Practice of Physical Education) and Morphology (Biological Foundations of Physical Activity).

Objective: To perform the Skip step identifying the muscles and joints involved in the movement.

Materials: Cards with the names of muscles and joints, eight cones, whistle, chalk.

Organization: The group will be divided into four teams, formed in rows and in front of each of them two cones will be placed, between which there will be a distance of five meters, and at the same distance from the last cone, a basket will be placed.

Procedure: At the sound of the whistle, the first students of each team will leave, performing the Skip step to the first cone, which they will turn around, then continue to the second cone, which they will skirt. Then they will continue to the end of the field where a basket with cards with the names of the muscles and joints of the human body will be located; They will select a card and they must identify if the muscle reflected on the card is involved in the movement they execute. Then he must run back, touch the palm of his partner's hand to start him off and stand at the end of the row. The game will end when all the students from each team have completed the activity.

Rules:

- Students must wait for the whistle to start the game.
- The Skip step must comply with the established methodology, otherwise the team will lose a point.
- If a student fails to identify the muscles a point will be awarded to the opposing team if they answer correctly.
- The team that accumulates the most points wins.

Variant:

They must associate the muscle that is reflected on the card with the joint in which it is inserted.

Diagram (Figure 1).

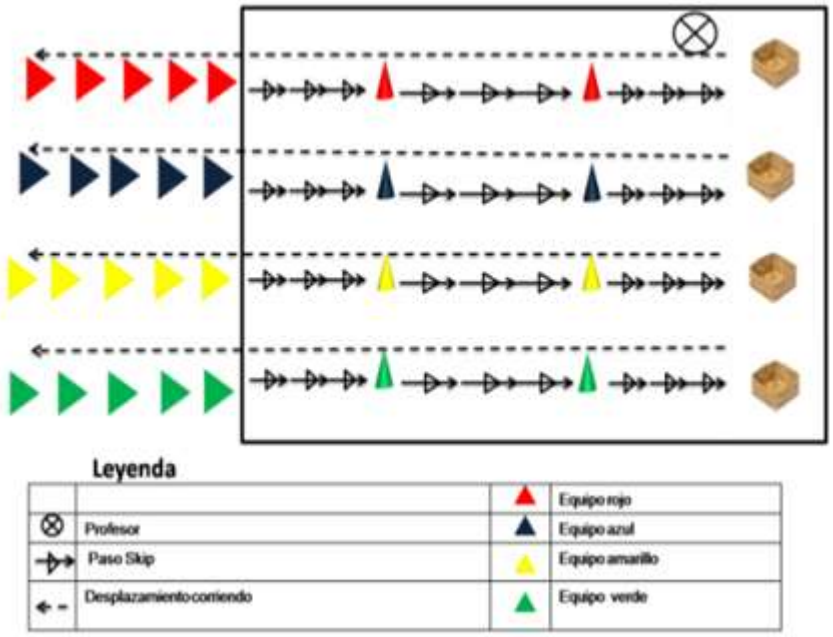

Fig.1. - Diagram

Game No.2

Name: To the rhythm of my skeleton

Subjects (disciplines) that are integrated into the game: Rhythmic and Ludic Education (Theory and Practice of Physical Education) and Morphology (Biological Foundations of Physical Activity).

Objective: To identify the bones that intervene in the combinations of fundamental movements.

Materials: Cards, keys, chalk.

Organization: Five teams are formed in rows, three squares will be drawn on the ground at a distance of ten meters: one will have head written in the center, another trunk and extremities in the last one.

Development: At the teacher's signal, the first students of each team will carry out the combination of fundamental movements stated by the teacher, they must execute it to the rhythm of the keys until they reach the limit line drawn on the ground. The teacher will have in his hands a card with the different bones belonging to each body segment and will mention them. The student must identify and locate himself in the square where

the mentioned bone belongs. Then at the command of the teacher they must run back to their teams. The game will end when all the students have completed the activity.

Rules:

- Students must respect the teacher's signal and comply with the planned combination of fundamental movements.
- The student who correctly identifies the location of the bone earns a point for their team.
- The team which member fails to identify the body segment correctly loses a point.

Variant:

The student who contributes some characteristic of the bones will contribute additional points to his team.

Diagram (Figure 2).

Fig. 2. - Diagram

The use of the didactic game in the present study pursues the fulfillment of objectives that are directed towards the exercise of skills in certain disciplines and subjects.

The games, when used for educational purposes, become a planned and guiding activity that satisfies certain academic demands that present elements of motivation, competition, spontaneity, participation and emulation that help, without a doubt, to solve educational tasks, leaving in the personality of each student a distinction between them, a real decision-making and initiatives.

In the university context, the teacher influences in a practical way the degree or level of preparation of the Ludic actions of the didactic game, in his role as guide and counselor,

carrying out the analysis during the steps and the results. They can be used to develop new technical content or consolidate it, exercise professional habits and skills, form attitudes, promote interdisciplinarity and prepare the student to correctly resolve situations that they will have to face in the productive or service sphere.

The didactic game favors an interdisciplinary approach in which both teachers and students participate and thus eliminates an empty interrelationship between the various subjects. It is necessary to conceive participatory structures to increase the cohesion of the group in the classroom, to overcome training differences and to increase the student's responsibility in professional learning. The study is compared with other specialists to ratify its reliability (Table 5).

Table 5. - Results obtained by the students in the cognitive dimension

Dimension cognitive	Total	High level (%)	Medium level (%)	Low level (%)
	72*	51 (71%)	16 (22%)	5 (7%)
	22**	20 (90.91%)	2 (9.09%)	0 (0.00%)
	75***	11 (15%)	34 (45%)	30 (40%)

After evaluating interdisciplinarity, it can be seen in the table above that in the studies by Valdés* *et al.* (2019) and de Martínez** (2017), the cognitive dimension evolves satisfactorily and its application was developed in advanced years of university careers; however, in the present*** there is no coincidence in the values obtained, which shows limitations in the training of first-year students and in the interdisciplinary conception in the group of teachers. Both the high and medium levels evidenced the integration of more than two disciplines and four or five subjects. At the low level, the integration of two disciplines and up to three subjects is appreciated. The remaining dimensions do not coincide with those investigated by previous authors.

Regarding the training of the university student, it contributes to the professional identity from the elevation of the quality of the teaching-learning process.

CONCLUSIONS

Interdisciplinarity provided the precepts that support the importance of educational games in the teaching-learning process, due to their high motivational value and their meaning as a way to stimulate teamwork.

The interdisciplinary conception from the Rhythmic and Ludic Education subject was validated by specialists who consider that didactic games are a way to favor the professional training process of the Bachelor of Physical Culture at the University of Physical Culture and Sport Sciences "Manuel Fajardo", because the games integrate the contents that are taught in the first year of the degree.

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Conflict of interest statement:
The authors declare that there are no conflicts of interest.

Authorship contribution:
The authors have participated in the writing of the paper and analysis of the documents.