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## *Motor Creativity in the Physical Culture Bachelor's Degree: a Diagnostic of the Current State*

*[La creatividad motriz en estudiantes universitarios de Cultura Física: diagnóstico del estado actual]*

*[Criatividade motora em estudantes universitários de Educação Física: diagnóstico da situação atual]*

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### **ABSTRACT**

**Introduction:** professional education is a single process conducted in higher education facilities in Cuba for comprehensive student training in a particular Bachelor's degree. The education of Physical Culture students is regulated in the Syllabus, which includes degrees that enable training of broad-spectrum professionals who can provide creative



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solutions with originality, fluency, divergent thinking, and independence to everyday practical problems, which differ from rhythmic and gaming education-oriented in the first academic year.

**Aim:** To evaluate the motor creativity levels in first-year students at the Manuel Fajardo University of Physical Culture and Sports Sciences, using content related to rhythmic activities and gymnastic composition in the first unit of the program.

**Materials and methods:** Some of the methods used were analytical synthetic, documentary analysis, the empirical distribution of relative and absolute frequencies, and measurements during adaptation to the test to evaluate student motor creativity through the indicators of motor originality, fluency or motor production, motor design or quality, motor redefining, and mental flexibility.

**Results:** The application of this test to measure motor creativity proved that first-year students of the Physical Culture Bachelor's Degree have failed to show motor creativity in their Rhythmic and Gaming Education lessons.

**Conclusions:** the study showed that more than 78 % of regular students did not have enough motor creativity.

**Keywords:** motor creativity, professional education, rhythmic and gaming education.

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## **RESUMEN**

**Introducción:** la formación de los profesionales universitarios en Cuba, es un proceso único que se desarrolla en los centros de educación superior para preparar integralmente al estudiante en una determinada carrera universitaria. Para la formación de los profesionales de la Cultura Física. En el Plan de estudios de la carrera, se incluyen asignaturas que favorecen la formación de un profesional integral capaz de dar soluciones de manera creativa, con originalidad, fluidez, pensamiento divergente e independencia a problemas que se presentan en su desempeño práctico, distinguiéndose la Educación Rítmica y Lúdica que se imparte en el primer año académico.



**Objetivo:** evaluar los niveles de creatividad motriz en los estudiantes de primer año en la Universidad de Ciencias de la Cultura Física y el Deporte "Manuel Fajardo", mediante los contenidos correspondientes a la unidad de actividades rítmicas y composiciones gimnásticas.

**Materiales y métodos:** se utilizaron métodos, técnicas y procedimientos entre los que se destacan: analítico-sintético, análisis documental, la distribución empírica de las frecuencias relativas y absolutas, así como la medición mediante la adaptación del test para evaluar la creatividad motriz de los estudiantes a través de los indicadores originalidad motriz, fluidez o producción motriz, elaboración o calidad motriz, redefinición motriz y flexibilidad mental.

**Resultados:** mediante la aplicación del test para medir los niveles de creatividad motriz, se corroboró que los estudiantes de primer de la carrera licenciatura en Cultura Física carecen de creatividad motriz en las clases de la asignatura Educación Rítmica y Lúdica.

**Conclusiones:** el estudio realizado permitió corroborar que más del 78 % de los estudiantes del curso diurno manifiestan insuficiente creatividad motriz.

**Palabras clave:** creatividad motriz, formación profesional, educación rítmica y lúdica.

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## RESUMO

**Introdução:** a formação de profissionais universitários em Cuba é um processo único que ocorre em centros de ensino superior com o objetivo de preparar os alunos para um curso universitário específico. Para a formação de profissionais de Cultura Física, o plano de estudos inclui disciplinas que favorecem a formação de um profissional integral capaz de dar soluções criativas, com originalidade, fluência, pensamento divergente e independência aos problemas que surgem em seu desempenho prático, destacando-se a Educação Rítmica e Lúdica, que é ministrada no primeiro ano acadêmico.

**Objetivo:** avaliar os níveis de criatividade motora dos alunos do primeiro ano da Universidade de Cultura Física e Ciências do Esporte "Manuel Fajardo", por meio dos conteúdos correspondentes à unidade de atividades rítmicas e composições ginásticas.

**Materiais e métodos:** foram utilizados métodos, técnicas e procedimentos, entre os quais



se destacam: analítico-sintético, análise documental, distribuição empírica de frequências relativas e absolutas, bem como medição por meio da adaptação do teste para avaliar a criatividade motora dos alunos por meio dos indicadores originalidade motora, fluência ou produção motora, elaboração ou qualidade motora, redefinição motora e flexibilidade mental.

**Resultados:** por meio da aplicação do teste para medir os níveis de criatividade motora, foi corroborado que os alunos do primeiro ano do curso de Licenciatura em Cultura Física apresentam falta de criatividade motora nas aulas da disciplina Educação Rítmica e Lúdica.

**Conclusões:** o estudo realizado corroborou que mais de 78 % dos alunos do curso diurno apresentam criatividade motora insuficiente.

**Palavras-chave:** creatividad motriz, formación profesional, rítmica y lúdica.

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## INTRODUCTION

The relevance of professional education in Cuban universities was noted by Horruitiner (2006), Trujillo *et. al*, (2019), León *et. al*, (2019), and Breijo *et. al*, (2020), as a single process taking place in higher education facilities for comprehensive student training in a particular bachelor degree, which rely on a broad profile model with a systemic approach and an integrative scope.

To meet such goals, Resolution No. 47/2022 from the Ministry of Higher Education (MES) regulates the main methodological aspects of university teachers, while Chapter I, Article 1, reads: "Professional training in universities is the process which is consciously based on science and takes place in higher education institutions to ensure comprehensive education of university students." (p.1)

Thorough training focuses on solid scientific, humanistic education that rests on ideological, political, ethical, and esthetic values to shape revolutionary, educated, competent, independent, and creative professionals who succeed in several areas of



society and the economy in general. Professional education in the area of physical culture encourages creativity.

Successful professional education in universities requires a transformational process according to the growing need to address the different problems of knowledge. Hence, the curriculum should offer creative teaching and methodological solutions in one of the degrees in which such purposes are materialized.

Each syllabus defines four areas of performance: Physical Education, Sports, Prophylactic and Therapeutic Recreation, and Physical Culture, all of which encourage the acquisition of professional skills associated with "knowing", "knowing what to do", and "knowing how to be" in Physical Culture students through their performance, functions, and general objectives they will fulfill upon graduation, thus contributing to more comprehensive education in which creativity constitutes a distinctive element.

Peña, *et. al*, (2019) referred to the importance of creativity as an essential attribute for human development. However, the conception provided by Vallejo *et. al*, (2020) was endorsed in this paper, which states that, A creative person recreates, changes, reorganizes, and redefines acquired content. Creativity is communicative by nature since these particularities must characterize physical culture professionals, who demand thorough training for this eminently pedagogic degree, professionals with specific personal qualities that enable their work in various contexts with different age groups.

According to the skills, functions, and objectives stated in Syllabus E (2016), in Physical Culture education, creativity is understood as an indispensable attribute of professional education, which has been backed by several authors, such as Martínez (2018), Sánchez (2019), López (2023), Álvarez *et. al*, (2023), and Ávila *et. al*, (2023), who coincided in that the development of creativity in physical culture, as a contextual action, entails the recognition of a cultural nature phenomenon, particularly culture conceived as reflected in interaction systems, codes and communicative actions, values, implicit teacher and student demands, along with the criteria for estimating the prevailing professional competencies in particular moments and contexts.



In any instance of physical culture creativity development, complex systems of representations must be identified; they are representations more or less shared by individuals, which allows them to have a clearer idea, using their pedagogic, professional, technical, and motor creativity until they have some original, novel, imaginative, and autonomous creations, all of which should be translated into functions and objectives stated in Syllabus E, and the disciplines in it.

Among the disciplines of Syllabus E (2016), On the Job Practice and Theory and Practice of Physical Education now have more hours. The latter comprises eleven subjects distributed between the first and third years. One of them is the subject of Rhythmic Education and Gaming, which, along with Basic Gymnastics, lay the foundations for the other subjects in the discipline. Rhythmic Education and Gaming favors creativity, considering that its objectives and content stimulate creative thinking.

Accordingly, the aim of this study is to diagnose motor creativity in first-year students at the Manuel Fajardo University of Physical Culture and Sports Sciences, using content related to rhythmic activities and gymnastic composition in the first unit of the program.

Syllabus E (2016) in the Physical Culture Degree comprises several disciplines, including Theory and Practice of Physical Education (608 hours), which encompasses eleven subjects between the first and third years. Rhythmic Education and Gaming is delivered during the second term of the first year in the three types of courses (80 hours) in the regular program and distance programs (32). The particular content in each program stimulates motor creativity in training students.

The above can be achieved through comprehensive, creative, and divergent education. However, every aspect shows the few creative solutions given by students during their on-the-job practices arising from the insufficient number of activities assigned for creative problem solutions in professional practice. There is poor content inclusion in the subject and limited didactic procedures that encourage motor creativity, due to deficient theoretical and methodological training to stimulate motor creativity in Physical Culture professionals through Rhythmic Education and Gaming, determined as the aim of this



research study, being the evaluation of motor creativity levels in first-year students at the Manuel Fajardo University of Physical Culture and Sports, using the content of the Rhythmic Activity and Gymnastic Compositions unit.

## ***MATERIALS AND METHODS***

This study took place at the Manuel Fajardo University of Physical Culture and Sports, with a population made of first-year students in the Physical Culture Bachelor Degree in the 2022-2023 academic year, who were selected from a population of 690 students distributed in 22 groups. The selection of the sample was intentional (150 students accounting for 22 % of the population), and from a population of 17 teachers of Rhythmic Education and Gaming, 15 were selected, following the criterion of more than five years teaching this subject (88 %).

The following techniques and methods were used in the research:

**Analytical-synthetic:** It was used to conduct a bibliographic search, as well as analysis, explanation, and systematization of the main conceptions of the terms motor creativity (distinguishing classification and meaning in professional education) to make reliable conclusions that contribute to a solution to the scientific problem.

**Documentary analysis:** Several documents were analyzed to determine how motor creativity is encouraged for Physical Culture professionals (Syllabus E and the Analytical Program of subject Rhythmic Education and Gaming) in the 2022-2023 academic year.

**Interview:** The two coordinating teachers of the first year as well as the principal teacher of discipline Theory and Practice of Physical Education were interviewed. the questionnaire comprised five questions.





Survey: It was given to 15 teachers on the subject of Rhythmic Education and Gaming. It comprised six mixed questions.

The two techniques were used to learn about the subject's knowledge of motor creativity and the way in which the bachelor's degree in Physical Culture encourages this aspect in the subject of Rhythmic Education and Gaming.

Measurement: A test was made to evaluate motor creativity in first-year students at the Manuel Fajardo University of Physical Culture and Sports.

Statistical method: The empirical distribution of absolute and relative frequencies was calculated, as well as the non-parametric Wilcoxon correlation.

## ***RESULTS AND DISCUSSION***

The professional model stated in Syllabus E strengthens the pedagogic character of this degree through the following professional areas: Physical Education, Sports, Physical Recreation, and Prophylactic and Therapeutic Physical Culture. These areas of performance encourage creativity in accordance with the functions of these professionals with a broad profile. However, following the analysis made, on one hand, there is content that may encourage motor creativity, and on the other, they are not properly used to achieve such purposes in professional education.

Syllabus E comprises each year's general objectives of the degree, particularly, Mastery of the foundations of scientific knowledge and research methods that allow the students to address professional problems by combining theory and educational practice (p10). Syllabus, E. (2016).

The discipline Theory and Practice of Physical Education, subject Rhythmic and Gaming Education have a significant role, with several documents that support this idea, all oriented in Resolution No.47/22 from the Ministry of Higher Education (MES) for the



several different subjects of the curriculum, particularly the Analytical Program and the system of lessons, which have purposes and guidelines for teaching the subjects' content. Various elements related to the Program of Rhythmic Education and Gaming were studied.

The subject is mainly intended for students to create the necessary bases in the graduates, looking for the acquisition of essential professional pedagogic skills of Physical Culture professionals, such as those related to rhythm, which will contribute to addressing issues linked to the different areas of professional performance. The subject is part of the curriculum for the second term in the first year of the degree, so students have little experience in the system of higher education to address the several tasks related to their adaptation and acquisition of their professional pedagogic skills and use them in the context of Physical Education throughout their careers.

Concerning motor creativity, though there is a need for implementation to contribute to professional education, the subject does not offer a set of actions on how to cope with this problem, leaving it in the hands of the teacher and his experience. The subject comprises three very important weeks in which all the content has been distributed, giving the possibility for the assignment of motor tasks to encourage students to develop their motor creativity in their future careers.

The qualitative analysis showed the type of treatment given to encourage motor creativity from the subject, along with teacher training. Below are the results of the interview and survey.

The interview was taken from Hernández (2018) and adapted to the study's needs. It had five mixed questions and was given to the two coordinating teachers of the first year and the head of the discipline theory and Practice of Physical Education. The results showed the insufficient way in which the methods and procedures for developing motor creativity in the discipline Theory and Practice of Physical Education, subject Rhythmic Education and Gaming.



The survey was taken from Valdés (2019) and adapted to the needs of the research. It was intended to search for knowledge about motor creativity by teachers of Rhythmic Education and Gaming, and the ways used for their acquisition by the Physical Culture professionals. Of the 17 teachers who took part in the survey, 60 % claimed that they encourage motor creativity in their lessons; however, all of them said that they would use various types of activities to encourage motor creativity using didactic games (67 %), and others (87 %) expressed their preference over teaching tasks to achieve that goal. In reference to the need for a system of teaching tasks that would encourage motor creativity through Rhythmic Education and Gaming, 100 % of the subjects expressed acceptance (Figure 1).

A tool was used to learn about the current status in terms of motor creativity by evaluating this ability in Rhythmic Education and Gaming. It was used twice, in 2016 (first practical study) to validate its practical effectiveness using only three of the five indicators for in the test: motor production, originality, and mental flexibility.

Following the application of this instrument and processing of the results, it was validated and its effectiveness proved. Then, in a second moment (second practical study), in 2022, it was used to measure the levels of motor creativity in first-year students from the Physical Culture degree, through the subject of Rhythmic Education and Gaming. Then the five indicators (motor production, originality, mental flexibility, motor redefinition, and motor elaboration or quality) were evaluated. The results are shown below:

In motor originality, general analysis of changes of direction made by the subjects, pairs, and groups, showed almost no variability during their motor responses; the most common position observed in the students was forward, with 100 % execution. The group had the most difficulties, with 33 % execution backward, followed by 17 % sideward, and only 40 % used the diagonals. However, there should be further analysis, since the subject's transit was observed in only a small percentage, as well as in the pairs, and groups. Due to the different directions of their motor responses, they only worked in two directions (Figure 2).



The indicators fluency or motor production showed all the motor actions made by the students during the test, evidencing the least executed movements generally (sliding, balancing, spinning, torsion, and pushing), accounting for 40-46 %. However, this indicator was evaluated in a second moment, particularly the actions linked to rhythm, in which 40% of the students received a negative score on the individual test, whereas in the group test, it rose to 46 %. These results reveal that the students offer creative solutions to the different tasks assigned (Figure 3).

Indicator No. 3 (elaboration or motor quality), each student's accuracy was measured in every action individually and in the group, with 45 % of the subjects in the individual test showing little precision in the actions performed in all the moments, rising to 75 % in the group test.

To evaluate the indicator fluency or motor production, the number of motor responses given by the students was measured in the two applications of the instrument. The results showed that 95% were repeated and poor throughout the application.

The indicator motor redefinition's objective was to evaluate unusual motor experimentation and the utilization of material resources for a function other than the programmed initially. This particular indicator was not favorable during the test.

The fifth indicator (mental flexibility) was intended to evaluate the number of variable actions subjects can make in a single motor action. It showed that 35 % of the actions included up to two or more variants in the individual test, whereas the group test only showed 12 % of the groups that were able to make these actions, with little variability and number of variants of motor responses given.

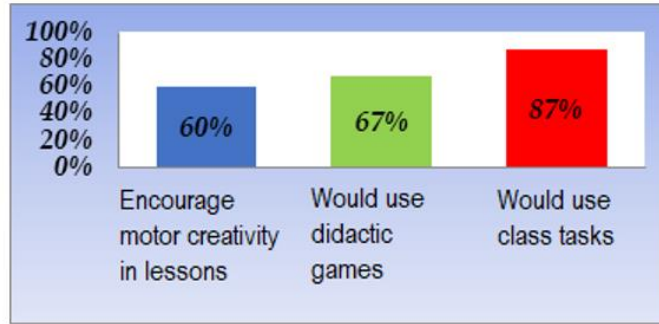


Fig 1. - Stimulation of motor creativity, ways to achieve it

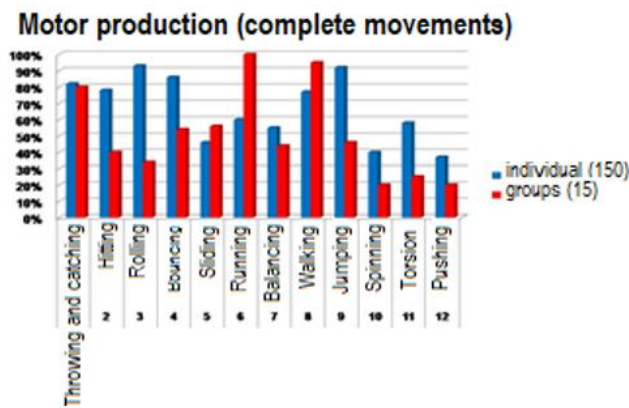


Fig. 2. - Indicator motor production (number of complete unrepeated movements)

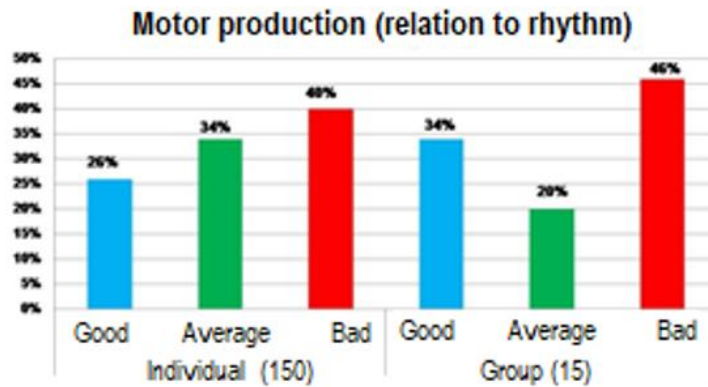


Fig. 3. - Indicator motor production (relation to rhythm)



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## CONCLUSIONS

The theoretical and methodological tools used by teachers of the subject of Rhythmic Education and Gaming are insufficient to encourage motor creativity in Physical Culture students, thus affecting the acquisition of original and independent skills and responses from student professional practice in the first year of the academic year 2021-2022.

The application of this test to measure motor creativity proved that first-year students of the Physical Culture Bachelor Degree have failed to show motor creativity in their Rhythmic and Gaming Education lessons.

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***Conflict of interest statement:***

The authors declare having no competing interests.

***Author contribution statement:***

The authors have participated in the redaction of the manuscript and the documentary review.



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