

## 91 - "PHYSICAL EDUCATION AND RECREATION: DEVELOPERS OF MATHEMATICAL COMPETITION"

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#### Summary

The present research work, has the purpose of influencing favorably, so that both educational authorities, teachers in general, and especially those of physical education, we become aware of the importance of physical education, correlated with recreation, to be developers of the different skills that the student needs to use every day; and now specifically in the mathematical competence. Without a doubt, today it is important to look towards Physical Education, who, due to its unique and pedagogical nature, can potentially be considered, as a recreational and practical recreational instrument, to contribute to the development of mathematical competence. Mathematical competence develops the ability to use mathematical elements and reasoning, such as: numbers, measurements, geometric knowledge, as well as problems of probability and chance; in a school and extracurricular context (<http://www.efdeportes.com/>). In addition, Cajigal highlights the great intellectual component of our matter. While mathematics poses to children problems of mathematical logic that require a mental solution, Physical Education raises problems with motor problems, which require a mental solution, and at the same time require a motor solution. Isn't this a more enriching way of learning?

Keywords: Physical education, mathematics, recreation.

#### Objective:

That all students of all social strata, as well as school levels, develop mathematical competence, through recreational and recreational activities taught in Physical Education classes.

#### Introduction:

The students and their interests must be taken into account; to establish the premise of moving through the game to learn. "From the premise of Luque Rojas, it is necessary to generate positive emotional climates in educational environments, where both teachers and students assume that they are social entities and that they naturally cooperate between they and actively participate in all learning processes.

Due to the aforementioned, it is important to look towards Physical Education, who, due to its unique and pedagogical nature, can potentially be considered as a recreational and practical recreational instrument, as well as being very valuable in helping to develop mathematical competence.

Mathematical competence develops the ability to use mathematical elements and reasoning, such as: numbers, measurements, geometric knowledge, as well as problems of probability and chance; in a school and extracurricular context (<http://www.efdeportes.com/>)

#### Methodology:

It is well known that to develop mathematical competence, it can be done, contribute or influence the development of it, through a double process:

Naturally, in which it is taught through everyday street situations, in society, and in various social and family contexts, as well as in moments of recreation and leisure.

It is necessary to think, that the development of mathematics occurs naturally and at all times, since it is carried out, through different situations and / or actions and daily life: whether in the personal, family context, social, recreational, recreational, etc. That is, in other words, mathematics is and is part of our daily lives, of what we live at every moment of our life; because all the time and at any time, we are using actions such as mathematical operations, by adding subtracting and / or dividing some amount to see that we can buy with x amount of money, when making calculations when we want to know if the amount we have, we Give to buy xoy thing.

It is important to take into account that the socio-family environment is necessary to develop the mathematical competence from the family and from the social context, since as we had mentioned before, the mathematical competence is developed at all times of life , through different learning styles and rhythms.

School way: through the process of teaching in a multidisciplinary way, through the subject of mathematics and linking in a transversal way, with the other subjects of basic education teaching.

The other way to develop mathematical competence is linked and closely linked to everything that has to do academically, and is given in the time spent in school for two variants.

The first variant for this development of mathematical competence is given in a disciplinary way, specifically through the area of mathematics. In this regard, we can mention that this is to develop mathematical competence in a disciplinary way, through the teaching of the subject of mathematics; taking into account that "the contents of the area of mathematics must serve as guarantors," for the optimal development of mathematical competence. "Since the primary objective of the teaching of mathematics is the development of its basic competence, to have elements that can be to face the daily challenges of life.

The second variant for the development of a binding, transversal and multidisciplinary form, is given through a specific link with the rest of the subjects present in the curriculum of basic education.

As for this variant of the development of mathematical competence in a binding, transversal and multidisciplinary way,

it is developed, through the interrelation of the subjects of the basic education curriculum, such as: Spanish, mathematics, arts, social sciences and Natural, English, Tics etc. But mainly through Physical Education.

It is very important to mention that in order to develop competences in a multidisciplinary and comprehensive way, it is necessary to have the contribution and contribution of all the subjects that make up the basic education curriculum, since this will make the students, achieve the skills, competences and lessons learned in the basic education curriculum, in order to be able to put them into practice in situations of their daily lives."

For this reason, we emphasize that from and through Physical Education, we propose to the entire teaching group of the subjects that make up the basic education curriculum, which, today, absolutely all subjects, should take into account, that both the hygiene and the physical and mental health of every human being, and more in childhood stages, we must respect diversity, and use Physical Education, recreation and sports as favoring entities of personal and social development".

Of course, to bring to fruition all the expectations, dreams and desires of this multidisciplinary; We need that like the teachers of the other subjects of basic education they must know the basic curricular content of Physical Education to contribute to their development in an interdisciplinary way, the Physical Education teacher, must know the mathematics curriculum for the development and reinforcement of mathematical competence in a transversal way.

So before making proposals for educational intervention, or suggest teaching-learning activities to develop this competence, we must know the basic curriculum content of mathematics.

We have that mathematics is one of the areas of knowledge with more intentionality in the school, and unfortunately with a high rate of school handicap, as well as Spanish (in reading comprehension) according to various studies (Cisat, Plan, Pisa from 2005 to date) Pisa report of 2006.

From our particular point of view, we think that mathematics has a high degree of training and practical application to daily life.

In various parts of the world it has been defined academically, that mathematics is: "a set of knowledge associated in a first approximation to numbers and forms, which are progressively completed until it constitutes a valuable way of analyzing varied situations, which allow structuring the knowledge obtained from reality, to analyze it and achieve new information to know it better, value it and make decisions ". Therefore: Mathematics is the science that studies, through reasoning, quantities, geometric shapes, probability and their relationships, as well as their space-time evolution. In relation to physical education with mathematics; It is important to emphasize that mathematical knowledge can be used to understand, value and produce information and messages about moments and situations of daily life. Develop and use personal instruments and strategies for mental calculation and measurement, as well as spatial orientation procedures, in problem-solving contexts, deciding, in each case, the advantages of their use and assessing the coherence of the results. Identify geometric forms of the natural and cultural environment, using knowledge of its elements and properties to describe reality and develop new possibilities for action.

Solve and pose mathematical problems using correct language and appropriate procedures for calculating, measuring, estimating and checking results.

To contribute to the development of mathematical competence from Physical Education, we must know the basics of the mathematics curriculum. Only in this way, and with this knowledge can we effectively intervene transversely.

Of the Mathematics Contents that are of the utmost importance that the physical education teacher knows, are:

Numbers and operations: Development of the numerical sense, understood as the reflexive domain of the numerical relationships that can be expressed in capacities such as: ability to decompose numbers naturally, understand and use the structure of the decimal numbering system, use the properties of the operations and relationships between them to mentally perform calculations

The measure: estimation and calculation of magnitudes, seeks to facilitate the understanding of the messages in which magnitudes are quantified and informs about real situations that children must be able to interpret correctly.

Geometry, students will learn about geometric shapes and structures. Geometry describes, analyzes to classify, reason, etc.

The treatment of information, chance and probability, acquire their full meaning when presented in connection with activities that involve other areas of knowledge.

Importance of the contributions of Physical Education for the reinforcement and acquisition of mathematical skills.

To ensure that the authorities set their sights on the contributions of physical education, and their contribution to the development of mathematical competence, it is important to carry out curricular planning that has to do with the linkage and transversality of this with the subjects of mathematics, Spanish sciences, arts etc.

Likewise, Physical Education teachers, we must exploit the multiple characteristics of our subject with respect to the other subjects, by developing the mathematical competence demonstrating the endless teaching materials that can be used and manipulated in hundreds of activities that are carried out cooperatively using the game and the activity motor partner.

Examples: numbers and operations: natural numbers: sorting (greater / less than, equal, previous, later) .Numerical order. Ordinal numbers. Operations with natural numbers: addition and subtraction. Traditional games like "Take your tail off the cat." Reaction speed games with numerical stimulation. Clustering and dispersion games.

Calculation of percentages of a quantity. Heart rate Measurement, estimation and calculation of quantities

Comparison of objects according to length, capacity or weight. Basic Skills Work: Launches, receptions, transports.

Units of measure: the meter, the cm, the liter and the kilogram. Measurement of Motor Skills or Basic Capabilities: Jumps of height, length, Weight throws, javelin.

Units of measurement of time: minute, hour, day, week, month and year. Measurement and healthy use of time.

- Agenda and weekly schedule of physical activity. Time in sports games, pulsations, etc.

Simple calculations with temporary measures. Calculation of the hour before or after a given time interval. Temporary perception in sports games ...

- Rhythm: Percussions with simple cadences. Combine percussion with motor actions

- Body expression games "The mirror"

- Calculate relaxation times (return to calm).

- Student EF material. Value sportswear prices, make comparisons between different brands.

Location of objects in space: inside-outside, right-left. Orientation and spatial structuring

- Body scheme work: laterality, bodily topological notions (above, front, back ...)

- Motor songs, motor games.

Identification of flat figures in everyday objects and areas. Recognition of different mobiles, balls, pikes, cones.

Interpretation of sketches and simple plans. Orientation games Imitate orientation tours.

Take a tour drawn on a graphic plane. Transcribe to a graphic plane the route taken by another / s. The situation in the

plane and in space: distances, angles and turns. - Appreciation of distances and intervals. Displacements, High jumps, length. - Notion grouping-dispersion.

Execution of turns and somersaults - Appreciation of trajectories in pitches, receptions and hits - Location and placement on the pitch. Angles in different positions. Recognition of symmetries in figures and objects. Knowledge and control of the body itself - Position of the legs or trunk in turns and somersaults. Become aware of the movements of each joint. - Become aware of body symmetries and asymmetries. Introduction to similarity: extensions and reductions. - Search for solutions to situations of uncertainty related to the organization and use of space. Chase games. Cooperation-opposition games.

Treatment of information, chance and probability. Collection and recording of data on objects, phenomena and family situations using elementary survey, observation and measurement techniques.

Making and interpreting simple graphics: bar, polygonal and sector diagrams. Heart rate graphs. Graphics on healthy habits, sports statistics, etc.

- Graphs of academic performance. Assessment of the results of experiences in which luck is involved, to appreciate that there are more or less probable events and the impossibility of predicting a specific result.

- Gambling for the composition of the groups, choice of material ...

- Activities and games for the development of mathematical competence

- Games related to recreational and plausible mathematics to use through physical education. Sudoku, bear, riddles, chess, board, "3 in rooster" "cat" etc.

"Regular exercise can modify the chemical and neuronal environment that favors learning, that is, the benefits are also cognitive", (Guillén)

It is highly necessary, to take advantage of and demonstrate, the playful aspect of mathematics taught through play, since through it, we will be able to involve students in solving problems, riddles, riddles, board games etc. in a more motivating, meaningful and stimulating way; according to Cajjal, which highlights the great intellectual component of our matter. While mathematics poses to children problems of mathematical logic, which require a mental solution Physical Education poses lucid motor problems, which require a mental solution, and at the same time require a motor solution. Isn't this a more enriching way of learning?

(Camerino, 2008) Educational actions:

To awaken the interest of the students towards the practice of physical activities at leisure, so that the students take interest in all the offers and manifestations of the sports and cultural associations of their environment that occurs in clubs, social groups, municipal programs, etc.

Discussion:

It is imperative to carry out curricular designs that highlight the development of mathematical competence, through physical education, with recreational and recreational situations, but associating them with the students' everyday life and context, encouraging them to use the movement to learn, more play and more movement, help improve learning. (Giacomo Rizzolatti), "the brain that acts is a brain that understands." Therefore, we must integrate the playful component into learning, developing activities that allow students to move while they learn. Of course, for this great crusade to be successful, not only will the educational programs have to be monitored and analyzed, the teaching style, mode and practice should also be updated, since there are teachers who have a traditional way of teaching and carrying to carry out their pedagogical practices, because they do not change or risk, in order to apply other methodologies, not only innovative, but rather with good practices, which can yield positive results; For the teaching-learning of students, it is essential to leave routine practices and promote active and easy to understand methodologies, which are based on cooperative work, using the great educational and recreational tools that play and recreation propose to us, within physical education These media undoubtedly favor significant learning because they involve action, experimentation, and discovery that will develop their pedagogical potential, in a playful way.

Conclusions:

We can infer that physical education and recreation are developers of mathematical competence, as it helps and guides students, to identify their own possibilities and unique motor skills to each of them and them, from the perspective and pedagogy of Education Physics through recreational activity and recreation.

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reasoning, such as: numbers, measurements, geometric knowledge, as well as problems of probability and chance; in a school and extracurricular context (<http://www.efdeportes.com/>). In addition, Cajigal highlights the great intellectual component of our matter. While mathematics poses to children problems of mathematical logic that require a mental solution, Physical Education raises problems with motor problems, which require a mental solution, and at the same time require a motor solution. Isn't this a more enriching way of learning?

Keywords: Physical education, mathematics, recreation.

#### ÉDUCATION PHYSIQUE ET LOISIR: DÉVELOPPEURS DE CONCURRENCE MATHÉMATIQUE

##### Résumé

Le présent travail de recherche a pour but d'influencer favorablement afin que les autorités éducatives, les enseignants en général, et en particulier ceux de l'éducation physique, prennent conscience de l'importance de l'éducation physique, en corrélation avec les loisirs, pour les différentes compétences que l'étudiant doit utiliser chaque jour; et maintenant spécifiquement dans la compétence mathématique. Il ne fait aucun doute qu'aujourd'hui il est important de se tourner vers l'éducation physique qui, en raison de sa nature unique et pédagogique, peut potentiellement être considérée, en tant qu'instrument récréatif et pratique, pour contribuer au développement des compétences en mathématiques.

La compétence mathématique développe la capacité d'utiliser des éléments et un raisonnement mathématiques, tels que: des nombres, des mesures, des connaissances géométriques, ainsi que des problèmes de probabilité et de hasard; dans un contexte scolaire et parascolaire (<http://www.efdeportes.com/>). En outre, Cajigal souligne la grande composante intellectuelle de notre sujet. Alors que les mathématiques posent aux enfants des problèmes de logique mathématique qui nécessitent une solution mentale, l'éducation physique pose des problèmes de problèmes moteurs, qui nécessitent une solution mentale et, en même temps, une solution motrice. N'est-ce pas une méthode d'apprentissage plus enrichissante?

Mots-clés: éducation physique, mathématiques, loisirs.

#### EDUCACIÓN FÍSICA Y RECREACIÓN: DESARROLLADORES DE LA COMPETENCIA MATEMÁTICA

##### Resumen

El presente trabajo de investigación, tiene el propósito de incidir favorablemente, para que tanto autoridades educativas, docentes en general, y especialmente los de educación física, tomemos conciencia de la importancia que tiene la educación física, correlacionada con la recreación, para ser desarrolladores de las diferentes competencias que necesita el alumno para usar cotidianamente; y en ahora en forma específica en la competencia matemática. Sin duda alguna, hoy por hoy es importante voltear la mirada hacia la Educación Física, quien por su carácter singular y pedagógico, puede ser considerada potencialmente, como un instrumento lúdico recreativo y práctico, para coadyuvar en el desarrollo de la competencia matemática. La competencia matemática desarrolla la capacidad para utilizar los elementos y razonamientos matemáticos, tales como: números, medidas, conocimiento geométricos, así como problemas de probabilidad y azar; en un contexto escolar y extraescolar (<http://www.efdeportes.com/>). Complementariamente, Cajigal resalta el gran componente intelectual de nuestra materia. Mientras que las matemáticas plantean a los niños problemas de lógica matemática que requieren de una solución mental, la Educación Física plantea problemas lúdicos motores, que exigen una solución mental, y al mismo tiempo requieren una solución motriz. ¿No será esta una forma de aprendizaje más enriquecedora?

Palabras claves: Educación física, matemáticas, recreación.

#### EDUCAÇÃO FÍSICA E RECREAÇÃO: DESENVOLVEDORES DA COMPETIÇÃO MATEMÁTICA

##### Sumário

O presente trabalho de pesquisa tem o objetivo de influenciar favoravelmente, para que tanto as autoridades educacionais quanto os professores em geral, e especialmente os da educação física, tomemos consciência da importância da educação física, correlacionada à recreação, para ser desenvolvida de as diferentes habilidades que o aluno precisa usar todos os dias; e agora especificamente na competência matemática. Sem dúvida, hoje é importante olhar para a Educação Física, que, devido à sua natureza pedagógica e única, pode potencialmente ser considerada, como instrumento recreativo e prático de recreação, para auxiliar no desenvolvimento da competência matemática. A competência matemática desenvolve a capacidade de usar elementos matemáticos e raciocínio, como: números, medidas, conhecimento geométrico, bem como problemas de probabilidade e acaso; em um contexto escolar e extracurricular (<http://www.efdeportes.com/>). Além disso, Cajigal destaca o grande componente intelectual de nossa questão. Enquanto a matemática coloca para as crianças problemas de lógica matemática que requerem uma solução mental, a Educação Física levanta problemas com problemas motores, que exigem uma solução mental e, ao mesmo tempo, exigem uma solução motora. Esta não é uma maneira mais enriquecedora de aprender?

Palavras-chave: Educação física, matemática, recreação.