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National Project "Gymnastics game", a Playful-physical-Emotional Pathway in Kindergarten and Primary School

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Abstract: *International bodies recommend the daily practice of physical activity from developmental age, emphasizing the priority of enhancing levels of motor-sport activity (Who, 2015; 2020). In this sense, physical and sports education in the school setting represents an educational opportunity to increase awareness of the importance of Health Enhancing Physical Activity.*
The aim of this contribution is to present the national project "Gymnastics Game" promoted by the Ministry of Education, University and Research (MIUR) and The Italian Gymnastics Federation with the purposes of: facilitating a lifestyle-oriented healthy, cognitive and relational approach from kindergarten onward; preventing deviant behaviour; and developing both useful problem-solving skills facing with a creative approach and adaptable and transferable skills to everyday life.
The pilot project, implemented in all regions of Italy's national territory, involved No. 40 schools, a total of 222 classes, 4500 pupils attending sections 3-4-5 years of kindergarten and the first and second classes of primary school (6-7 years old), with an additional 285 classes that only received the educational kit without being able to participate in the pilot project. The initiative involved the active participation of curricular and support teachers of the affected classes, 40 FGI specialists and families.
The pathways guidelines have started a nationwide comparison aimed at developing research and educational-methodological innovation in physical and sport science, improving over the years, participation in motor and sports activities and opposing the early abandonment.

Keywords: *gymnastics; health promotion; physical education; school context; teaching and learning.*

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Introduction

The scientific literature and the documents of international bodies of recent decades recommend the daily practice of physical activity since the developmental age highlighting the fundamental role of corporeality and emotions in teaching-learning processes.

The World Health Organization, in the document "Physical activity strategy for the WHO European Region 2016–2025" (WHO, 2015), underlines the importance of physical activity as a driving factor for the health and well-being of the European region, with particular attention to the incidence of non-communicable diseases, associated with insufficient levels of physical activity and sedentary behaviours. The guidelines for physical activity and sedentary behaviour for children under 5 years old highlight the importance of play and physical activity from the first months of life, «children under five must spend less time sitting watching screens, or restrained in prams and seats, get better quality sleep and have more time for active play if they are to grow up healthy» (WHO, 2019). This is in order to guarantee the recommended levels of physical activity in developmental age: at least 60 minutes of moderate to intense physical activity per day; muscle strengthening, at least 3 times a week and reduction of sedentary behaviour (WHO, 2020).

In this sense, physical and sports education in the school context represents an unmissable training opportunity to enhance the levels of motor-sports activity in order to increase awareness of the importance of Health-Enhancing Physical Activity, promote biopsychosocial well-being and contribute to improving the quality of life. The normative framework places motor-sports activities at the centre of the educational debate, describing Physical Education as a *hinge discipline* (MIUR, 2018), linking its constructs to those of health, and psychophysical well-being, but also to those of involvement, motivation, participation, cognitive drive (Bailey, 2006; Bangsbo et al., 2016), with the explicit invitation addressed to formal and informal educational communities to reaffirm their potential in the design of activities.

During the developmental age, the neuromuscular bases necessary for the acquisition of an adequate capacity of coordination, control and regulation of movements are developed; this biological substratum is fundamental to permit the individual to face a multitude of cognitive, social, and emotional situations throughout life. The period of kindergarten and primary school corresponds to a particularly sensitive phase for the

acquisition and development of "basic motor skill background", which has a crucial role in the functioning of normal daily life routines (D'Anna, 2021).

As already pointed out since the last century, motor skills represent not only the starting point of psychic development but also a structure that is progressively transformed, becoming mental logic, verbal organization and thought (Piaget, 1972; Piaget & Inhelder, 1969; Lurija & Hutton, 1977; Piattelli Palmarini, 1980; Thelen & Smith, 1994; Rizzolatti & Arbib, 1998; Oliverio, 2001; Freeman, 2001; Berthoz, 2011). The development of motor skills in developmental age cannot be thought of as dissociated from psychological, social and affective development, because the child in this phase finds in corporeality the preferred means of communication and relationship with the outside world (Casolo, 2011, p. 52). The phase of acquisition of *Fundamental Movement Skills (FMS)*, which groups the three categories of movements (stability, locomotion and manipulation), located in the age 2-7-year-old group, is particularly important for the development of the neuromuscular bases necessary for the acquisition of control and regulation of movements (Meinel, 1976; Hirtz, 1981). The years of kindergarten and the first years of primary school correspond to the phase of the improvement of the different forms of movement also in combination with each other (Meinel, 1976, p. 352). It is a period in which the child's motor skills improve both qualitatively and quantitatively if stimulated through adequate movement opportunities.

In this regard, it should be emphasized that the quality of learning environments strongly affects the effectiveness of training interventions; the educational choices related to opportunities for practice, opportunities for experience and exploration of space, encouragement and personalized suggestions are essential in this regard. Many psychologists argue that the gross motor development of the child evolves very clearly in the first eight years of life (Clark, 1994; Gabbard, 2016; Gallahue & Ozmun, 1998; Haywood & Getchell, 2014; Payne & Isaacs, 2017; Roberton, 1982; Williams, 1983) and that this development affects the sensory-perceptual and cognitive abilities of the child (Kelso, Delcolle & Schöner, 1990; Best, 2010; Piek et al., 2008), as well as social and emotional development (Pang & Fong, 2009).

The acquisition of locomotion, for example, which is one of the first gross motor skills acquired by the child, represents a fundamental step, which reflects significant changes in many domains of development from the physical to the mechanical, from the perceptual to cognitive learning (Berger, 2004).

There is numerous scientific evidence from recent decades that confirm the close relationship between motor development and transversal learning: the relationship between physical efficiency and academic performance (Donnelly et al., 2016; Singh, 2019); between gross and fine motor skills and academic achievement in mathematics and reading (McDonald et al. 2018; Son & Meisels, 2006; Luo, Huntsinger, & Pigott, 2007; Grissmer, 2010; Galdi et al., 2015); between coordination skills and the improvement of executive functions during school age (Best, 2010; Chaddock et al., 2011).

According to the regulatory and scientific framework briefly outlined, the project "Gymnastics Game" was born, which chose the period of kindergarten and the first two years of primary school as fertile ground for the implementation of *gymnastics* activities in its various expressions. The contents of motor and sports activities have been proposed emphasizing the playful approach enhancing the centrality of the body and emotions in the teaching-learning process.

Movement and action from childhood are an integral part of the child's life if not even the subject of learning in all the different areas of "*doing and acting*". Much of the relationship and education takes place with and through corporeity, which even when it does not represent the fulcrum of the learning process, is constituted as a valid support for educational processes, also through the practice of games (Minghelli et al., 2023). Playing is the natural approach that the child has towards reality, a dimension in which all forms of construction of executive, linguistic, logical and scientific skills are included.

The National Guidelines underline the need to carry out motor activities in the form of a game, in a relaxed and playful learning environment and in a relaxed time (MIUR, 2012), always respecting cognitive, socializing and creative purposes.

The project was born with the intention of overcoming the performance vision of gymnastics focusing on the attention to movement, action and interaction that emerge in recreational-motor activities, assigning to corporeality the function of the learning medium.

The national project Gymnastics Game: movement and well-being in the game

Every child's day should contain a space dedicated to movement, a space in which every teacher, every coach, but also every parent, should commit himself to ensure variety and quantity of motor experiences able to favour the completion of neurological organization and the acquisition of a

wealth of motor experiences to be developed in developmental age and transferred to different contexts. The programmatic documents provide indications of the need to provide students with the knowledge and skills to know how to be in the world through the creation of playful learning environments that can favour "the proceeding by trial and error, allowing the child, appropriately guided, to deepen and systematize learning" (MIUR, 2012, p. 24).

When motor activity becomes a driving force of the day and school life of children, it is active participation, related to experiences of individual self-efficacy and to the relationships and interactions that are established between children, teachers and parents, that starts the process of training of an autonomous, safe and responsible personality.

It is at this age that the practice of physical activity can be acquired as a habit to bring multiple health benefits, understood as a harmonious development of behaviours that last over time and can have an influence on health in later ages, becoming an integral part of a healthy, active and personal lifestyle and allowing each child to express himself in ways and means different from the usual ones.

Starting from the experience and cultural background in the motor and sports field of the oldest of the Italian Sports Federations, the Project "Gymnastics Game" enriches the curriculum of kindergarten and the first two classes of primary school, according to the National Indications, with educational opportunities and useful contents to start the development of basic motor skills that, developed during the developmental age, can be transferred into social life and, in increasingly complex forms, into gymnastics as in various sports.

The national project " Gymnastics Game", promoted by the Ministry of Education, University and Research (MIUR) and the Italian Gymnastics Federation (FGI) intended to seek in movement activities from 3 to 7 years old a purely playful character to meet the needs and motivations of children and, without neglecting the importance that physical activity has in organic development or the cognitive process that the same movement uses. The project used the body in motion as an instrument of action, knowledge, relationship, communication and expression and developed the letters of the motor alphabet as a process closely influenced both by the rhythms of maturation and growth of each child and by the learning opportunities related to the external environment.

The pilot project, implemented in all regions of the Italian national territory, involved n. 40 schools, for a total of 222 classes, 4500 pupils attending the sections 3-4-5 years of kindergarten and the first and second

classes of primary school (6-7 years), with a further 285 classes that only received the educational kit without being able to participate in the pilot project. The initiative involved the active participation of curricular and support teachers of the classes concerned, of n. 40 coaches of the FGI and families.

The project aimed to facilitate a lifestyle-oriented healthy, cognitive and relational approach from kindergarten, to prevent deviant behaviour and to develop both skills useful for solving problems with a creative approach and adaptable skills that can be transferred to everyday life.

The project path has also daily increased the time of motor commitment, both in kindergarten, with innovative and reproducible proposals for translation into the motion of all fields of experience and in primary school, in the 2 hours a week provided, with an organization of the lesson that has also favoured the active participation of all students, improving inclusion and socialization.

Methodological procedure

The planning of the activities involved an organization of the didactic programming through the creation of guide pre-courses, common by school order and by parallel classes, in line with the National Indications for the curriculum (MIUR, 2012).

In order to guide teachers and technicians in the design of effective learning environments, methodological-didactic indications have been provided for motor activities in the gym useful to promote interest, motivation, creativity and transversal skills and to promote the development of different languages. The guide paths have urged teachers to favour the completion of the neurological organization of children and young students to explore all the possible solutions that can be adopted, choosing the most appropriate, a methodology that is functional for the development and improvement of motor coordination, physical efficiency, creativity, cognitive functions and life skills (Pesce, 2015).

The game of moving translation of the "visible and invisible" has enriched the learning climate to feel good at school and enhanced the quality and quantity of children's motor skills, guaranteeing them continuity in the experiences of knowledge of languages, proto-mathematical concepts and social rules.

The guide paths have started on the national territory a comparison aimed at developing research and didactic-methodological innovation in the motor field, to the advantage of the increase, over the years, of participation in motor and sports activities and not their early abandonment.

One of the fundamental features of the methodology implemented was the technical-practical interaction between the FGI technician and the teachers of kindergartens and primary schools who joined the initiative: it allowed both to experiment with the operational proposals and verify their effectiveness, discuss a different intervention plan from the usual, evaluate new educational situations, manage a class group, structure an hour of motor activity with the aim of increasing its active time.

The presence of company technicians, and graduates in motor science, alongside the teachers, has facilitated attention to the needs of children in the choice of motor content and integrated motor experiences through different teaching styles, reproductive and productive.

Activities

The proposed activities were characterized by a practical-laboratory approach, adaptable to each student in order to guarantee everyone's participation. Teachers and technicians were provided with operational suggestions for the adaptation of the activities favouring the personalization of the teaching-learning process.

Through contents that promote the development of large and fine motor skills, the educational proposals have created learning opportunities useful to favour the transition from concreteness to conceptual abstraction referring to a system of knowledge necessary to support the practical dimension, offering children the opportunity to play to discover spatial, temporal and cause-effect concepts through relationships and unusual relationships between the body, space and objects.

Practical exploration through movement has created the possibility of cognitive, motor, emotional and mutual relationship growth and helped to make distinctions, recognize relationships, organize systems and take multiple points of view. When children understood how objects relate to each other, their imagination led them to consider the world from different perspectives, an attitude that stimulated cognitive processes, social skills, emotional intelligence, and empathy.

The contribution to enriching this process is not negligible if we think not only of the lack of space, adequate time and safety in attending outdoor places, but also of how children are increasingly confined to closed spaces and involved in sedentary activities dominated by new technologies, spending a lot of time in front of a screen and losing emotional reflection. If the screen replaces physical presence, it creates a void around children who lose empathy, that is, the habit of recognizing and understanding, looking into the eyes, and the emotions of others. Web-mediated

psychopathology (Tonioni & Tonioni. 2013) involves perception, attention, memory, thinking and instinctually and creates new cognitive profiles, generated by a different way of learning, communicating and thinking.

"*The Gymnastics Game*" proposed motor experiences that allowed to integrate the different languages, alternate the word and gestures, produce and enjoy music, accompany narratives, favour the construction of self-image and the elaboration of the body scheme also aiming to develop gestural language as an aid to think better, to concentrate, to fix in memory important concepts with better results while speaking, studying, communicating.

The proposed design path has not neglected the informal, routine and daily life activities, the use of small tools and tools, free or guided movement in dedicated spaces, and deliberate play that the children have organized alone.

The proposals for motor activities for children have been built with cognitively engaging characteristics:

- on the one hand, a laboratory approach and a playful-inclusive climate, to ensure the participation and satisfaction of all children, the translation into the movement of the "visible and invisible*" of* each field of experience to expand the range of action of motor activity, increase daily levels of physical activity, correlate movement to cognitive functions and psychological-relational factors and propose approaches suitable for multiple intelligences;
- on the other hand, a series of intrinsic characteristics such as the variety of proposals, novelty, emotional activation, the complexity of the task and the selection of mental strategies in place, characteristics that stimulate cognitive development and contribute to the improvement of the executive functions of children who, in such structured environments, have the opportunity to act as protagonists, to observe actions from comparison with other classmates and to experience the effectiveness of motor representation produced. In other words, associating visual, motor or kinaesthetic images (in relation to the senses) with movement, is a fundamental step to enhance motor learning with repercussions also on academic performance.

In line with the aforementioned characteristics, specific indications have been provided to teachers and technicians on the possibility of *modulating with different degrees of awareness, motor commitment and social interaction* through the choice of different teaching styles (Colella, 2018). Most of the proposals of the guide paths have been designed to promote learning by guided discovery, leaving room for exploration and creative resolution of the motor task. From the motor point of view, the children have experienced

both all the possible explorations useful for the solution of the task and the choice of the most appropriate solution; from the cognitive point of view, the experience with objects has allowed them to overcome perceptual barriers and to "see" in them the possibility of performing other functions, new combinations and relationships at the base of motor creativity (Scibinetti, Tocci & Pesce, 2011).

Features of gym activity:

- the need for play and movement to support the organic, cognitive, emotional and relational development of the child;
- the supports and stations varied to experiment with unusual relationships between the body and space, different perspectives and points of view to favour the discovery of spatial, temporal and cause-effect concepts;
- coded and/or occasional gear used in relation to the objectives to be achieved;
- the continuity and variety in the practice of motor activities in the two school orders to promote the learning of basic units of movement, self-efficacy and well-being at school;
- the active participation of all children, sought through oblique teaching, to bring back that success that facilitates subsequent learning;
- the operational approach of the variability of playful, motor and emotional practice to promote, at school, learning and calibrate the activity on the real abilities and needs of special students, creating a process of integration and inclusion in which everyone has the opportunity to find elements of success and personal enhancement;
- The body as a tool.

Training

The Italian Gymnastics Federation has organized in Rome, at the Giulio Onesti Olympic Preparation Center of CONI, a national training dedicated to FGI instructors involved in the Project.

The face-to-face training aimed at company technicians, and graduates in motor sciences, has started the project implementation with cascading fallout, in each participating institution, on kindergarten and primary school teachers and parents, with the aim of increasing the awareness of adults in favouring a quality motor intervention on children.

The topics covered concerned the structure, the project activities and the recreational-motor program for kindergarten and primary school (first and second classes) with the contents declining for the achievement of the learning objectives provided by the National Indications.

Operational indications and methodologies were provided regarding the following activities:

- the activity in the classroom, thanks to the recreational-educational materials of the participation kit, with which the teachers were able, through the game, to sensitize children towards the correct lifestyles;
- the activity in the gym for all classes with a specially trained FGI instructor who supported the teacher, always through the game, for the realization of basic activities (for a total of n. 4 hours of activities for each class).
- the realization of the class work, a project video with the presentation of the educational and motor path carried out during the year.
- the Gymnastics Festival, the final moment of the project with the classes that have created the best educational works as protagonists.

The training course has contributed to pursuing educational purposes by favouring a recreational-motor intervention on children of good specificity both in the presence and in the absence of the FGI educator, therefore an opportunity for in-service training for teachers who, through the variety of motor contents proposed, have facilitated the development of children's basic motor skills (EU Guidelines on physical activity – Health Enhancing Physical Activity HEPA).

Finally, interventions of an informative nature aimed at parents on project activities, by teachers, have given continuity to school activities and, in collaboration with the affiliates involved, made the offer known also to increase the level of vigilance/control of free time and encourage both the reduction of hours dedicated to the use of technologies and the increase in hours of movement.

Educational tools

The schools participating in the project were provided with recreational-educational materials for the realization of the activities. In particular, the classes enrolled in the project received a kit consisting of:

- Sports materials to stimulate students in recreational-motor and motor-sports educational paths, in the classroom as in the gym: 1 foam die; n. 10 cones; n. 1 rope for each student.
- Educational materials: n. 1 educational game "The Game of Gymnastics": a game for the class (similar to the game of the goose) designed specifically for the activity, in which the basic gestures of movement and motor activity are illustrated, the basic elements for a correct lifestyle as well as mini skill tests to be done in the gym with classmates; n. 1 poster "The energy die" and n. 1 poster "A die to feel good", with

suggestions for activities available to teachers to introduce with children the concepts of healthy eating and correct basic motor practice.

The whole kit proved useful for teachers who, through play, were able to sensitize children to correct lifestyles, intrigue and interest them, create a graphic, manipulative, creative activity on the subject, and support and verify every day the concepts/experience in everyday school life, translate the experience into different languages and, finally, generate and structure a motor game and/or expressive activities to verify what has been learned and how much more to learn.

Results

The final phase of the project included a series of events aimed at promoting physical activity, inclusion and sharing with the local community and the dissemination of implemented good practices.

The participating schools have created a multimedia product that summarizes the activities carried out in the project. The classes that made the best videos were rewarded with a Gymnastics Festival at school, with the presence of a testimonial athlete and FGI instructors who organized motor activities for the students. On this occasion, the children had the opportunity to meet a real athlete and put into practice what they had learned in the previous months.

At the end of the project, the five Gymnastics Festivals were held, in which only the schools whose classes made the best project videos were invited to participate. Among forty schools participating in the project, the following were selected:

Class 2^B Primary School and Kindergarten of Colonnella (TE)

Classes 1^A and 1^B of the Ricci-Ortali Primary School of Villalta di Cesenatico (FC)

Classes 1 ^ and 2 ^ Primary School Mons. Guidi of Lucca

Classes 1^D and 2^C of the Chiabrera Primary School of Genoa

Kindergarten of Zumaglia (BI)

During the holidays, FGI instructors and athletes involved children, teachers and parents in various activities both for recreational and educational purposes. Moments of discussion and debate were organized on the importance of the playful approach in sports practice and the value of sharing gaming and sports activities.

The activities of routes and games involved not only the winning classes but all the students of the schools hosting the event.

Some gymnasts of national and international interest of the Italian Gymnastics Federation participated in the various closing parties of the project held throughout the national territory as testimonials: Maria Vittoria Cocciolo, Lara Mori, Laura Zacchilli, Arianna Rocca, Davide Odomaro.

With a view to self-assessment and improvement, the participating schools provided a summary report of the activities carried out, highlighting the strengths and weaknesses found.

Discussion and conclusions

The pilot project implemented by the FGI proved to be very innovative both from an educational and training point of view because it allowed to enhance the often unexpressed potential of the "body in motion" in learning processes and proposed to start the school curriculum of physical education and school motor and sports practice in a multilateral way, multidisciplinary and more creative to the advantage of the increase, over the years, of participation in motor and sports activities and not their early abandonment.

The educational-sports learning environment is a real "cultural incubator" able to represent in the school a didactic-educational research laboratory capable of shaping the recreational-motor experience, giving shape to the noblest aspects of sport and its immense potential (D'Anna, 2020, p. 111)

The first strong point to highlight is linked to the choice to implement it in the three sections of kindergarten and in the first and second classes of primary school. In the Italian context, the national sports federations generally orient the various project proposals, especially in the last classes of primary school and secondary school, with aims and objectives mainly aimed at start-up and sports promotion.

The "Gymnastics Game" project, on the other hand, has placed in the foreground the global training of the person through motor and sports proposals that use corporeality and play for learning transversal skills.

A second strength concerns the possibility offered by the project to carry out at least one hour a day of movement, satisfying both the quantitative aspect required by the public health recommendations (WHO, 2020) and the qualitative one. The model of activities proposed in the daily life of curricular activities has promoted the sustainability of daily motor activity and at the same time, thanks to the synergy of educational actions between teachers and technicians of the federation, has allowed the realization of multilateral and multidisciplinary motor and sports activities. Certainly, the planning put in place by the FGI has responded to the need to «find an intermediate way in

which, given the importance of engaging, playful, motivating teaching, we can think of situations or experiences in which participation is also characterized by adequate commitment and physical-aerobic effort» (Ceciliani, 2018). The activities promoted an educational model that holds together both the *ludo motricity* approach (Staccioli, 2010; Casolo, 2016) and the approach of the *variability of the practice* (Pesce, 2015).

A further strength concerns having promoted shared participation in a systemic perspective by children, teachers, and parents, making them aware of the educational value of the project, increasing awareness of the importance of promoting active and healthy lifestyles and the formative value of play and sports education activities. With the contribution of neuroscience, it has been understood how rich the learning potential is, especially in childhood, and how important the role of the adult is to promote their development.

From this perspective, it is certainly a strong point to contribute to strengthening the collaboration between school, family and sports clubs that act on the territory not only to give continuity to the practice of motor activity between curricular, extracurricular and free time but also because the school-family-sport dialogue can facilitate affiliates to overcome obstacles related to school access.

There are certain critical points that are attributable to the limited duration of the project (4 months); the brief time for the realization of the activities taking into account the objective difficulties from the point of view of the didactic and procedural organization. Added to this are the real and objective problems encountered in terms of structures and spaces suitable for the implementation of the project.

From the scientific point of view, it was not possible, due to the reduced time, to carry out research activities through the systematic acquisition of levels of gross motor development, enjoyment, self-efficacy, etc.

It would be interesting to foresee for the next edition of this project a research training involving specialist teachers of primary school and students of degree courses in motor science, experimenting with internship paths in kindergarten. This could contribute to a better link between theory and practice by offering the possibility of experimenting with good teaching practices. The research training would allow the monitoring of all training activities aimed at technicians, teachers and families, the creation of teaching tools also of a docimological nature to support training activities, and the effects of the project on motor creativity (Scibinetti, 2019). In future perspectives, there is an awareness of the importance of continuing to promote initiatives such as the project "The Game of Gymnastics" and how

fundamental it is to give continuity to project actions of national importance, because it is able to start a comparison that develops research and didactic-methodological innovation in the recreational-motor field for the benefit of the increase, over the years, participation in movement activities for health, cognitive and relational purposes as well as sports.

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