

## BIO-PSYCHO-SOCIAL APPROACH TO MOTOR-SPORT ACTIVITIES IN EDUCATIONAL FIELD: A MULTIDIMENSIONAL FUNCTIONING

### APPROCCIO BIO-PSICO-SOCIALE ALLE ATTIVITÀ MOTORIE SPORTIVE NEL CAMPO EDUCATIVO: UN FUNZIONAMENTO MULTIDIMENSIONALE

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#### Abstract

Physical activity and sport are not only a form of disease prevention and way to reduce sedentary lifestyle, but they become the essential *sine qua non conditio* to achieving bio-psycho-social well-being. According to recent neuroscientific studies, they contribute to the integral growth of the person, involving a series of elements, biological, psychological and social. Through a parallelism with the ICF, this contribution aims to frame sport in a bio-psycho-social perspective. The integrated analysis of these three dimensions, will highlight the need to overcome the reductionism of the individual components, taking advantage of the usefulness of a multidimensional approach, considering the global functioning of the individual in the environment, in *activity* and *participation* (WHO, 2001; 2007). Neurosciences intend to explain how «our brain represents, imitates, learns, plans, orders, controls, and performs motor activity, as well as an organized complex of movements, acts and actions» (Mandolesi, 2012, p. 26). This integrated perspective, applied in educational field, could provide an in-depth reading key, highlighting aspects often hidden within the dynamic and non-linear trajectories typical of motor-sport activities, promoting more effective personalized educational planning.

Attività fisica e sport non solo sono una forma di prevenzione di malattie e di contrasto alla sedentarietà, ma diventano la *conditio sine qua non* necessaria al raggiungimento del benessere bio-psico-sociale. Alla luce di recenti studi neuroscientifici, contribuiscono alla crescita integrale della persona, coinvolgendo una serie di componenti, non solo biologiche, ma anche psicologiche e sociali. Attraverso un parallelismo con l'ICF, il presente contributo intende inquadrare lo sport in una prospettiva bio-psico-sociale. L'analisi integrata di queste tre dimensioni evidenzierà il bisogno di superare il riduzionismo delle singole componenti, cogliendo la ricchezza di un approccio multidimensionale, che consideri il funzionamento globale dell'individuo nell'ambiente, in termini di attività e partecipazione (OMS, 2001; 2007). Le neuroscienze intendono spiegare in che modo «il nostro cervello rappresenta, imita, apprende, pianifica, comanda, coordina, esegue l'attività motoria intesa come un complesso organizzato di movimenti, atti motori e azioni» (Mandolesi, 2012, p. 26).

Questa lettura integrata, applicata al contesto educativo, potrebbe fornire una chiave di lettura approfondita, mettendo in luce aspetti spesso nascosti all'interno delle traiettorie dinamiche e non lineari tipiche dello sport, consentendo una pianificazione didattica personalizzata, più efficace.

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## Keywords

ICF, inclusion, motor-sport activities, multidimensional approach, inclusive didactics  
ICF, inclusione, attività motorio-sportive, approccio multidimensionale, didattica inclusiva

## Introduction

Motor-sports activities, integrated into the lifestyle of each individual, can be a useful tool for preventing difficulties, treating pathological situations and to contrast sedentary behaviour. In a holistic perspective, they promote the integrated development of the individual, physical, emotional, intellectual, social and productive capital of the person (Bailey et al., 2013), representing a powerful means to promote the achievement of *bio-psycho-social well-being* (WHO, 2016) and the ability to *self-determination*, in the longitudinal perspective of the personal *Life Project* (Schalock & Verdugo Alonso, 2002; Giaconi, 2015; Moliterni et al., 2018).

The neuroscientific studies and the more recent perspective of the Embodied Cognition, in confirming the overcoming of the mind/body dichotomy, place the latter at the base of constructs such as cognitive development, psychophysical well-being, development of *social skills* (Gomez Paloma, 2004; Isidori, 2010; Cavill et al. 2010; MIUR, 2012; Moliterni, 2012; Casolo, 2011; Pesce et al., 2015).

The national and international documents, for years, according to the scientific literature, pay particular attention to the role of corporeality and emotions considered essential elements, instruments, and objects of the process of psychophysical development of the individual. The legislation places motor-sports activities at the center of the educational debate, describing Physical Education as a *hinge discipline* (MIUR, 2018), linking its constructs to those of health, 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.

The *Copenhagen Consensus Conference* (Bangsbo et al., 2016), in defining the priorities and objectives of educational strategies and implementation of physical/recreational/sports activity in children and young people (6-18 years), stated the shared agreement by the world of scientific research on the effects of physical activity on physical fitness, health, cognitive functioning, involvement, motivation, psychological well-being and social inclusion. Education to health is, therefore, an essential task required for educational institutions, first of all the school, which can and should contribute to increasing people's ability to control and make decisions about aspects affecting their health and more generally their self-determination process, in line with the priorities identified by the *World Health Organization* (2015).

The prolonged pandemic situation has led to a surreal suspension of all motor-sports activities that, until now, were an essential element of the daily organization of many children, adolescents or adults, that in school and out-of-school hours, lived a series of physical experiences structured or not in various formal and non-formal contexts. The incipit of one of the documents originating from the recent initiative "*Fit for Life*" which reads «Sports and physical activity are central to health, as COVID so cruelly illustrated» (UNESCO, 2021) is concise and significant. In the light of the new evidence emerging from this suspension (Danton et al., 2020; Ford et al., 2021), the debate about *Quality Physical Education, QPE*, has been renewed (McLennan & Thompson, 2015).

On the same resilient matrix, in this suspension, the idea of laying the foundations to re-launch the potential of motor-sports activities also in the light of the new considerations born in an inclusive context, in a terminological parallelism, conceptual and programmatic, with another construct that is the subject of the national educational debate: the paradigm of the *International Classification of Functioning, ICF* (WHO, 2001; 2007).

The conceptual approach of the *ICF-CY, International Classification of functioning, Chil-*

*dren & Youth Version* (2007) «considers the person as a whole, in a bio-psycho-social perspective. Relying on the profile of functioning and the context analysis» allowing to disregard the typical foreclosures, with an exclusive reference to pupils with *Special Educational Needs, SEN*» (Moliterni et al., 2018). Concurrently the recent publication of the *Decree of 29 December 2020*, which has made peremptory and above all concrete the declination of the ICF in the educational field, it is particularly useful to reflect on how classification is constituted as a tool, not only of inclusion, but also of promoting the bio-psycho-social well-being of individuals, all of them, regardless of their state of health.

Considered bearer of the same constructs described with regard to motor sports activities, the classification, presents multiple elements of overlap with the latter, one of them is the attribution of centrality to the components of *activity and participation* and to the *contextual variables* (WHO, 2001; 2007) which, analyzed and described in this contribution, promotes different reflections on a shared educational planning.

The aim of this contribution is, therefore, to outline within this parallelism a multidimensional approach in the designing of motor-sports activities according to the ICF perspective, in order to pursue for the subject, the integral development principles of the person, health, self-determination, self-effectiveness in view of the achievement of personal bio-psycho-social well-being.

### **1. The bio-psycho-social perspective of the ICF and motor-sports activities**

The ICF, which promotes the adoption of a shared language between the various fields of inclusion, has become part of the international inclusive scenario since 2001 requiring many regulatory measures to define the application possibilities, elements of peremptoriness and recommendations, (D.Lgs. 66/2017; D.Lgs. 96/2019; MI, MEF, 2020) all aimed at promoting an implementation of the instrument and a declination of the approach, effective and possible. However, 20 years after its appearance, the classification is difficult to be declined in the educational field (Damiani & Gomez Paloma, 2019), also appears very limited in evaluation practices (Hollenvegner, 2009; Chiappetta Cajola, 2015).

This underlines the peculiar complexity of an instrument, which is not only such, but also becomes a revolutionary paradigm in the approach to inclusion, promoting the observation of the *individual functioning*, through a shared language and making central the components of *activity and participation* and *environmental and personal factors* (Chiappetta Cajola, 2020). Within this new approach, contextual variables become, in fact, able to significantly affect the evolution of disability and functioning, as *barriers* or *facilitators* of the process of development and *self-determination* in the life perspective of each individual.

However, in the last ten years, the ICF-CY has been receiving more attention in educational research and studies (WHO, 2006; Borgnolo et al. 2009; Ianes & Cramerotti, 2011; Moretti et al. 2012; Chiappetta Cajola, 2012; 2015; Cottini, 2017). Dario Ianes (2013) argues so about the *functioning*: «According to the World Health Organization, health is not absence of disease, but bio-psycho-social well-being, full realization of its potential, of its own capability» (Sen, 2011).

Here lies much of the “meaning” that this work intends to bring out, that is the possibility of finding, in a recursive path, the parallels resulting from the comparison between the “intentions” underlying the international certification document (WHO, 2001; 2007) and those based on the educational principles of motor-sports activities, in order to implement the potential of one and the other approach, in terms of development and inclusion.

In a provocative way, but extremely likely way, it is possible to say that, discussing about the two themes, sometimes the plans of argumentation are confused in a transposition/overlap of terms, practices and reflections.

The motor-sports activities, although designed for everyone, require the teacher to structure interventions that take into account the individual level of each student and his specific skills. It is equally well known that within the inclusion construct, individualization and personalization retain their feature of inclusion guarantors only if thought for everyone. Exploiting these con-

structs and educational and training projects determined only for people with disabilities, would defeat the very principle for which the ICF was born.

Parallelism continues to consider the centrality of teacher training, both in the motor-sports and in the ICF evaluation contexts, which must be knowledgeable and critical programmer of targeted interventions and progressive adjustments of contextual variables, according to *emerging skills*, even in conditions of disability (Gison et al. 2015), expression of the respective *zone of proximal development* (Vygotskij, 1979). Therefore, it is possible and fundamental to think about the structuring of learning situations and contexts that consider as essential dimensions the personal level of *activity and participation* within a structured physical and social context *ad hoc*, as elements able to “make a difference” in the personal *bio-psycho-social well-being*.

Continuing the discussion on these last dimensions it is known how the *social participation*, another pillar of the ICF language, is in clear continuity on the role that motor-sports activities play in encouraging the development of different intellectual forms (Gomez Paloma, 2004) first among all *interpersonal and intra-personal intelligences* (Gardner, 2005). In motor-sports practices, corporeality enters into a direct *intrapersonal dialogue* (Moliterni et al. 2018) and constantly “tuned” with the bodies of others, in a continuous reciprocal redefinition, of which the subjects involved become progressively more aware. In this case it is also evident the close connection between the social competences, stimulated by real continuous tasks, which, stressed in situations of “training”, both in the rehabilitative practices and in those motor-sports, aim to be generalized, in the transfer process, in real life contexts, pursuing and activating the process of self-determination.

Already discussed the level of transversality of the approaches, about the Physical Education (PE) as *hinge discipline* and the ICF as an observation tool designed for everyone. It remains to be described the shared characteristic of longitudinality for which both approaches pursue the objectives, proper to the perspective of *Life Long Learning* (LLL, 2010), of *bio-psycho-social well-being, self-determination and quality of life*. In this longitudinal perspective, we started from an apparently immediate reflection, but not so obvious in the educational practices, about the *psychomotor practice* (Aucouturier, 2007) that for the age group 0-7 years, in the rehabilitation and educational field, shows all its potential in tying the constructs of physical activity to those of integral child development and inclusion, contributing significantly to corroborate the scientific literature supporting the role of the body in the process of child growth and development, in terms of *functioning, activity and participation*.

The practice, in fact, is not only a tool for rehabilitative and educational intervention, but also as a valuable opportunity for observation in a structured context in which spontaneously emerges all the holistic authenticity of the child. Hence the idea of continuing to consider the centrality of the body and motor-sports activities in the educational field, as privileged tools of multidimensional observation of the child and contextual factors, to promote the design of effective learning environments aimed at development and inclusion, across all evolutionary dimensions (MI, MEF, 2020) and longitudinally in successive levels of education.

## **2. ICF as a multidimensional approach in inclusive educational design**

The concept of the “expendability” of the ICF instrument is corroborated, in scientific literature by different and interesting uses. Recently the bio-psycho-social model was used for the study of behavior regarding participation in physical, motor-sports activities; a multidimensional phenomenon (Hummel et al., 2016; Munz & Thiel, 2018) that fits well through this perspective able to grasp the complex interaction between biological, psychological, and social factors that act and determine the behavior of the person.

There have been many studies undertaken in recent years, from which emerges a broad consensus in confirming the high potential of participation in physical activity on the general health of the subject for its positive bio-psycho-social effects based on scientific evidence: from the prevention of diseases of the muscular apparatus-skeletal (Bergman, 2007), to those on the cardiovascular system (Cavill et al., 2010); the psychological effects, such as the reduction of

depression or the increase of self-esteem to social benefits, improvement of collaborative skills and social interaction (Thiel et al., 2013).

A 2020 review develops a comparative study on the different theoretical and conceptual frameworks implemented for the analysis of the behavior of physical activity through the bio-psycho-social perspective, discussing and identifying the key issues on which to focus for the design of quality interventions aimed at health promotion and disease prevention (John et al., 2020). The study highlights the positive effects and the great potential of the analysis in bio-psycho-social perspective, emphasizes the need for further transdisciplinary research.

In the Italian scientific panorama, the ICF model has been used several times in educational field. Particularly innovative is the study of comparison between the “competence categories” of the ICF-CY document (2007) and the competences defined in the ministerial models of certification of competences, which focuses on the evaluation of pupils with disabilities, the analysis of environmental factors (Chiappetta Cajola, 2015).

The latter are the basis of an interesting national survey (Chiappetta Cajola & Rizzo, 2019) aimed at analyzing environmental factors (organization of teaching, students’ and teachers’ attitudes), which are strongly incisive elements in determining the real participation and learning of all students in order to the design of playful-musical workshops inclusive with reference to some alphanumeric categories of the ICF (Chiappetta Cajola, 2019).

The EduFiBES project (Gomez Paloma & Ianes, 2014), has tested a identification model of of BES with the involvement of all curricular teachers in the process of observation/ evaluation of students/ students, using the integration of information on the domain “*basic learning and application of knowledge*”, systematic observation of personal factors and a questionnaire for the detection of environmental factors. Key element of the EduFiBES model is the awareness that for the realization of an effective personalized teaching, it is necessary to work in full educational co-responsibility applying a bio-psycho-social approach.

Finally, to reaffirm the transversality of motor-sports activities and the ICF tool and to further recognize its close relationship, a recent study has produced an evaluation tool of social and civic skills, stimulated in the field of PE and in Motor-Sport Sciences (MSS) in the secondary school of first and second degree, using the ICF paradigm, through a systematic observation across the various documents (ICF, National Indications and certification of skills), again to reiterate the fil rouge that frames the objectives in a single background integrator (Moliterni et al., 2018).

The study aims to observe and “evaluate” the relational and social functioning of the pupils, in relation to the motor-sports activities proposed in the educational environment, with the aim of evaluating the *performance* in a training context, later subject of generalization in real variable contexts.

### **3. From the new models of the Individualized Educational Plan (IEP) to inclusive educational design**

In coincidence with the recent emanation of the Interministerial Decree n. 182 of 29 December 2020, which has made preemptory and above all actualizable what indicated by the previous normative, it is particularly useful to reflect on what the ICF is, not only inclusion instrument, but also to promote the bio-psycho-social well-being of all individuals, regardless of their state of health.

In this perspective, the new models for the IEP present themselves as a particularly useful opportunity to promote the adoption of the bio-psycho-social approach in educational design, which becomes truly inclusive if it is realized and modeled on and in the group-class, broadening the focus of the objective from the individual pupil to the pupils, the relations between these and the teachers and the environmental context.

In section 6 of the new Guidelines (2020), about the ICF reads «the bio-psycho-social perspective at the basis of ICF-CY identifies, in the contextual factors, two large areas, which interact with each other: *environmental factors* (extrinsic and external to the pupil) and *personal*

*factors* (intrinsic and “internal”), however not yet defined by ICF. Both factors are related to the *Functions of the Body, Personal Activities and Social Participation*, improving, or making possible their functioning (*facilitators*) or hindering it (*barriers*) » (MIUR, 2020).

«Components of activity and participation (level of person) which refer to the performance of a task or an action by an individual, both in an individual perspective (activity) and in a social perspective (participation) of functioning are closely connected with the other components of the ICF that concern the body level (*functions and body structures*) and the level of the environment (*barriers and facilitators*)» (Chiappetta Cajola, 2020, p. 44).

In the didactic activities that characterize the Physical Education the constructs of *activity and participation* constitute the pivot on which the teachers can and must act in order to activate those inter/multi-connections which create favorable conditions for the implementation of effective teaching and learning processes.

With the aim of seizing the opportunity to analyze and understand more deeply the strengths of students/ students thanks to the integration of information acquired in systematic observation during the curricular activities of PE/MSS, here we propose a model of ex-ante and in-itinere evaluation which, following the methodological line of the new IEP, promotes the multidimensional observation approach in the inclusive educational design of the class group.

The proposed systematic observation develops in two phases: a first analysis, carried out by all the teachers of the section or class that proceeds to the observation of the contextual factors with an integrated perspective, bio-psycho-social and ecological (lanes, 2021), aimed at identifying and analyzing within the class context the elements, facilitators and/or barriers, to be considered in the design of the Annual Class Plan (ACP); the second, carried out by the disciplinary teacher and the support teacher, which makes use of additional and valuable information resulting from the systematic observation carried out in the curricular activity of PE in the first cycle and MSS in the second cycle of education (checklists and/or evaluation sections focusing on: personal and social autonomy, gross-motor and fine-motor skills, communication, knowledge and learning).

Both phases adopt the bio-psycho-social approach, transferring the systematic multidimensional observation of the new IEP models to the analysis of the class, through the observation of the four dimensions identified by paragraph 2 of the Interministerial Decree 2020: *relationship-interaction-socialization, communication-language, autonomy-orientation and cognitive-neuropsychological-learning*.

There is a significant change of perspective that outlines a complete bio-psycho-social and ecological framework of the class group, with enormous educational potential because it systematically defines the strengths on which to identify objectives and expected outcomes, activities, strategies and tools to design and re-design in a flexible, plural and redundant (MI, MEF, 2020) educational interventions appropriate and personalized in an inclusive perspective. This would allow the implementation of effective learning environments aimed at fulfilling one of the primary tasks of education systems, namely, to remove obstacles to learning and participation and to introduce and implement all the necessary facilitators (UNESCO, 2017).

In the inclusive design the spaces and places in which the learning environments are created assume the role of training agents and change (Obliger, 2006; Sanoff, 2001) able to act, feeding/modifying/shaping ideas, values, beliefs, attitudes that become part of people’s experiential experiences, and therefore part of learning-teaching experiences, which fall under those ecological conditions of the educational-didactic context that cannot be ignored.

## **Conclusions**

As widely highlighted, the ICF model from an evaluation tool becomes a guiding model for the adoption of a bio-psycho-social approach to organizational and educational planning; an approach that is very effective in inclusive teaching because it is able to encourage an interpretative reading of the learning environment, not limited to the assessment of opportunities for access to common classes, but oriented to identify and analyze environmental factors to understand and be fully aware of all those elements that can act as facilitators or otherwise create lim-

iting conditions for the full achievement of educational success (Bramanti & Odifreddi, 2006).

«The convergence between the bio-psycho-social model and the perspective of inclusive education is mainly identified, in the awareness of the role of the environment on learning and the participation of pupils and students, from which it follows the intention to remove the barriers that hinder the process of inclusion» (Chiappetta Cajola, 2019, p. 446).

Thinking, in pedagogical form, the entire methodological, strategic and didactic framework of the ICF (WHO, 2001; 2007) means, in the first place, provide the cultural and anthropological framework in which to read and interpret the educational needs of all pupils/students in the light of a perspective of the overall functioning of the subject-person, respecting the inviolable principle of the holistic nature of his *being* and the complexity in the different and peculiar contexts of formal life and not.

The bio-psycho-social approach, able to taking into account the multiple dimensions that act in a systemic way on the functioning of the subject/subjects and on the effectiveness of the teaching-learning processes, assumes a central role in the inclusive didactic design. The analysis and understanding of all the factors that can influence the student in facilitating or not, and therefore act as barriers or facilitators on his social participation, on attentive abilities, interpersonal interactions, etc., can and must make use of authentic and immersive learning environments (such as laboratory and/or motor-expressive activities), to make more effective and functional to teaching the overall assessment of the student and the class group.

The present proposal to adopt the approach outlined by the recent IEP models for the disciplinary educational design of the class group, wants to make use of an integrated vision, which is realized in view of educational co-responsibility in the class council, with the aim of encouraging teachers to be fully aware of the contextual factors (barriers and/or facilitators) and of the aspects characterizing the person in his multiple and integrated dimensions in order to promote bio-psycho-social wellbeing, creating the conditions conducive to the educational success of each and every one.

The adoption of this type of approach to educational design undoubtedly presents some weakness points, including the indispensable specific training of teachers on the ICF model, that through the knowledge of the basic principles and meanings acquire that awareness necessary for the subsequent application of teaching because «the teacher can become a protagonist of the inclusive process, because he is able to develop his critical thinking in order to implement customized and effective educational actions» (Chiappetta Cajola, 2020, p. 43).

On the other hand, the implementation of this approach to educational design would allow all teachers to familiarize themselves with the ICF model and to adopt this perspective to better frame pupils/ students recognizing the real global operations calibrating the teaching in the *zone of proximal development* of each and every one.

In conclusion, the potential of this approach develops bi-directionally: on the one hand, motor-sports activities, which require specific training (think of the gap of primary school teachers within the PE) confirm its inclusion towing function offering itself as a possibility of declination and manipulation of the ICF model at school. On the other hand, the latter, in the multidimensional perspective returned to the former the role of centrality in learning processes and inclusive practices.

However, this function of towing must be recognized only in an initial phase of the model, as consistently with the consciousness of embodied matrix, the latter can also be declined in the educational planning of other disciplinary areas.

In this sense, effective educational action can be able to overturn the entire inclusion paradigm by promoting educational success and bio-psycho-social well-being for everyone.

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