

INCLUSIVE EDUCATION MODELS APPLIED TO PHYSICAL EDUCATION AND ADAPTED PHYSICAL ACTIVITY

MODELLI DI EDUCAZIONE INCLUSIVA APPLICATI ALL'EDUCAZIONE FISICA ED ALL'ATTIVITÀ FISICA ADATTATA

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Abstract

The introductory part of this article will outline what pedagogical models are currently used in schools to ensure an inclusive approach to physical education for the student population. The paper will highlight the importance of a didactic intervention based on adapted physical activity (APA), focusing on how it enables students with disabilities to become more self-determined and autonomous, thus improving their quality of life. The second section of the paper will analyse, using a theoretical–narrative method, how APA is structured and will describe how teachers specializing in support are trained, using the inquiry-based learning (IBL) methodology, to design and set up a physical education lesson based on the APA model. In the final part, the future perspectives of inclusive teaching will be analysed in an educational and school context that encourages the use of information and communications technology (ICT) in physical education.

Keywords

Adapted physical activity (APA), self-determination, inquiry-based learning, inquiry-based laboratory, information and communications technology, ICT

Inclusive Educational Models and Adapted Physical Activity

Motor activity has always been a subject of study of pedagogy but is nowadays receiving increasing attention. Sports practice must be analysed using precise interpretative and hermeneutical criteria belonging to an epistemological community that has only recently been interested in studying the importance of it in the educational and didactic fields. Our in-depth

study of the methodologies applied in the analysis will rely on the typical criteria of special pedagogy. At least initially, we will try to establish what contributions sports practice is able to provide to inclusive teaching aimed at all learners but in particular those with special educational needs (BES).

Sport appears to be a valid aggregator in the school context as it provides valid support to the much-debated and sought-after inclusion, limiting the relational liquidity typical of modern society, observed and criticized by Bauman (2006). In this liquidity, sport can enrich the educational experience of learners, guaranteeing them greater psychophysical well-being. Sports practice, in addition to being based on well-defined rules, involves the application by the participants of strategies aimed at achieving the set goal, without forsaking a physically engaging experience. Sport is configured as an inalienable right for the community that inevitably brings enormous benefits on a physical, psychological, relational, and social level. It is for these reasons that the UN Convention on the Rights of Persons with Disabilities states that "the participation of people with disabilities in ordinary sporting activities at all levels must be encouraged and promoted" (2006).

Special pedagogy, as an educational science aimed at satisfying the training needs of people with disabilities, must identify well-defined practices in the sports field that compensate for the disadvantages experienced by BES students. To do this, it is necessary to detach oneself from the typical performative conception associated with sporting activity, embracing a more pedagogical vision focused on the enhancement of diversity, relationships, collective development, and relational skills. The idea of physical activity based on the integration of the principles of special pedagogy and motor science can be made factual by using the construct of integrated sport, fundamental in the context of adapted physical activity (APA). This is a particular type of sporting activity designed specifically to meet the needs of people suffering from pathologies and impairments, in which various non-health physical exercise programmes are provided, carried out in groups or through courses aimed at reducing pain and improving the quality of life of all those people who have mobility limitations. Established in 1973 in Canada, following the collaboration between the founders of the International Federation of Adapted Physical Activity (IFAPA), the APA laid the foundations for UNESCO (1976) to sanction the "right to practice physical and sports education for all children." Sporting activity allows all people, in particular those suffering from impairments and disabilities, an integral development of their personality and therefore of their cognitive, affective–emotional, social, and motor dimensions.

Over time, various constructs have been associated with APA, which is why the meaning has gradually deepened and expanded, making it possible to define the field, the methods of investigation, the goals to be pursued, and the methodologies. Among its objectives, for example, we find the adaptation and individualization of motor activities in relation to the real abilities of the subjects and the inclusion of these within society and in school. From this point of view, it is possible to define APA as any motor activity potentially practicable by subjects who are limited in their abilities by physical, psychological, or mental deficits or who have impaired cognitive functions. For this reason, APA is conceived as an umbrella term that embraces multiple disciplines and practices, such as physical education, sport, and rehabilitation, aimed at individuals with mobility impairments who can improve their quality of life by playing sports. The goal of APA is to promote and ensure, for people with disabilities, access to an active lifestyle thanks to playing sports, encouraging the innovation of inclusive sports practices. In 2006, the IFAPA clarified the precise definition of two terms that are generally considered synonyms, namely "activity" and physical "education." Activity differs from physical education in that it is useful for satisfying the needs of people throughout their life, while education refers exclusively to the school and preschool age of people.

In the international arena, reference is made to adapted physical education with the acronym APE. This is defined as a branch of physical education that allows learners with different abilities to undergo experiences that increase their levels of safety, satisfaction, and personal success. With this in mind, APA is configured as an educational path that allows learners with disabilities to be able to self-determine in compliance with the provisions of Legislative Decree 96/2019, from an inclusive perspective also based on the principles of "interinstitutional collaboration" and "fair accommodation." The construct of self-determination is of crucial importance in educational practice, as it allows people to develop their individuality. A first definition of this multidimensional construct was provided by Ward (1992), who affirmed that self-determination is a crucial goal for individuals, especially in reaching adulthood, as constituted by the objectives to be achieved during their own life as well as the skills used to make them concrete.

According to Deci and Ryan (1986), people have a natural propensity to develop psychologically. In a completely autonomous way, they manage to overcome the various difficulties that life presents, resorting to their own executive functions. In this perspective, self-determination becomes the ability to choose between various opportunities and to use those choices to define one's personal actions. This construct embodies the needs, the ambitions to be pursued, and the set of strategies used to make these real, allowing people to define their own personality in a completely autonomous way. For Milthaug et al. (1998), the construct of self-determination is "complex" (from the Latin *complexus*, meaning "woven together"), as it consists of subconstructs such as autonomy, psychological empowerment, self-dominance of one's own emotional dimension, and self-realization. In it we find different skills through which people

- know and express their interests, needs, and abilities;
- establish their own expectations and objectives, in order to satisfy interests and needs;
- choose, decide, and plan;
- act to achieve their goals;
- evaluate the consequences of their actions; and
- modify actions and projects to achieve their goals effectively.

It remains to be understood how physical activity can positively affect the self-determination of people with disabilities while respecting their abilities and skills. Several studies have shown that people with disabilities, in particular intellectual disabilities, practice little sport, thus leading a largely sedentary lifestyle. All this determines the onset of chronic degenerative diseases and health problems related to physical inactivity, such as diabetes, hypertension, and obesity. It is therefore of fundamental importance to involve these people in programmes that include regular physical activity, with the aim of improving the quality of their life. The ambition is to allow people with disabilities to practice physical activity with the same regularity as normal people, so that they can acquire good levels of autonomy in walking and carrying out voluntary movements.

One of the greatest risks for disabled people is obesity, a pathological clinical condition that considerably compromises the body composition, muscle strength, endurance, and flexibility of those affected. The consequences of such a pathology strongly limit the quality of life, causing a worsening of the subject's condition. To entice people with disabilities to practice healthy and regular physical activity, cognitive-behavioural approaches have been

used, characterized by the use of operative reinforcements aimed at promoting beneficial behaviours for health and social integration. Unfortunately, motor activity in disabled people does not increase their functional abilities, significantly affect their body mass index, or positively affect the onset of stereotypical behaviours. In contrast, the levels of stress and anxiety, as a result of periodic physical activity, customized and adapted to the needs of the subject, are reduced, significantly increasing the quality of life.

The levels of autonomy of persons with different abilities, as previously mentioned, are considerably improved. All this is due to the routine to which the person is subjected. Regular appointments, the choice of appropriate clothing, and the rules to be respected for the smooth continuation of the activities are just some of the stimuli that guarantee that the person acquires more autonomy, while increasing the sense of responsibility towards him- or herself and others. The benefits of physical activity can also be found in the more personal spheres of the individual. The ability to make decisions that improve one's health, self-care, being more aware of one's abilities and limitations, the freedom to move consciously in the world, and autonomy in walking are just a few examples of the benefits that allow the subject greater independence.

It is of major importance to organize programmes that encourage people with disabilities to exercise on a regular basis, leveraging their intrinsic and extrinsic motivation. According to various studies, the adults involved increased their level of participation in the activities if they turned out to be fun. Although the participants often achieved the set goals more easily, it was necessary to resort to specialized figures, such as educators, family members, and motivators. Within these activities, characterized by the involvement of experts, assistants, and family members, the onset of possible diseases that could undermine the disabled person's health is prevented. Pathways are created to improve the functionality of the musculoskeletal system, muscle strength and flexibility, bone mineral density, the condition of the cardiorespiratory system, and the hormonal profile. In this way, the person's chances of entering a rewarding work and social context increase considerably, allowing the person greater autonomy while respecting the right of self-determination.

APA programmes are structured to ensure that disabled people obtain the skills necessary for the satisfaction of their basic needs, such as feeding, taking care of themselves, and carrying out motor activities independently or with the help of other people, without neglecting the particularities and attitudes of the participants. In organizing the activities, it will be necessary to take into account the methods, places, times, and intensity of the proposed activities. The interaction between students and other professional figures involved is of fundamental importance to make the various exercises meaningful, within safe environments that are well known to the recipients. Clarity of objectives is crucial for involving participants in the selection of the activities to be carried out. The purpose of all this is to be able to progressively move from simpler exercises to more difficult and complex ones. To strengthen the practical and transversal skills acquired, it is necessary to resort to the repetition of gestures and movements learned for medium to long periods of time. It is essential to take into consideration the inclinations of the participants, their interests, their ambitions, and the conditions that make them feel more involved and motivated, without renouncing those personalized objectives identified as predominant by all the professionals involved. Among the most useful practical suggestions to improve the extent of the interventions, guaranteeing greater effectiveness to facilitate the participation of all, we mention the following:

- The structures should be accessible, without architectural barriers and equipped to respond to the individual peculiarities of the participants.

- The activities taught must be simplified and parceled out so as to make their execution easier.
- The meetings must be structured, with an initial welcome, in which the motor activity will be presented; a warming-up phase, prodromal of the activity object of the meeting; and a final one, consisting of a game or an activity chosen by the students, followed by a final confrontation in which to express and exchange thoughts and considerations.
- The content needs to be defined, identifying the macro-objectives to be achieved.
- The composition of the student groups should be carefully chosen.
- The rules of the game must necessarily be respected by the participants to ensure them a safe and stable environment in which the recognition of roles supports the establishment of positive relationships.
- The game climate must allow the establishment of significant interpersonal relationships based on collaboration, cooperation, tolerance, competition, and attention to teammates.
- The intensity, frequency, and duration of the activities, as well as the breaks and the recovery periods, must be modulated on the basis of the participants' abilities.
- The activities must always be carried out with the aim of encouraging the construction of meaningful and motivating relationships between the organizers and the participants, based on a healthy affection, respecting the emotional dimension of disabled people and all the professionals involved.

In such an organized environment, the management of activities will be more pleasant and less demanding, capable of encouraging learning that embraces, in a global way, all the dimensions of the learners, allowing those with disabilities and their families to see each other as protagonists and supporters of a process aimed at improving their motor skills. Finally, it will allow professionals to refine their intervention strategies to ensure all their clients, present and future, greater autonomy, more self-confidence, and a vivid intrinsic motivation.

Structuring a Lesson Based on the APA Model and the Inquiry-Based Laboratory for the Training of Teachers Specializing in Support

The Italian school, driven by the principle of inclusion, has been sensitive to the issue of sport aimed at people with disabilities since the 1970s, with a view to a school that can guarantee a global and multidimensional educational intervention for all learners. Within this scenario lies the figure of the inclusive coach, competent both from a technical sporting and a special pedagogical point of view. The most used educational methodologies are cooperative learning, peer tutoring, circle time, role-playing, modelling, the five-phase pedagogical model, and other educational strategies typical of APA, modified ad hoc to guarantee a greater integration and inclusion of learners with special educational needs.

The meaning of the activities carried out within the classroom is to allow students to live and share situations in which sporting activity is perceived playfully, in an educational context in which they can learn the importance of rules, cooperation, collaboration, and teamwork for the achievement of common goals. The ultimate goal is to create an inclusive climate aimed at promoting the participation of all. The structuring of an inclusive physical education lesson that fully respects the criteria of APA involves four phases, attributable to the different moments of the work done in the gym, to be customized to the educational needs of

the students. The first phase involves promoting socialization, cohesion, and personal interactions by resorting to a physical warming-up period. The second phase involves explaining the objectives of the lesson, such as the motor patterns of walking, running, jumping, throwing, and grabbing. The third phase involves proposing group games and activities centred on the objectives of the lesson. The fourth and last phase is characterized by the cooling-down period and muscle recovery to prepare the students for returning to the classroom. The first and last phases see the circle time methodology applied: The activities to be carried out will be presented to the learners using different communication channels, such as mimicry, symbols, modelling flanked by verbally expressed descriptions, billboards with loose sheets, and tablets and/or computers with images representing the movements and exercises to be performed. At the end of the teaching activity, it will be necessary to proceed with the evaluation of the objectives achieved. Thus, it will be necessary to observe the interactions between students, such as cooperation, the level of participation in the activity, compliance with the rules, and acceptance of any defeat. The results collected must be reported on checklists on which the training objectives have been previously identified. The function of these evaluation tools is to monitor the progress achieved by the participants.

In the light of what has been said, it is necessary to ask ourselves how to guarantee that teachers obtain the skills necessary for the structuring of a lesson based on the APA model. Our national training system provides support to teachers to apply the inquiry-based model within the various laboratories in which they will be called to train, in order to allow them to apply concretely, in the context of APA, the methodologies and notions acquired during the specialization course. As anticipated, the most used educational strategy, as promoted by the European Commission (Rocard Report, 2007) is inquiry-based science education (IBSE), also known as inquiry-based learning (IBL). It is a methodology based on heuristic learning, which proceeds by discovery, in which the student (in this case, a teacher) formulates hypotheses, conducts experiments, and makes observations (Zacharias et al., 2015). In IBL, the one who plays the role of teacher initially acts as the fulcrum of the lesson; subsequently there is a "fading out," that is, a dissolution of this figure in the management of the research activity, thus encouraging student participation and autonomy.

The literature identifies four levels in the inquiry method: confirmative, structured, guided, and open (Banchi & Bell, 2008). In the first level, the confirmative level, the postgraduate professors investigate known facts in response to a question posed by the university professor, using the required procedure to collect the data and then represent them in a graph. In the structured level, surveys will be carried out following the application and according to the procedure indicated by the professor. In the guided inquiry, learners have the opportunity to independently identify the investigation process to be used to respond to the question posed by the teacher. Finally, in the open model, the students, in total autonomy, will choose both the question and the investigation process to follow.

As you might guess, the inquiry-based laboratory (IBL) is the result of a mix between the investigative method and a laboratory-based teaching method. In the IBL, we find the typical IBSE cyclical process, whose phases are asking, researching, creating, discussing, and reflecting (Bybee et al., 2006). Given a specific problem, the trainee teacher will formulate hypotheses and will be asked to research data and develop solutions, allowing the trainee to address the objective of the inquiry-based activity—that is, the design of a learning unit of applied physical activity suitable for meeting the educational needs of all students. Over time, the effectiveness of IBL in the teaching–learning process has been demonstrated, thus

increasing the interest of the scientific community. The 5E cycle, as claimed by Bybee (1996, p. 176), enables the consolidation of didactic planning skills thanks to the following sequence of actions: engage, explore, explain, elaborate, and evaluate. The learning cycle approach has been tested in multiple teaching areas for the acquisition of cognitive but above all transversal skills. For this reason, it is used in specialization courses on support, as it makes postgraduate teachers more aware of the benefits that experiential learning offers in physical education. The inquiry approach improves the executive functions of the recipients of the lessons, especially those with special educational needs. Its effectiveness is to be found in the ability to intrinsically motivate people, inducing them to train both inside and outside school, promoting socialization and cohesion of the individual with the rest of the group.

The Use of Digital Technologies in Physical Education

Among the critical issues encountered in physical education, within the Italian training system, we find the inadequacy of teaching means and methods, as they are unable to arouse greater interest and participation in learners, thus making them ineffective and inefficient for educational purposes. In this scenario, digital technologies can serve as excellent aids for teaching physical activity, as they can make learning meaningful while respecting the educational needs of students, especially those of BES.

Information and communications technology (ICT) for the teaching of physical education can be grouped into three main categories: computer applications not specifically designed for physical education, specific software for motor activity, and the internet. Among the non-specific ICT for physical education, we find the personal computer (PC), graphic editing programs, and the interactive multimedia whiteboard. The PC can also be defined as a transversal tool. In fact, it can be used to plan, design, manage, search for information, develop the curriculum project, find tools for assessment, and organize a learning unit for any subject, including physical education. Graphic editing programs allow graphic elements to be developed and designed for teaching activities. The interactive whiteboard acts as a support for designing circuits and motor paths to be applied during the lesson. As reported above, there are also specific programs for designing motor activities. Auxiliary programs are applications for preparing physical activity. They allow exercises to be selected based on the physical condition of the learners and the muscle groups to be solicited. Complex explanation programs are designed to aid in the understanding of activities that require visual support. They assist in designing, editing, and viewing reproductions of strategies, movements, and procedures to be applied during sports exercises. The demonstration programs, on the other hand, reproduce particularly complex movements, which are generally presented in books using sequentially arranged images.

The internet is the most useful educational resource for forging meaningful links over a wide field of studies and interventions (Guterman, 1998). The internet allows the creation of digital initiatives in physical education, such as lists of interest, websites, researching and exchanging information, training, remote updating, implementing common projects such as discussion forums between teachers and learners to collect contributions on an argument and to exchange experiences, considerations, and reflections. There are several physical education forums in primary and secondary schools where teachers can express their emotions and considerations as sports specialists. The content found on the internet, such as exercises, choreographies, and team games, offers learners the opportunity to interact with each other,

allowing them to develop their relational dimension by resorting to exchanges of knowledge and opinions.

The electronic dossiers supporting the peer group are complementary to traditional teaching. Their primary function is to serve as a podcast where students can draw on teaching materials. The physical education teaching plan can be posted on the internet, and students will be able to share their impressions and opinions using educational forums. All this will be functional for the teacher in adapting the lessons to the educational needs expressed by the members of the class group, resorting to an exchange of opinions and periodic feedback, which in the gym would be more difficult and therefore less effective.

Conclusions

We have observed how APA allows people with disabilities to achieve a set of skills useful for self-determination, using lessons structured according to well-defined criteria proposed by the IFAPA. The benefits of physical education for students with disabilities are not only physical but also psychological in nature if precise epistemological criteria are respected during the different phases of the lesson, from the planning to the end. The skills that are needed to approach APA in the most inclusive and conscious way possible are acquired by teachers during a specialization course on support (a training course for support teachers), using inquiry-based methodologies, capable of making learning meaningful using the heuristic method, which proceeds by research and discovery. For a truly inclusive teaching method, as in the case of APA, one cannot do without the use of ICT, in accordance with the provisions of the National Plan of the Digital School (L.107/2015). Thanks to the internet, the transmedia and multimodal tools are useful for finding information and for exchanging ideas and opinions between students and teachers on platforms and forums in order to involve all participants in the planning, production, and execution of the lessons. These observations are useful for understanding the importance of physical education in responding to the psychophysiological and relational needs of students with disabilities, in order to guarantee them a better quality of life in an increasingly inclusive school system, enabling them to move forwards in life, both self-confident and autonomous.

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