

Effective teaching competences in Physical Education

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Abstract:

In his training and experiential path, the physical education (PE) teacher will be considered qualified and “competent”, only when he/she will be able to affect positively and effectively the educational relationship with the students by helping and leading them towards the acquisition of that particular form of intelligence, which from now on, we will call “body-kinesthetic” or “motor” intelligence. For a long time now, the concept of “competence” has been adopted within various fields and referred to different dimensions to indicate the level of ability to do something. For this reason, it is currently challenging to provide a univocal definition of competence since its meaning varies according to the context and the topic of the discussion. From an educational perspective, the PE teacher’s competence should not simply indicate his basic knowledge, intended as the sum of specific and sectorial knowledges consolidated through the experience, nor his teaching skills, intended as pure technical-professional skills. Indeed, a third indispensable component that has to be integrated in the concept of competence, can be identified in the individual character, attitude and personal traits of the teacher. Finally, a fourth component is the high success rate of the teaching and didactic process. Only the combination of these four distinct but related components, will qualify the teacher to deliver high quality teaching and to be considered “competent”.

Key words: PE values, effective teaching, didactic competences, professional skills.

Introduction

Considering that physical inactivity is now considered the fourth leading risk factor for global mortality (Gaetano, 2016, Tiziana et al., 2017, World Health Organization, 2010), now more than ever, the implementation of effective and high-quality physical education (PE) programs is needed to target the development of physically active and healthy lifestyle and to contribute to the wellness and to the global formation of the person (Trudeau & Shephard, 2005, Altavilla et al., 2015, Raiola, 2017, 2013). Accordingly, the tutoring figure i.e., the PE teacher, should be trained and possess the adequate competences to lead PE classes and to guide the children toward the achievement of these goals (Cereda, 2016; D’Elia, 2019, D’Isanto, 2016, 2019, Gaetano, 2012, Askar, 2008). Therefore, PE teachers will be considered effective and competent to the extent that they not only contribute to the development of their health-related physical fitness in the short term (e.g. during primary school years), but also to the children’s life choices as adolescents and adults in the long-term (Viscione et al., 2019, Rink & Hall, 2008). The main aim of this study is to offer a reflection, from a pedagogical perspective, on the role and of the skills required in the future PE teacher to promote the development of the individual as a whole.

The role of PE in the school system

The first form of interaction of the newborn with the environment is a body interaction. In turn, this preliminary form of communication based on corporeity, which lies at the base of the cognitive-relational system, will remain and will be constantly adopted during the individual’s entire life span (Rizzolatti & Sinigaglia, 2005).

Several scientific evidences have pointed out the importance of body interactions and movements throughout the developmental years, and therefore the corporeity, intended as an essential component of every human being, can be considered as a privileged dimension to be addressed in the educational context. In primary and secondary school curricula, corporeity represents an individual value, not to be reduced to physicality nor to a pure aesthetical meaning of the body. Conversely, corporeity should be considered as a starting point for knowing, communicating, learning and interacting with the environment (Casolo, 2011). From these considerations the role of teachers of PE, intended as a discipline no longer solely focused on a pure physical training but conversely, oriented to the development of body-kinesthetic or motor intelligence, assumes a strategic importance in the educational context. Accordingly, this professional figure that assumes a key-role in the educational context, should be specifically trained and prepared to teach education “to” movement and

"through" movement (Invernizzi et al, 2018). We believe that future PE teachers should aim at promoting new knowledge and transmitting important educational values to the children during the scheduled PE hours but also during non-curricular opportunities for dialogue (e.g. recreation, lunch breaks, transportation), through an active involvement and participation of the other school actors (e.g. school principal, general teachers, family). The process of valorization of PE should start from a convinced reflection on the teaching programs and from the "protection" of the two hours per week specifically dedicated to PE in the school curricula. Indeed, a recent study showed that, if organized effectively and without wasting of time, the practice of PE two hours per week over 20 weeks might be sufficient to induce an average improvement of about 6% per year in the motor skills of dexterity, strength and endurance and to positively affect children's lifestyles (Casolo et al., 2016).

The optimization and maintenance of functionality and attractiveness of the learning environments are determinant factors in encouraging or not, physical activities and movement in the school context. For instance, the physical appearance of the gym, a space historically designed to host PE classes, but also of other indoor and outdoor common learning environments and areas (e.g. classrooms, corridors, playgrounds, courtyards, halls and stairs) has a key role in the promotion of physically active behaviors among children. The main conditions that must be satisfied to guarantee a proper and efficient hygiene and functionality of these environments are safety, cleanliness and the presence of an adequate equipment. Indeed, this latter point is fundamental and both large equipment (e.g. wall bars, gymnastics ladder, vertical or horizontal stairs, balance beam, mattresses and mats) and small tools (medicine balls, ropes, hoops and clubs) should not be missing.

Additionally, if the school is located within or next to a green area, the outdoor surrounding spaces could be adopted as an open-air gym. In this regard, we believe that, an outdoor and hence more "natural" environment should be preferred, or at least alternated, to an indoor and more "restricted" learning context (e.g. gym), when and if possible (Ceciliani & Bortolotti, 2016; Monti, et al., 2017). In particular, when the weather is favorable, PE could fit into the wider context of the so called "outdoor education". Indeed, an outdoor environment might be an optimal context for the promotion and practice of several basic motor activities such as walking, running, jumping, climbing, balancing, lifting, carrying, throwing, and recreational activities such as choreographies, dances and traditional games that normally require larger spaces (e.g. scalp, the hawk, Free Magician) (Casolo, Bussetti, Castelli & Daino, 2011). These activities, easy to propose and implement, might favour the enhancement of children's cardiorespiratory and musculo-skeletal fitness, and the development of conditional and coordinative motor skills (Dobbins, Husson, DeCorby & LaRocca, 2013; Calvesi & Tonetti, 1987).

Knowledge, skills and competences in the PE teacher

The concept of "competence" has always been adopted in different areas: work, education, sport (EU, 2006; OCSE, 2008).

In general, although it becomes difficult to provide a univocal and comprehensive definition of this concept, "competencies" can be defined as "the positive combination of knowledge, ability and willingness in the availability of the individual to cope successfully and responsibly with changing situations" (Weinert, 2001).

According to Bhargava & Paty (2010), educational competencies should include the following three core aspects: "competencies required for classroom teaching, competencies essential for carrying out professional engagements in school, and competencies needed to be a positive contributor of society".

The specific area of competence that mostly interests the educational action is that of body-kinaesthetic or motor intelligence, whose acquisition has to be pursued through the motor and sports activities implemented in the school context. Indeed, on one side, the teaching competences of the future PE teacher cannot be merely reduced to the basic knowledge (e.g. anatomy, physiology, psychology and sociology) or, on the other, to the simple practical knowledge of the proper individual and/or team games and activities to implement during PE classes (Pellerey, 1999). These general but specialized knowledges are not sufficient to define a PE teacher as "competent". The concept of competence does not even coincide with the mastery of a skill, intended as the "know-how". Indeed, the ability to implement consolidated teaching procedures of motor and sport activities, related to the acquired technical skills of the PE teacher, is neither a condition nor a guarantee of professional competence, even if these skills are achieved with self-denial and perseverance through the teacher's yearly practical experience. For instance, a teacher that has always proposed the same exercise progression and/or sequence for the acquisition of a more complex movement/skill (e.g. long jump), and knows exactly how to explain and practically demonstrate the movement, could be considered an excellent trainer or demonstrator but this does not mean that he is "competent". There are two more important components that have to be integrated in the concept of competence. A third indispensable component that integrates the competence of the PE teacher is his/her individual character, attitude and personal traits, intended as his natural and innate predisposition to be committed, flexible, emphatic, responsible, his attitude to get constantly involved and his openness to change, his sense of initiative and problem solving, the opening to self-criticism and tireless research initiative (Carrozzi & Quaglino, 2002). Theoretically, the competencies of the PE teacher, which should coincide with those of all the other general school teachers, should not be considered as limited but, conversely, dynamic and with an infinite potential, as they are the result of a continuous strengthening and reinforcement derived from life and motor experiences. For this reason, rather than trying to define the specific teacher's competences, we believe it

would be easier to use the word “competent” to describe an individual that masters both the basic sectorial knowledges and teaching skills but also that possesses a suitable character and an appropriate attitude to support and integrate the first two components,.

In addition to these three components already taken into account, the concept of competence embodies also a fourth more implicit assumption that corresponds to the high success rate of the teaching action (Spencer & Spencer, 2002). Therefore, the PE teacher will be able to define himself as “competent” only when he/she will be able to positively and effectively interact with the students in the educational relationship, in order to help them, coordinate them, and lead them toward the achievement of a body-kinaesthetic intelligence (Gardner, 1993).

This unconventional dimension of “physical” or “motor” intelligence can be achieved through the progressive acquisition and consequent improvement of coordinative and motor skills. These should be intended as the partial components of the movement that, if combined together, allow the realization of more complex and technical gestures. During his learning path, the child will learn and familiarize with these different basic abilities (e.g. translocation, manipulation, communication) by practicing them, at first, in a facilitated and protected environment, definable as “closed”. Thanks to the progressive and systematic repetition of these experiences in increasingly more “open” and variable contexts, these preliminary and partial abilities will become acquired motor skills.

Therefore, the teaching approach of the PE teacher should be oriented toward the promotion of the achievement and automatization of the student’s motor skills in always more open and variable environments and contexts, allowing them to learn and master a set of motor skills whose integration results in the development of a body-kinaesthetic intelligence.

According to a well-known Italian pedagogue (Margiotta, 2007), the professional profile of the future PE teacher should include and strengthen the following areas of competence:

- Awareness and mastery of the specific methodological and epistemological knowledge and of the contents of the relative curricula;
- Knowledge and mastery of the principles and methodologies that guide and regulate the development of the curricula, and ability to continuously adapt it according to the maturation and characteristics (e.g. attitude, personality) of the students;
- Teaching skills, intended as the result of the mastery of a repertoire of teaching strategies that have to be applied and modified according to the relative context and curricula;
- Reflexivity and self-criticism, that should be intended as the distinctive feature of the teacher's collaborative and inter-personal work.

Sectorial and specific knowledge of the PE teacher

In general, knowledge represents the sum of facts, contents, concepts and information acquired through daily experience or education over an individual’s life. It can either be general, or specific to a professional context or even tailored to a particular situation. There can be a more “declarative” or “theoretical” dimension of knowledge – the knowing “what” – or a more “procedural” or “practical” dimension of knowledge – the knowing “what to do”.

From our perspective, the most relevant sectorial knowledges required in the future PE teacher can be summed up as follows:

- Gender- and age-specific understanding of children’s physical, cognitive, psychosocial, socio-relational and affective characteristics;
- Gender- and age-specific understanding of children’s personal traits, attitudes, personality development and maturation of the multiple cognitive, socio-relational, emotional and affective dimensions;
- Knowledge of the specific ministerial indications that regulate the implementation of PE in the curricula and of the specific learning goals;
- Knowledge of the beneficial effects of the implementation of movement and physical activity and ability to adapt their promotion to different contexts, environments and variable conditions;
- Expertise in the promotion of traditional games, mini-sports and sport games suited to the children’s motor abilities;
- Ability to encourage movement and provide adequate opportunities among children though the adoption of conventional tools but also unconventional and non-specific equipment.

Probably, the most important prerequisite of the future PE teacher is identifiable with the ability to interact and relate with the students, in order to get to know them and plan the educational action accordingly.

In fact, if on one side the knowledge of the students (e.g. gender and age-specific characteristics) is a prerequisite for a concrete and effective planning of the teaching, on the other, the determination of specific teaching and educational goals to be achieved through the curricular PE program is critical. The understanding of the basic needs of the individual child and of the whole school class in a well-defined stage of the developmental age, is necessary to set a tailored load and volume of physical activity, movement and exercise to maximize the educational effort in the right direction (Invernizzi et al., 2018). If the PE teacher is able to identify the most

relevant gaps within the children's learning process, he/she will have the possibility to modify and adapt the activities proposed accordingly, by trying to fill these gaps.

We believe that the adoption of movement and physical activity within the educational and learning context (e.g. PE programs), may go beyond the pure and simplistic physical development and acquisition of motor skills. Indeed, PE provides opportunities to challenge different forms of children's intelligence and also aspects of reasoning and reflection, character, personality and emotional control capacity. In this regard, it is important to continuously provide them with the opportunity to build and consolidate personality, at the right time and in a proper way. This means to respect their needs to discover and learn how to interact with the external world (e.g. with other individuals and in different contexts) in an autonomous way (Calvesi & Tonetti, 1984).

The modalities to get to know and understand the children's needs can be various. For instance, a more objective and indirect research of information i.e., anamnesis, can be adopted, by collecting information from the family, school, community and medical environments. Additionally, we could also collect information more directly through the dialogue and questionnaires, or through the adoption of physical-motor test batteries. Only if the PE teacher will be able to adopt and include objective and systematic survey forms and physical-motor tests, the children's information can be collected in an effective and respectful manner while respecting privacy laws.

Professional skills: planning, teaching and assessing

The professional skills required in the PE teacher are the "know-how" and represent the translation of his sectorial knowledge into practice. At first, they may be considered purely conceptual skills, which can be concretized in effective operational behaviours that take place in the learning environments dedicated to PE. For this purpose, future PE teachers will need to develop and fully embrace a personal teaching approach and didactic methodology to implement their educational action. In this regard, we believe that the following three main professional skills should be developed in every future PE teacher: planning, teaching and evaluating.

Planning

Knowing how to plan and organize the educational teaching is considered today, one of the most important skills of the PE teacher, in order to ensure the success of the educational action. In particular, an approach that permits to organize in advance and effectively the time available for PE may allow a planning of the educational action in the short, medium and long term. The short-term planning refers to the organization of a single PE class and the management of the activities proposed. The medium-term planning refers to a set of PE classes oriented to the achievement of specific learning objectives (e.g. learning units), whereas the long-term planning indicates the set of competencies and multi-disciplinary goals that can be achieved during a single school term (e.g. 4 months) or during an entire academic year (e.g. annual work plan). Today, the planning of the educational teaching differs significantly from the traditional concept of "program" adopted in the past, where a strict and precise progression of pre-established activities and motor sequences were implemented by the teacher independently of the result of the teaching action and of the learning of the students. The two main features of an adequate and effective planning of the teaching should be the individualization of the proposals and, more importantly, the ability to adapt and modify the short- and medium- term fixed learning objectives, according to the children's feedback and effectiveness of the educational action.

Teaching

Teaching is probably considered the main ability in the process of development of the professional skills of the PE teacher. Indeed, in addition to the sectorial knowledge developed by the teacher, the development of a personal and effective teaching approach depends also on his/her personality and attitude. We believe that the establishment of a respectful relationship with students is the prerequisite to promote and lead every type of successful educational teaching. In particular, the activities and situations proposed oriented to the acquisition of motor skills and to the global formation of the students, will require a direct interaction and communication between the PE teacher and the children. The teacher himself has to get involved in the educational action, by learning how to be accepted and how to get the children's consent and respect. Accordingly, he has to learn to trust himself and the children (Calvesi & Tonetti, 1984). Today, teaching PE means, first of all, being aware of the dynamics of the educational teaching and learning process, while recognizing the centrality of the learners. Teaching through the movement means helping the children to learn progressively and effectively both the basic and the more complex motor skills in order to facilitate the development of several dimensions of their personality. As PE teachers, the physical-motor dimension is without any doubt, the most relevant domain in our profession, although the potential development of the educational, cognitive and socio-relational domains, intrinsically associated with this practice, should not be neglected. The future PE teacher should be sympathetic and empathic, available, attentive, cautious and respectful toward the students. The children should be helped to understand that their actions are not constantly under the examination and judgment by the teacher, but conversely, that the teacher has the situation under control and can easily and non-invasively intervene, for instance when they are failing the execution of a given task, to facilitate their learning process. For this reason, each child within his/her learning process, should receive the maximum

attention by the teacher, who should also use words of encouragement towards pupils, who show greater uncertainty and difficulty.

Another important aspect that could contribute to the success of the educational action is the gradual introduction of experimentation and the adoption of innovative forms and types of teaching that might deviate from the more traditional approaches in favour of a more “active” role of the child in the learning process (e.g. active teaching, inductive teaching). In this regard, unlike other learning contexts, the physical-motor domain allows the integration of the most traditional form of frontal teaching with more engaging, attractive and captivating forms of learning. The most innovative and engaging aspects that might be integrated in any contemporary teaching approach are the following (Pesce, Marchetti, Motta & Bellucci, 2015):

- **Playfulness:** the majority of motor activities can be implemented in a ludic form by adopting playful situations and mini-games that create enjoyment and pleasure associated with the gesture;
- **Cooperation and fair-play:** the motor activities proposed should include the aspects of expressive-communication as well as the socio-relational component allowing the formation of small and large groups in which each child can know, discover and assume active roles to complete a given task and become aware of the rules and of the fair-play;
- **Self-efficacy:** every motor activity proposed should be oriented at the development of children’s self-efficacy, intended as the awareness of the potentials and capacities of one’s body to succeed in specific situations or accomplish a given task. Indeed, each experience of motor learning represents a sort of personal enrichment that contributes to the formation of one’s sense of self-efficacy, self-confidence and self-control;
- **Innovation:** new technologies and teaching approaches should not be seen as a threat for children’s learning process but, conversely, if properly implemented, they should be considered as an innovative and meaningful resource to stimulate children’s knowledge and make them aware of the health-related benefits achievable through movement and regular physical activity;
- **Variability:** the variability of the practice of movement activities proposed represents the key strategy to induce positive adaptations and enrichment of children’s cognitive skills in general and of their executive functions.

We believe that by including these innovative and contemporary aspects in their teaching approach and didactic methodology, future PE teachers will be able to integrate and/or replace the traditionally adopted teaching methods based on the generic and standardized sequences of exercises to acquire a determined skill, with forms of enactive teaching, which takes into account the characteristics and particularities of each individual (Rossi, 2011).

Assessing

In order to evaluate children’s progress in the learning of motor skills as well as improvements of physical fitness i.e., an important marker of health among children and adolescents, another important and required skill for future PE teachers is both a theoretical and practical knowledge of assessment procedures and physical-motor test batteries. In this regard, the moment of assessment of one’s skills should not be considered as an end point of the teaching process, but conversely, an available tool for the teacher to monitor constantly the efficacy and benefits of the teaching approach adopted (Calvesi & Tonetti, 1984). The initial assessment (e.g. at the start of a school-cycle and/or school year) should be constantly updated as the child’s morphological, motor and socio-cognitive characteristics change very quickly during the developmental age (Malina, Bouchard & Bar-Or, 2004).

We propose here a series of basic and field-based fitness tests that, from our perspective, every PE teacher should know and apply objectively and with rigour to periodically monitor changes of children’s motor capacities and physical fitness.

A six-monthly update might be sufficient to monitor changes of children’s anthropometric and body composition characteristics associated with cardiometabolic risk factors (e.g. body mass index (BMI), waist circumference (WC) and skinfold thickness). The BMI can be calculated by dividing the body mass (weight, in kilograms) by the square of the height (in metres) and allows the non-invasive classification of children, based on their sex and age, as underweight, normal weight, overweight or obese (Cole et al., 2007). The WC is known to be a better predictor of cardiovascular risk factors than BMI, and can be easily measured by placing an inelastic tape horizontally around children’s waist (Moreno et al., 2007; Sarria et al., 2001). The skinfold thickness can be measured with a skinfold caliper and adopted to estimate body fat percentage (Reilly et al., 1995; Slaughter et al., 1988).

In addition to the monitoring of anthropometric and body composition characteristics the following field tests can be adopted to evaluate changes in children’s physical fitness. The 6 minute walking test (6MWT)(Li et al., 2005), the 1-mile run/walk test (Rikli et al., 1992) or the 20m shuttle run test (Mahar et al., 1997) can be adopted to reliably assess children’s cardiorespiratory fitness (Artero et al., 2011). Musculoskeletal fitness can be assessed with the handgrip strength test (Moleenar et al., 2008), the modified pull-up test (Cotten, 1990) or the standing broad jump test (Ortega et al., 2008). The V-Sit & Reach Test can be used to assess hamstrings and low-back flexibility (Knudson, Magnusson & McHugh, 2000). Children’s motor fitness and

dexterity can be evaluated with the 4x10m shuttle run test (Ortega et al., 2008) or through balance tests (1-leg standing balance and tilt board balance test) (Atwater et al., 1990).

In addition to the field-based tests proposed above, validated self-reported questionnaires can also be adopted to monitor changes in children's physical activity habits in a convenient and affordable way. For instance, the Previous Day Physical Activity Recall (PDPAR) can be useful to capture changes in children's spontaneous physical activity after school hours (Weston et al., 1997). Nevertheless, self-reported questionnaires have their limitations (e.g. potential for social desirability and recall bias), and hence they should be combined with more objective measurements such as accelerometers to reliably and validly monitor changes in PA levels (Hidding et al., 2018).

Conclusions

The development of sectorial knowledge and professional skills are essential components that define PE teacher as "competent" and a PE programs as "effective". What else is needed to ensure the success of the educational action? We believe that, in addition to the two main competencies described above, a strong personal motivation inspired by the passion for movement and a proactive attitude toward the teaching action are the fundamental ingredients to achieve a successful educational action. In simple words, it means taking always new initiatives, being flexible to adapt the teaching approach to a dynamic and ever-changing context (e.g. environment, equipment availability), and more importantly, tailoring the educational action on the individual's characteristics and uniqueness. Such attitudes will enrich the teaching process and consequently facilitate children's learning and personal development, since they constitute the key elements through which the educational problems are interpreted and simplified. A strong motivation and attitude for the teaching experience will help future teachers, that represent the cornerstones of the educational process, to achieve a successful educational action, which will be named "pedagogical success".

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