

PHYSICAL LITERACY AND MINDFULNESS ATTITUDE: A MEETING OF MOTOR COMPETENCE AND SELF-AWARENESS

PHYSICAL LITERACY E ATTEGGIAMENTO MINDFULNESS: UN INCONTRO TRA COMPETENZA MOTORIA E CONSAPEVOLEZZA DI SÈ



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ABSTRACT

This contribution explores the integration of physical literacy and mindfulness as a possible educational approach to promote balanced psychophysical development in young people. Through a review of the literature and an analysis of the main body awareness techniques, a synergy between motor skills and emotional awareness is proposed that can respond to the challenges of an increasingly sedentary society. The results suggest that such a combination may foster greater active participation and emotional well-being, enhancing the school experience and interpersonal relationships.

Questo contributo esplora l'integrazione tra physical literacy e mindfulness come possibile approccio educativo per promuovere uno sviluppo psicofisico equilibrato nei giovani. Attraverso una revisione della letteratura e un'analisi delle principali tecniche di consapevolezza corporea, viene proposta una sinergia tra abilità motorie e consapevolezza emotiva in grado di rispondere alle sfide di una società sempre più sedentaria. I risultati suggeriscono che tale combinazione possa favorire una maggiore partecipazione attiva e benessere emotivo, migliorando l'esperienza scolastica e le relazioni interpersonali.

KEYWORDS

Mindfulness, Physical Literacy, Well-being, School
Mindfulness, Physical Literacy, Benessere, Scuola

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Introduction

In recent decades, the wellbeing of children and adolescents has become a priority for educators and researchers (Mariani, Schiralli, 2002; Raciti, 2024; Faraci, 2023), who seek to respond to the challenges posed by modernity, including increasing sedentariness, anxiety, and declining engagement in physical activities. In this context, physical literacy and mindfulness are emerging as complementary and potentially synergetic approaches to promote integrated development, which is not limited to the acquisition of physical skills, but also includes mental and emotional awareness. The combination of physical literacy and mindfulness (Schaefer, 2020; Kan et al., 2024) represents an innovative and potentially effective approach to address modern needs for holistic well-being in young people. On the one hand, physical literacy provides them with the skills, confidence and motivation to be physically active, promoting benefits for physical health and motor development (Whitehead, 2010). On the other hand, mindfulness fosters greater self-awareness, improves emotion regulation and supports coping with stress, promoting stable psychological well-being (De Simone, 2015). The possible integration of these two approaches addresses the need for a pedagogy that considers the young person as a whole, promoting not only motor and cognitive skills, but also a deep mind-body connection (Benetton, 2012). Teaching children and adolescents to move consciously can transform their relationship with the body, improving both physical skills and the quality of emotional and cognitive experiences related to movement. Moreover, this approach can be particularly useful in countering the growing phenomenon of sedentariness by fostering intrinsic motivation for active participation through an experience that is perceived as enjoyable and rewarding (Pennucci et al., 2018). The present work aims to explore the interplay between physical literacy and a mindfulness attitude, highlighting how these two approaches can mutually enhance each other to support students' integrated development. Through an analysis of the theoretical underpinnings, this paper aims to offer a holistic and integrated view of physical literacy that promotes not only motor competence but also physical and mental awareness (Rudd et al., 2020; Venkatesan, 2022).

1. The theoretical framework

The concept of physical literacy can be understood as a construct that encompasses competences such as motivation, self-confidence, physical skills and knowledge necessary for each individual to appreciate and take responsibility for their participation in physical activity throughout life (Whitehead, 2010). Physical literacy aims to develop a positive and conscious connection to movement, making the individual capable of facing and adapting to a variety of physical challenges, thus promoting not only physical,

but also mental and social well-being (Jurbala, 2015). In the context of an increasingly sedentary and digitised lifestyle, this competence is of crucial importance for preventing inactivity-related diseases, such as obesity and cardiovascular diseases, and for promoting an active and healthy lifestyle. According to Whitehead (*ibid.*), physical literacy is not just a matter of knowing how to perform specific movements or sports, but is a predisposition that embraces the entire relationship with one's body and with physical activity, be it of a sporting, recreational or everyday nature. Physical literacy, therefore, is not limited to simply performing movements or sports skills but represents a predisposition to develop a lasting and positive relationship with physical activity, thus contributing to an active and healthy lifestyle (Hulteen et al., 2018). Several studies have shown that physical literacy plays a crucial role in the development of confidence and acquisition of fundamental motor skills, which in turn contribute to psychological well-being and perceived self-efficacy in children and adolescents (Edwards et al., 2017). In education, the importance of physical literacy is growing. Studies show that children with higher levels of physical competence are more likely to participate in different motor and sport activities, reducing the risk of sedentariness (Giblin, Collins, & Button, 2014; Colella, 2018). Furthermore, promoting early physical literacy can counteract the phenomenon of sports dropout during adolescence, as young people acquire not only physical skills, but also the motivation and confidence to continue being active (Barnett et al., 2015). Research suggests that this competence is fundamental for an active and healthy life, and therefore a priority goal for school physical education. The possible integration of physical literacy and mindfulness represents a promising holistic approach to promoting mental and physical well-being. Results from the literature suggest that mindfulness can enhance the benefits of physical activity by improving body awareness, reducing anxiety and promoting intrinsic motivation. This integrated approach can be implemented in educational and sports programmes to encourage a culture of well-being and physical activity, providing young people with tools to face physical and psychological challenges in a positive and mindful manner. Mindfulness, through focused attention on sensations and movements, encourages a more precise perception of the body in space, thus developing a greater sense of body awareness. The concept of mindfulness has its roots in Eastern meditation practices, but in recent decades it has gained attention in the Western context, where it is used as a technique for self-regulation and promotion of psychological well-being (Mele, 2010). Kabat-Zinn (1990), one of the pioneers of applied mindfulness, defines it as the awareness that arises from the act of bringing intentional attention to each experience, focusing on the present moment and taking in what is happening without judgement. In the educational context, mindfulness has been shown to have positive effects on a number of psychological indicators in young people, including reducing anxiety, improving attention, and regulating emotions (Zenner, Herrnleben-Kurz, & Walach, 2014). Turning our

attention towards Embodied Cognitive Science, we can state that, in their perspective, mind and body are deeply interconnected (Contini et al., 2006; Roberto, 2022; Di Francesco, Tomassetta, 2021). Awareness of one's body in movement can improve the quality of motor experiences and contribute to more meaningful motor learning (Shusterman, 2012). According to this approach, moreover, emotion and cognition are inseparably linked to our bodily experience and interaction with the environment: in the process of learning and cognition, feeling and perceptions play, therefore, a fundamental role (Caruana, Borghi, 2013; Gomez Paloma et al., 2016). Starting an awareness training course on feeling as early as school age is helpful in creating a situation of well-being for the individual who will be able to consciously coordinate the spheres of emotion and cognition (Tosi et al., 2021). Conscious Attention and Self-awareness activities highlight the functionality of bodily and emotional experience in learning processes and the importance of the state of awareness in educational action (Siegel, 2009). The interplay between physical literacy, embodiment and mindfulness is an emerging theme that can find a recursive practical-theoretical declination in educational and didactic planning, not only with regard to motor education curricula but also involving the world of training and schooling more broadly (Ennis, 2015).

2. Operational proposals for Conscious Attention and Self-awareness with a Mindfulness approach

Given these premises, the inclusion of Conscious Attention Techniques in educational contexts proves valuable and desirable through the application of specific Programmes where the functionality of bodily and emotional experience in learning processes is tested, validated and contributes to the training of students and teachers. Therefore, in this paragraph we will see which of the many Awareness Activities have been identified as most suitable for the purpose of creating an Integrated Programme to be implemented in some Italian schools participating in the research project. Self-awareness Techniques have proved to be suitable for this purpose thanks to numerous experiments including research carried out by the Institute of Psychosomatic PNEI since the late 1980s (Bottaccioli & Bottaccioli, 2005). Research has highlighted the Cerebral Coherence between the parts of the brain and the individual's psychophysical state, showing significant changes in Consciousness following the practice of Techniques that, through Conscious Attention to Feeling, harmonise the interaction between mind, emotions, body and environment, proving to be useful tools for developing the state of awareness that predisposes to learning (Montecucco, 2005). The PNEI Institute of Psychosomatics itself has begun to experiment the Techniques also in the educational

and scholastic sphere with the 'Gaia Project', arriving in 2019 at more than 36,000 people involved throughout Italy among teachers, students and psychotherapists (Ghiroldi et al., 2020). The Conscious Attention to Feeling and Breathing activities make it possible to get in touch with bodily perceptions and balance emotions by integrating them with the cognitive sphere and the environment. In particular, the Energetics Exercises (Lowen, 1998), Psychosomatic Mindfulness and the Psychosomatic BodyScan (Scafuto et al, 2022) proposed with a workshop approach, both structured and experimental, practical and interactive, predispose to knowledge thanks to the state of psychophysical wellbeing they promote, where one lives the present moment with curiosity and non-judgment, reducing distractions and states of stress, in favour of life-skills (Buccolo & Ferro Allodola, 2023;), creativity, conscious short- and long-term choices and actions. These techniques make it possible to relieve psycho-physical tensions, improve self-esteem, empathy, communication and relational skills, get in touch with bodily perceptions, balance emotions with each other by integrating them with the cognitive sphere and with the environment in favour of a concrete educational action, at school, and of the lifelong training of the individual. Self-experience itself through listening to the Body and observing the Emotions is a process of Knowledge. The Energetics Exercises (Lowen, 1998) are not gymnastic exercises, but Conscious Movements synchronised to the Breath that allow one to get in touch with the Body through Conscious Attention to Movements and Feeling and to acquire awareness of sensations, identify any psychosomatic blocks and dissolve them with the breath. The Gentle Exercises help to experience calmness through slow and gradual movements, to feel the progressive relaxation of the body, lightness, tranquillity; they serve to reduce stress through the stimulation of the parasympathetic nervous system. The Strong Exercises allow you to experience vitality and motivation, enthusiasm and determination; they are active, re-charging movements that help overcome shyness, insecurity, balance fear, develop self-esteem, security, and activate self-awareness through the sympathetic nervous system. The Exercises conclude with a few minutes of silence, mindfulness and observation of the breath until global awareness of the body and surrounding space is achieved, and at the end with a sharing circle time.

3. The Bodyscan

Psychosomatic Bodyscan is a process of self-observation that helps to get in touch with the Body, to understand its language. It allows one to gently and consciously identify, manage and dissolve any psychosomatic blockages that occur during practice, transforming them into resources and bringing physical, emotional and mental awareness (Gan, Zhang & Chen, 2022) . Blockages can be stress or frozen emotions and can manifest in various parts of the body, mainly in the belly, chest or throat, but also in the

breath, taking on shapes, colours, textures, sensations. Becoming aware of them during practice allows one to reduce their impact and release them by bringing out human resources that help the individual to maintain a state of well-being even outside of practice, to find calm and concentration, and even resources to realise one's potential. Psychosomatic mindfulness aims to facilitate a detailed body and emotional awareness is an essential and direct practice that allows one to experience an integrated awareness of self, in which body, emotions and mind merge, giving rise to a unified perception of existence (Scafuto et al, 2022). One begins the practice by bringing attention to the body with a light Bodyscan and then fosters a state of silence and presence through conscious attention to the breath in the body. If thoughts, emotions or blockages arise during the practice, the person is invited to observe them without trying to get rid of them and without judging them, remaining in contact with the breath.

Gradually a sense of Oneness emerges in the person, deep feelings such as lightness, relaxation, loving-kindness. At the end of the session, people are invited to share their experiences, to describe the sensations they have felt, whether pleasant or not, physical or emotional tensions, to identify any difficulties and to focus on the resources they have acquired. It is an important processing phase that in the group becomes a moment of choral awareness useful for entering into a more empathic and non-judgmental relationship with oneself and with others in a protected space that favours listening without judgement and the possibility of expressing oneself with sincerity and freedom. Even at the end of the Energetics Exercises and the Psychosomatic Body Scan, the moment of sharing is favoured, which can take different forms (ibidem). These techniques, integrated in a specific school programme and repeated several times over time, nurture deep emotions and inner resources useful for learning, activate the mental, emotional and physical balance of the individual, but also of the group of pupils and teachers, favouring inclusive contexts (Ghiroldi et al, 2020) . This happens during practice, in the environment where it took place and among the people involved, but also in everyday life, i.e. when the techniques are not practised and in environments outside the protected space that has been built at school, as people become capable of managing unpleasant emotions when they arise, of drawing on their matured potential, and often also of recognising and dissolving psychosomatic blocks by practising Conscious Attention to Feeling. Practising the techniques means, in fact, also 'training' Conscious Attention and developing it as a Life-Skill always available for a basic Individual and Relational Well-Being that is self-sustaining and contributes to the construction of knowledge and lifelong learning (Corona et al., 2018; Buccolo & Ferro Allodola, 2023).

4. Heart coherence

Among the many mindfulness activities, the practice of Heart Coherence situated be-

tween physiology and psychology, also shows revolutionary potential in the field of education. Heart Coherence, is a breathing technique that modifies our heart rate (HRV) and has an impact on emotion and stress management and our cognitive performance. Heart Coherence, studied by the HeartMath Institute, uses HeartMath techniques or technologies to achieve beneficial results, including in education. The practice of Heart Coherence is supported by heart rhythm coherence monitoring and biofeedback technology, which helps us understand how to change our heart rhythm patterns. These devices allow individuals to monitor their HRV and level of heart coherence in real time, which is calculated using a special algorithm that translates what is happening at the heart rhythm level into a number, ranging from 0 to 15 and which, the higher it is, the more it signals a high state of coherence and balance. These devices are designed to provide immediate feedback, facilitating learning and regular practice of cardiac coherence techniques (Yang et al., 2019). Our HRV patterns are chaotic or coherent, depending on our emotional state, and we can change them through a particular breathing exercise and remembering the experience of positive emotions. The HeartMath Institute has developed a series of techniques specifically designed to increase cardiac coherence, integrating evidence-based approaches with practices that are easily applied in everyday life. Heart-focused Breathing, one of the techniques used by HeartMath, encourages individuals to breathe deeply, rhythmically and steadily, imagining they are breathing through their heart or chest centre. This method helps synchronise heartbeat, breathing and blood pressure, facilitating entry into a state of heart coherence (Morrison et al., 2010). Studies conducted in schools (Connolly, 2009; Aritzeta et al. 2022) analyse the importance of using heart coherence and explore the benefits obtained in educational settings, suggesting new ways of dealing with stress and emotions, improving well-being, learning and academic performance, and showing the interaction between body and mind. In school environments, techniques to improve heart coherence can bring concrete benefits such as improved concentration, stress management and better interpersonal relationships. The TestEdge programme, applied in a primary school in Southern California, showed significant positive results, reducing anxiety and improving students' concentration through breathing and heart coherence techniques. This led to improved standardised test scores, with students' proficiency increasing from 26% to 47% in English language arts and from 60% to 71% in mathematics. This success has been attributed to the strong support of the headmaster and teachers (McCraty, 2016). A study conducted in a primary school in Southern California showed remarkable positive results. Teachers used breathing techniques and heart coherence during breaks between lessons, reducing anxiety and improving students' concentration. This led to a significant increase in scores on state standardised tests, exceeding the school's annual targets. The percentage of students proficient in English language arts rose from 26% to 47%, and in mathematics from 60% to 71%.

These results indicate an improvement not only academically, but also behaviourally and emotionally, attributed to the strong support of the headmaster and teaching staff. The example demonstrates the profound impact that self-awareness programmes can have on both the academic performance and general well-being of students (McCraty, 2016). Another study conducted using a programme based on HeartMath techniques in Irish schools, involving 243 primary and secondary school students, investigated the effectiveness of these practices as a means of improving students' self-regulation of emotions and assessed the associated improvements in students' emotional stability, relationships and general well-being through the use of the Strengths and Difficulties Questionnaire (SDQ). Based on the SDQ scales, primary school students showed a statistically significant reduction in emotional problems (51%); conduct problems (43%); hyperactivity (40%); and a significant improvement in relating to peers (50%). According to the scales, post-primary students had significant reductions in hyperactivity (12%), emotional problems (9%) and conduct problems (9%) and showed improvement (27%) in relating to peers (Connolly, 2009). Thus, a high coherence coefficient is associated with numerous health benefits, including: improved emotional regulation, as high HRV coherence is linked to a better ability to handle stress and negative emotions; improved autonomic nervous system efficiency as high HRV coherence reflects an optimal balance between sympathetic and parasympathetic activities of the autonomic nervous system; and some studies suggest that higher HRV coherence may improve cognitive functions such as concentration, memory and decision-making ability (McCraty, Zayas, 2014).

Conclusions

This study underlines the importance of integrating physical literacy and mindfulness in education, highlighting how this combination can be an effective bridge between motor development and self-awareness. This integrated approach stands as a possible response not only to the need to combat sedentariness and improve physical skills in young people, but also contributes to the development of skills crucial for emotional regulation and resilience to stress. The concept of physical literacy, considered a key factor for a positive and lasting relationship with physical activity, finds in mindfulness an ally that strengthens its cognitive and emotional component, transforming movement into a conscious and deeply meaningful experience (Whitehead, 2010; Ghiroldi et al., 2020). The results suggest that introducing programmes based on these principles into the school context can not only promote students' physical and psychological well-being, but also improve the school environment by reducing anxiety phenomena. The body awareness and stress management techniques explored, including body

scanning and heart coherence, demonstrated positive effects on both cognitive and behavioural levels, outlining a holistic educational method capable of involving mind and body in a single process of personal growth. In this perspective, the integration of physical literacy and mindfulness represents not only an innovative educational proposal, but also a potential educational model for collective well-being, with applications that go beyond the school environment. For the future, it will be important to investigate the effectiveness of this approach with further longitudinal studies and to evaluate its long-term impacts on both students and teachers, with the aim of implementing programmes that can be replicated on a larger scale. In a rapidly changing educational context, such practices have the potential to train resilient young people who are aware of and in balance with their bodies and emotions, thus responding to the growing need for psychological and physical well-being in future generations (McCraty, 2016; Connolly, 2009).

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