

Original Article

Stage of nature and motor knowledge in the primary school. Teaching physical education in an open environment.

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Abstract

This contribution proposes an approach to the teaching of physical education in Primary School through the promotion of a stringent relationship between nature, body and movement. Recent studies indicate the natural environment as a great setting for a huge gym, where the child moves and plays, discovers and learns in a sustainable and inclusive context. The roots of outdoor education can be found in the Italian pedagogical lesson, which developed from the end of the nineteenth century and revives in recent years. Retracing the various contributions of scientific research and the indications of the most important international organizations that deal with the need to expand the motor skills of children and the risks of sedentary lifestyle, the work intends to demonstrate how the contribution of motor science is necessary to further enhance the results achieved with the outdoor school projects and promoting healthy lifestyles, the sense of psycho-social well-being, the development of more complex motor skills in a scenery where movement is combined with the concept of freedom, respect for nature, sustainable development. Motor education in open educational contexts reinforces the idea of: "school without classrooms", living in contact with nature, the possibility for children to consolidate and strengthen coordination skills, in order to develop important socialization processes. However, the outdoor school is still an experience to be developed on the national territory and, above all, it is important to expand the contributions of motor activities and the culture of movement. The proposed work, in fact, intends to demonstrate how motor activity, through its constructive, exploratory, communicative, creative and symbolic specificity, contributes to the development of the experience achieved so far with the broad planning of the outdoor school.

Key word: Outdoor education, movement, nature, growth, school.

Introduction

Outdoor movement education and environmental sustainability

This work supports the concept of integrated education through a school model that values outdoor education and the culture of movement as a pedagogical orientation capable of soliciting methodological and didactic choices that allow you to experience the natural environment as a place of training. The design of outdoor-based educational activities is essential for young and childhood, with the main aim to increase the level of development of fundamental movement skills (Schembri, Quinto, Aiello, Pignato, & Sgrò, 2019), to support the strengthening of the sport-based competences (Sgrò, Barca, Schembri, & Lipoma, 2020) At the same time, the outdoor-based physical activities can be useful to support an healthy aging process in a life-long perspective by contrasting the balance disorders which often affect old people (Sgrò, Licari, Coppola, & Lipoma, 2015). The networks of state schools spread patchily throughout the country constitute a first important response. Along this track, the organizational and qualitative level reached by those educational systems (Northern European countries) was investigated, which made it possible to assess the level of diffusion of OE in Italy and to start a reflection on the strengths and weaknesses of the experiences done so far. The interpretative key of the work sees the culture of movement in a central position as a proposal for a more complete interpretation of outdoor education and good practices spread through the experiences of "schools in the woods", "outdoor schools" and "farms" didactic ". In fact, doing school outdoors in itself does not mean spending more time outside the classroom or engaging students in physical and motor activities by imitating what is done indoors. Rather, it is necessary to structure specific didactic tools so that movement becomes essential in all stages of learning, characterized by adequate levels of motor knowledge and sensible improvements in coordination and conditional skills essential to trigger correct lifestyles.

Material and Methods

Pedagogical approaches studies on the themes of the culture of movement and environmental sustainability. The survey examined the concept of physical education and the development achieved in Italy at the end of two centuries. The theme of movement and the natural environment has become increasingly

important and to enhance the holistic development of the child. The school focused on the methodology of outdoor education represents a strong educational innovation to combine the themes of respect for the environment. Physical education lies within that new educational design with the task, among other things, of recovering the relationship with nature, with the territory in which one lives, with the green of the city, with respect for the environment. The movement has in itself the characteristics to formulate a series of educational and specific objectives that connect the new generations to the more general battle on environmental sustainability, on the need to change lifestyles, re-evaluating behaviors that develop the links necessary for the affirmation of a new civilization founded on the virtuous symbiosis between man and nature. Addressing the theme and the innovative implications of outdoor education, expressed through the contribution of the movement, means first of all, becoming aware of the limits of the pedagogical proposal that has established itself in our country in a hegemonic way since the last century.

The OE originates from different sources of philosophical thought and from the pedagogical theories developed in distant years. Pedagogy between the 19th and 20th centuries addressed the issue of the importance of the natural environment for the holistic development of the child, identifying nature as a necessary and irreplaceable learning environment for the promotion of knowledge of the world, of oneself and on the other, basing his own ideal of new schools and active teaching. (D'Ascenzo, 2018). The sisters Rosa and Carolina Agazzi, Pizzigoni are one of the most significant examples of childhood education in an activist sense, reworking the pedagogical principle of Fröbel and the concept of Kindergarten: the child is an active being, deep inside there are internal forces that determine its development and must be promoted. The teaching in open spaces favors the physical development of the child, introduces him to nature, puts him in contact with a natural environment that reflects his daily environment. A. Ferrière, main architect of the common culture of the active school in Europe, argues that the aim of education is first of all to guide the student to converge the will and intelligence towards an aspiration to rise, favoring the slow process adaptation to the world through work, education in freedom and freedom, allowing him the full realization of that freedom through an environment in which he can live and be active. Further on, Maria Montessori's method, applicable in any socio-cultural environment, at any age of development, will be characterized by the possibility provided to children to do it alone, with adult guidance limited to the presentation of stimuli and educational material. In a personalized sequence or requested by the children themselves for practical and semantic help. In this logic, it should be remembered the position of undisputed centrality of the relationship between nature and outdoor life occupied since the development of the principles of Baden - Powell's scouting, which is fully part of the wide and varied cultural movement, which developed between the of the nineteenth and early twentieth centuries, aimed at promoting the recovery and development of moral and civil virtues, threatened by the processes of urbanization and massification of society, through contact with wild nature. The expansion of open-air schools in Europe and Italy multiplied in the years when it was necessary to combat the scourge of the fight against tuberculosis and malnutrition between the two world wars.

It was men and women like Mario Ragazzi in Genoa, Francesco Fratus in Bergamo, Argia Mingarelli and Maria Chiara Serra in Bologna, Gaetano Grilli in Rome, Michele Crimi in Marsala who, starting from those needs, managed to intercept the innovative pedagogy of schools. new Italian and European, providing new elements for a teaching that respects the natural environment. A didactic placed in the wake of the best European and Italian pedagogical tradition, capable of establishing a fruitful overturning of the old didactic system of the traditional school. Today's outdoor school no longer has any reference to therapeutic practice, it interprets a complex non-traditional pedagogical, didactic and organizational model. A connection point is that with Dewey's pedagogical activism. Individuals not only learn through closed and repetitive organizational models, but "learn by doing". It is practical experience that constitutes the starting point for all knowledge and all learning. The studies of E. Dale and his Cone of Learning show that the involvement of the senses and experience influence human memory: the more the individual is actively involved in learning, using synergistically all the perceptive and cognitive faculties, the greater it will be the effectiveness and duration of the learning itself. Experimentation in the field and direct experience of what you want to learn are the best ways to assimilate it in a deep and lasting way. It should be noted, however, that the experience as an end in itself does not constitute the starting point of learning by doing, but the awareness and reflection on the connections between the activity that the subject carries out and the resulting consequences.

Today, many international documents collect and strengthen the thesis of learning by doing. The 2014 guidelines for environmental education, the objectives of "Learning for the future. Competences in education for Sustainable Development" (UNECE, 2005-2015), the UN Agenda 2030 for Sustainable Development in the part dedicated to Quality Education: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all are important examples on new perspectives of school. What is proposed for the new learning strategies, in accordance with the European objectives of the key competences, is an educational path to sustainable development, so that this is increasingly integrated and convergent in the specific curricular paths of the different orders and degrees of education. The guidelines and the various planning agendas of state and European interventions promote the image of a school that will have to assume sustainable environmental education as a sort of pedagogical identity, to provide people with knowledge and skills in sustainable development, making them more competent and safe and increasing their opportunities to lead healthy and

productive lifestyles in harmony with nature and with a concern for social values, gender equity and cultural diversity. The scarce consideration of the culture of movement in Italy has not only made it possible to historically devalue its strong innovative capacities on an educational and didactic level, but it has prevented us from fully grasping the novelties of the fruitful relationship with educational processes that in other areas of Europe aforementioned have strongly established themselves, favoring cultural, emotional-relational, economic-social dynamics that have determined positive lifestyles and collective behaviors respectful of personal care, the need to achieve and maintain a healthy balance between man and nature through models of environmental sustainability centered on motor activity, on the conception of spaces and life times. Studying human movement not only involves the discovery of motor learning and movement control but allows you to verify in the field how they develop and are enhanced with physical activity, it implies the recognition of movement as an essential basis for the acquisition of broader knowledge, skills and competences needed to explore the environment. The relationship between nature and education was one of the central themes of pedagogical experimentalism. Pedagogical activism and educational planning around the themes of air, movement, nature, health have contributed to overcoming the gap between the setting of studies that claimed to divide the child into areas of cognitive, emotional, sensory-motor functioning, relational.

The sense-perceptive experiences are by their nature actions through which we explore the world and this activity not only allows us to develop the different intellectual abilities (Gardner, 1993), but to do so actively. The active exploration of the environment, through motor sensor analyzers, urges the perceiving subject to interact with it, developing thoughts and actions in a correct relationship between subject and environment. Gibson's ecological approach allows us to assume the idea that the senses are perceptive systems capable of grasping the invariant elements of the environment, which in turn provide valuable information on how to carry out a certain action and how to use the environment: no longer considered a simple manipulative physical property available to man, rather a space of opportunity, a source of indications, interactions, affordances offered to the constructive intelligence of the subject (Farneti&Grossi, 1995). It is only in the dialogue with the territory that Outdoor Education can be the key to the integrated school and extra-school education system (Frabboni& Minerva, 2013). Not only thinking about the prospects of a healthy free time, but also about the time spent at school, where the competition, the contents released from the context, the convergent thinking and the frontal teaching, which end up reducing the spaces of autonomy, of freedom, win. of concrete discovery, of decision making. The OE represents a pedagogical orientation capable of enhancing the opportunities for learning outdoors and understanding the external environment as a place of training (Farné et. al, 2014). "Over the past fifty years our lifestyles have changed significantly; the increasingly intense pace of work, the increase in female employment, a new perception of "dangers" and the spread of new technologies have progressively distanced man from nature and made the necessary contact with the natural environment more difficult " (Schenetti et al., 2015). In an era like ours, characterized by the omnipresence of technologies and a consequent distance from nature, there is an increasing need to remember that from contact with nature there are multiple benefits for the psycho-physical development of the child.

The increasing weight of technology, which McLuhan had stigmatized as a form of progressive dehumanization of the subject in the 1960s, has led man to a dangerous estrangement from nature. Today we observe that the life of many children is not suitable for their needs because they are too sedentary, isolated or subjected to frenetic rhythms. This is why we see the need to restore value to the natural environment, considering it a very rich resource for the cognitive, motor, social and emotional development of the child. Furthermore, a further objective is to rethink practices in educational and school services and to affirm that an educational model is taking hold that challenges the traditional school structure in favor of an approach that considers children not "imprisoned" in the system, but thinking beings who value education not as an "organized staticity", but as a natural aspiration, a joy (Gray, 2015).

Results

Strengths and weaknesses of the Italian experience of outdoor schools

A study was carried out of the different educational experiences carried out in open environments in the main European countries to understand the possibilities to extend those experiences in our country, not neglecting the historical diversity of cultural, educational and environmental systems that have influenced or hindered the spread. On an international level, the different educational experiences that characterized the spaces and time of school time were rich and varied. It should be emphasized that the comparative research of the EF curricula of primary schools in Northern Europe (Eurydice Report, 2013; Pignato,2016) has brought out the specificity of the practice of outdoor education and the culture of movement as prerogative of some countries, in particular Scandinavian and Central European ones. Learning that takes place "outside" favors the choice of leaving the ordinary environments of education and with them also traditional teaching, to move permanently to places where learning develops in close contact with the specific and located experiences of the open spaces.

The distinctive character and identity of Outdoor Education are based on the potential that is realized through educational awareness, which can benefit from meaningful learning. Other characteristic elements are the consideration of the learning spaces transferred beyond the classroom and located in the natural environment,

favoring a new awareness of the problems present in cultural and social life. In Finnish schools, you learn from what forests make available, using the natural world as a starting point and as material for lessons.

In Finland, the 2016 Finnish national core curriculum emphasized the importance of experiential and holistic learning that had to be fully implemented in open environments, as a tool in compulsory school education. Nature schools, which provide "outdoor add-ons" to compulsory education, were forerunners in the field of OE. Nothing is left to chance. Children perform numerous exercises, move, learn by playing and do not sit for hours on a chair, as happens in traditional schools. The individual lessons are structured in a very careful way making sure that teachers can use what is at hand in the woods, adapting the lessons to the season in which they are. Certainly, a little free time cannot be missing between one lesson and another, but this too is designed to leave children the opportunity to discover, to learn from nature while having fun. Udeskole is the concept of the Scandinavian "outdoor school" developed for several years now (Mygind, 2009; Bentsen & Jensen, 2012) aimed at children aged 7 to 16 years and is characterized by compulsory educational activities outside of school on a regular basis. In some contexts, such as the Norwegian one, it allows to carry out simultaneously and in an integrated manner academic, communicative, experiential and social interaction activities, able to stimulate spontaneity, play, curiosity and imagination. T

he Udeskole represents a real philosophical orientation that is well integrated into the national educational systems of the Scandinavian countries. In Denmark, for example, in 2014 as many as 18.4% of all public schools regularly transferred some of their subject teachings to places outside the classroom, reaffirming the importance of movement, physical activity and outdoor education. Eight years have now passed since the approval of the national guidelines for the first cycle of studies, a reasonable time to put into practice what has been stated on outdoor motor activity. It is improper to speak of delays again, rather it is a question of precise cultural and institutional choices which do not take into account what the scientific literature has long produced on the benefits that movement brings to the correct overall development of the person and which penalize motor education in an important segment of the population. We must avoid that the cultural proposal of the "outdoor school" remains a methodological-didactic option supported and undertaken by a few. Developing the teaching of "open-air schools" throughout the national territory will make it possible to accommodate an important part of the national guidelines of 2012, which among other things states that "Motor activity practiced in the natural environment is a decisive element for an integrated educational action, for the training of future citizens of the world, respectful of human, civil and environmental values. Participating in motor and sports activities means sharing group experiences with other people, promoting the inclusion of students with various forms of diversity and enhancing the value of cooperation and teamwork. Play and sport are, in fact, mediators and facilitators of relationships and "encounters". Proceeding swiftly in the organization, in economic and financial support, in staff training, in the construction of a shared network between school, territory and voluntary service will entail a significant turning point in the affirmation of good practices, in the dissemination of the culture of movement, in development motor-sports education.

Discussion and conclusion

The World Health Organization in the new 2020 guidelines proposes to combat sedentary lifestyle through the physical activity widespread in all all ages. The Ministry of Health in its Guidelines for Physical Activity in the Age Group of Development "recognizes the weight of economic and political determinants in areas such as town planning and transport, education, the economy, sport and culture (p. 10) Physical activity plays a key role for the development of the functional prerequisites of movement, such as the progressive clarification of the perception and self-image in the relationships between the body segments and between one's body and external reality, sense-motor coordination, the organization of space-time, balances and lateralization, static coordination and general and segmental dynamics. p. 23. Strengthening the performance of these activities in an open environment has a double value and serves to support new trends of young people with respect to body expression and do not underestimate the role of destructured activities, which have as their scope the open places. All this recalls the role of the school in developing systemic interventions within a methodological outline capable of starting a collaboration with all the actors in the process of protecting health and well-being in the school environment. In this context, the pedibus, the bicibus, the "active breaks (max 10 minutes), represent valuable opportunities to increase the levels of physical activity both inside and outside the school class. A simple strategy that has physical, social, emotional and cognitive benefits for children and adolescents.

The time available is very limited, there are many delays to make up for. The data on the sedentary lifestyle that begins at home and continues at school, interspersed with the (insufficient) motor-sports activities at school are worrying. The Global action plan on physical activity (2018-2030) recommends for subjects aged 5 to 17 to carry out at least one hour a day of aerobic physical activity, of both moderate and vigorous intensity sufficient to obtain benefits for physical and psychological well-being of children, teenagers, adolescents and young people. The ISS of the Ministry of Health suggests that 3-4-year-olds should spend at least 180 minutes in various types of physical activity, including at least 60 minutes of moderate to vigorous intensity activity, throughout the day; while children and teenagers between 5 and 11 years old must perform at least 60 minutes of moderate to vigorous physical activity every day, including activities to strengthen the musculoskeletal system at least 3 times a week. (ISS Epicenter, 2020). In Italy, according to data published by The Lancet, Child &

Adolescent Health (2020), between 2001 and 2016, the prevalence of insufficient physical activity in boys between 11 and 17 years of age increased by more than 3 percentage points. Several studies in this regard conclude that if one is educated from early childhood to carry out healthy physical activity, to assume non-sedentary behaviors, to follow healthy lifestyles, this helps to shape and maintain habits until adulthood. Outdoor schools develop the educational prerogatives inherent in the culture of movement, form an advantageous combination for the enhancement of motor knowledge and learning, for the development of cognitive, motor, social and affective functions.

Outside the usual monotonous educational perimeter in which our children and teenagers are accustomed to live, more freely and faster the processes inherent in the development of motor patterns, the body scheme, general and special coordination skills, personality rediscovering the pleasure of play and physical activity. Physical activity in an open environment enhances the time of movement, facilitates selective attention, works indirectly on reaction times, on the correct processing of information, on the decisions to be made because the child is immersed in a continuum of situations-stimuli that they urge motor initiative and its adaptability, sense-perceptive abilities, sensory curiosity, self-awareness, participation, sociality, overcoming differences and diversities. The game in its motor sense component, constructive, exploratory, communicative, creative and symbolic is the methodology in support of the child's learning; it is the main activator of cognitive and emotional resources; allows you to use the body, through postural expressiveness, coordination, self-perception. All this to build the right identity of the child, to regulate his learning, to structure his cognitive stability and to build his identity dimension. Running in an open environment on steep floors, climbing, jumping, cycling in the park are activities that help children develop their sense-perceptive skills and, last but not least, overcome the tensions accumulated in interactions with peers and, above all, with the world of adults.

Scientific research in our country for more than a decade has highlighted the link between outdoor school and the culture of movement (Bortolotti, 2019). However, there are many problems to be addressed. It is not only a question of issues relating to the shortcomings and delays of the pedagogical culture, the institutional delays, the low educational value assigned to the movement. The fact-finding survey developed through the in-depth study of specific legislation, the reading of ministerial documents, network agreements, specific educational pacts between school-territory indicate that the experiences implemented are still insufficient and must be strengthened, giving the school in open environment a higher consideration. The "open-air school" project needs the active commitment of the MIUR in terms of teacher training, identification and training of professional figures who must accompany the planning from the planning to the implementation phase, the strengthening of facilitators. It is significant, for example, that one of the admission requirements to fulfill the role of facilitator is one of the master's degrees in Education Sciences, Sociology, Psychology, Natural Sciences and Biological Sciences, excluding the one in Motor Sciences. In 2019, the facilitators of the Network of Public Schools in the Open were 21 in Emilia, 3 in Trentino, 2 in Tuscany, 1 each in Lazio, Piedmont and Sicily.

The small number of outdoor schools tells us how much work still remains to be done. Furthermore, a legislative phase is needed to protect teachers, families and students from the risks that are inherent in activities that take place outdoors. Furthermore, it is necessary to think about the formulation of guidelines that can constitute the framework within which schools can design their project with maximum autonomy and serenity. Massive and widespread funding is needed because significant costs must be borne. The strength of the outdoor school also derives from the spread of community educational pacts. Local authorities, voluntary associations, environmental associations, sports and social promotion bodies represent the natural allies of the school in an open environment. Without this collaboration, it becomes difficult to enhance the relationship between man and nature, regain possession of natural spaces and encourage new generations to practice and welcome education in sustainability. In this context, other resources are available and useful for expanding community educational pacts in the South of the country. These are, in particular, measures financed by the European Community with national and regional programs for environmental maintenance, for the use of natural areas, for the provision of educational services in open environments, for the construction of natural parks near urban areas. indispensable for organizing school activities in an open environment that cannot only burden the school. The construction of an open-air school requires a careful assessment of the area, starting with the protection that must be ensured for teachers, children and families from all points of view. As the chronicle teaches us, the park, the public garden, the open spaces are not always safe, protected or easily accessible. It is no coincidence that among the weaknesses that prevent the development of the network of outdoor schools are the fears, the opposition, the distrust of parents who often match those expressed by the teachers. Despite the many objective and subjective difficulties, it is worthwhile to proceed along the path undertaken and to measure oneself with the charm of the unknown, of adventure, of the fantastic, important stimuli for promoting the child's learning in a new and original cultural dimension.

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References

- Accordo di rete nazionale tra istituti scolastici “Innovazione, sperimentazione e ricerca per un’educazione all’aperto, <<https://scuoleallaperto.com/>>.
- Annali della P.I. (2012). *Indicazioni nazionali per il curricolo della scuola dell’infanzia e del primo ciclo dell’istruzione*, Milano: Le Monnier, p. 76.
- Bentsen, P., Jensen, FS. (2012). La natura dell’udeskole: teoria e pratica nelle scuole danesi. In *Journal of Adventure Education and Outdoor Learning*, 12 (3), 199-219.
- Bortolotti, A. (2019). *Outdoorseducation. Storia, metodi e tecniche*. Milano: Guerini Scientifica.
- Commissione europea/EACEA/Eurydice, 2013. Educazione fisica e sport a scuola in Europa. Rapporto Eurydice. Lussemburgo: Ufficio delle pubblicazioni dell’Unione europea.
- D’Ascenzo, M. (2018). *La storia delle scuole all’aperto*. Pisa: Edizioni ETS.
- D’Ascenzo, M. (2016). I luoghi dell’educazione. Le scuole all’aperto in Emilia Romagna. In *Rivista di storia dell’educazione*, 2, pp. 49-54.
- Farnè, R., Bortolotti, A., & Terrusi M. (a cura di) (2018). *Outdoor Education: prospettive teoriche e buone pratiche*. Roma: Carocci editore.
- Farneti, P., Grossi, E. (1995). *Per un approccio ecologico alla percezione visiva. Introduzione a J. J. Gibson*. Milano: Franco Angeli. p. 14.
- Frabboni, F., Pinto Minerva, F. (2013). *Manuale di pedagogia e didattica*, Roma - Bari: Laterza, p. 262.
- Gardner, H. (1993). *Formae mentis: saggio sulla pluralità dell’intelligenza*. Milano: Feltrinelli.
- Gray, P. (2013). *Lasciateli giocare*. Torino: Einaudi.
- Lancet Child Adolescent Health* 2020, 4: 23–35, <[https://doi.org/10.1016/S2352-4642\(19\)30323](https://doi.org/10.1016/S2352-4642(19)30323)>.
- Linee di indirizzo sull’attività fisica per le differenti fasce d’età e con riferimento a situazioni fisiologiche e fisiopatologiche e a sottogruppi specifici di popolazione (2019), <<http://www.salute.gov.it/portale/documentazione>>
- McLuhan, M. (2008). *Gli strumenti del comunicare*. Milano: Il Saggiatore.
- Mygind, E. (2009). Un confronto tra le dichiarazioni dei bambini sulle relazioni sociali e l’insegnamento in classe e nell’ambiente esterno. In *Journal of Adventure Education and Outdoor Learning*, 9 (2), 151-169.
- Organizzazione mondiale della sanità. (2018). Piano d’azione globale sull’attività fisica 2018-2030: persone più attive per un mondo più sano, <<https://apps.who.int/iris/handle/10665/272722>>.
- Pignato, S. (2016). Valutazione comparativa di modelli di insegnamento di educazione fisica. In *Formazione & Insegnamento*, XIV, 1, ISSN 1973-4776 print - 2279-7505 Suppl., pp. 133 -146.
- Schembri, R., Quinto, A., Aiello, F., Pignato, S., & Sgrò, F. (2019). The relationship between the practice of physical activity and sport and the level of motor competence in primary school children. *Journal of Physical Education and Sport*, 19 (Suppl. Issue 5), 1994-1998.
- Schenetti M., Salvaterra I., & Rossini B. (2015). *La scuola nel bosco. Pedagogia, didattica e natura*, Trento: edizioni Erickson,
- Sgrò, F., Barca, M., Schembri, R., & Lipoma, M. (2020). Assessing the effect of different teaching strategies on students' affective learning outcomes during volleyball lessons. *Journal of Physical Education and Sport*, 20 (Suppl. Issue 3), 2136-2142.
- Sgrò, F., Licari, D., Coppola, R., & Lipoma, M. (2015). Assessment of balance abilities in elderly people by means of a clinical test and a low-cost force plate. *Kinesiology: International journal of fundamental and applied kinesiology*, 47(1), 33-43.
- World Health Organization (2020), Guidelines on physical activity and sedentary behaviour.