

PEDAGOGICAL VALUE OF THE BODY AND PHYSICAL ACTIVITY IN CHILDHOOD

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Review paper

Abstract

The study is a point of view on the pedagogical value of physical activity. It deepens the meaning of body and its learning mechanisms, the incidence of exercise in development process of the childhood, highlighting the needs of space and time for movement. It focuses on the relationship between body, movement and motor skills in the childhood and, above all, is given a pedagogical value of the playful activity as the most important source of learning. The children feel the need to have their own space and time to play and that shows their personalities in the relationship among them in an educational setting. The aim is to summarize the meaning of a complex phenomenon on contribution to pedagogy and to conclude in order with the physical education paradigm. The method is the literature review with a theoretical argumentative process by a deductive approach throughout a specific analysis of bibliographic aspects. In conclusion, the Embodied Cognitive Science (ECS) could be the main stream to run.

Key words: embodied cognitive science, learning, skill

Introduction

The field of physical activity explores the relationship between psychology and pedagogy, as those could be the main aspects to investigate, but it could not be assumed for unique connections. This study was held in order to distinguish the specific scientific contribution of pedagogy between the body and physical activity by a qualitative part without other scientific contributions such as sociology and social science. It should be held in mind that there are also quantitative aspects of PE (Gaetano, Rago, 2014, Gaudino et al., 2013), that regard the performance. The overall view on the pedagogical value of physical activity means to deepen the meaning of body and its learning mechanisms, the incidence of physical activity in the development process of the childhood, highlighting the needs of physical space and timing as a potential educational setting. It focuses on the relationship between movement and learnings in the child development, but above all it is given a pedagogical value of the playful activity as the most important source of learning and the relation that allows children to optimize the reality according to their inner needs and to learn new knowledge, to acquire new skills and to consolidate full competencies. They feel the needs to have their own space and time to play and that shows their personalities in the relationship among them and to the environment of the educational setting. The method is the literature review with a theoretical-argumentative process of a deductive approach with a linear bibliographic. The aim is to summarize the meaning of education and didactics in school, informal and non formal education.

Physical activity

Physical activity is usually taught by the teacher with specific and standardized tutorials that have the theoretical basis in the cognitive approach.

In Physical education, the teacher explains the detailed tutorials that are made by several forms: Partial type, Varied one, Randomized one, Mental Training one and, finally, by using the feedback for error correction. Cognitive approach has the physiological and psychological basis in a theory of motor control in Circuit Open Loop (Schmidt 1975), Circuit Closed Loop (Adams, 1968, 1971) and Motor Program Generalized (Schmidt, Wrisberg, 2004). Physical education could be taught to use a different approach, called Ecological-Dynamic one (Carnus, Marsault 2003). The teacher does not use the tutorials, but they uses to build a setting environment to suggest several learning situations aimed at variety of skills and its form of acquisition in the variability of the context (Raiola, 2012, 2014). The phenomenon is uncontrolled and the relationships is regulated by specific psychological techniques: Circle time, Cooperative learning, Role play, peer education, focus group, brain storming, peer education and so on (Raiola, Di Tore 2012abc, Di Tore, Raiola 2012abcd). This approach has a physiological (Edelman, 1987) and a psychological basis in a theory of motor control in Motor Imagery (Jeannerod, 2002ab, 2006) and Freedom Degrees theory (Bernstein, 1991). Motor Imagery is applied by himself, in first person and themselves, in third person; the Freedom degrees theory is made by three consecutive steps: Reduction of Freedom Degrees, Exploration of new Freedom Degrees and Capitalization of the final Freedom Degrees. To understand the approach on which the phenomenon is based, we have to analyse the current state of the affair of how the body is important for knowledge and how is movement fundamental to improve the motor skills and which are the scientific evidences. "Conceptual knowledge is embodied and that is mapped in our sensory-motor system. This not only provides the structure

to the conceptual content, but characterizes the semantic content of concepts according to the way we function in the world with our bodies." (Gallese & Lakoff, 2005). Motor imagery has the neurophysiological basis in mirror neurons system (Rizzolatti, 2006) and has in visual perception the main afferent stream to recognize the data and elaborate them (Gibson, 1979). The teaching method of the cognitive approach is imparted in order of whom the basis are the command, the sequence, the timing, the unique motor model and to aim the predestined result. The teacher firstly explains the skills and secondly simulates the acts minutely. The execution is divided in part, modified in space and time variables, reproduced in random reps, corrected by predetermined errors and, finally, trained by mental rips. Its psychological basis is the motor control models of Open Loop, Closed Loop, and Motor Program Generalized. Teaching method is prescriptive and the teacher is in the centre of didactics process (Raiola et al. 2013abc). The movement is executed by acts of wholecomplex exercise of which skills initially are in a simplified form. Movements, with a high level of difficulty and the several degrees of execution, can be deconstructed in little parts or increase the running time to improve the precision. The fragmentation, segmentation and simplification are used, which does not adversely affect the deep structure of the motor program generalized. The theory of the generalized motor programs has methodological and didactic implication in relation to the direct choice of which information is provided in the feedback. This choice depends on the type of error made by the student that could use the mental repetition. It consists of thinking about the cognitive and procedural aspects of the action, while the mental representation is to imagine the conduct of an action. In other way, in the Ecological-Dynamic approach the teacher does not require the tutorials but builds a learning environment, aims at a variety of solutions and does not predetermine the results. It refers at the control of mobility of articulations and its algorithm of steps in degrees of freedom. It is made of three consecutive steps to learn a new skill: Reduction, Exploration and Capitalisation of the degrees of freedom (Latash, 2004). According to the ecological approach "to learn" means being able to progressively find the best mobile solution for a given task in a given context. Emblematic is the expression, coined by Bernstein, "repetition without repetition". He explained that practice does not always mean to repeat the same solution to a given task, but repeat overall the problem solution to achieve the task itself. To learn physical skills means to optimize the process of solving tasks, resulting in didactic implications different from prescriptive teaching or cognitive approach. In heuristic learning, that means the students learn new skills according to their own attitudes, the teacher has to encourage the student in an autonomous method to achieve one of the several task solutions. If the learning task is too complex, the teacher should not impose constraints on the learner to give him how to prescriptively solve the

problem, but he has to simplify the implementation mobility and has to apply constraints to the environment. Psychologically speaking, Behaviorism and Cognitive theory have the mind in the center of a learning process. Otherwise, Gestalt and Phenomenology have the environment in the center of learning process. Both of them have a major difference between the role of the mind and the role of the learning setting. In every vision according to the neurological aspects (Rizzolatti 2006, Edelman, 1987) the brain has the fundamental role.

Pedagogy

Speaking of regular physical practices means wellness and health of the person because it carries out several benefits, which are optimized if, in childhood and preadolescent age, the PE has the contents of a developmental process at school. According to the meaning of the body and the movement, it has to start at a very young age, in overall terms regarding physical well-being. It is also an important tool for the physical wellness and for development of the personality under several aspects. Furthermore, it has an influence for the musculoskeletal system, for the circulation and respiration system, for the motor scheme for the skill coordination and execution of drills (Raiola 2011ab, Gaetano, 2012ab), also influences and facilitates social integration and leisure in sports activity (Altavilla Raiola, 2015, 2014, Altavilla, 2014). Julien de Ajuriaguerra along its life (1911-1993) had studied the effects of psychomotricity on the writing and its relation on the psychiatric disease (Aguirre Oar, GuimonUgatechea, 1996). In this way the current study of psychiatric effect of PE on mental health and inclusion (Raiola, 2015ab, Moliterni 2013) has the role in the building of a large epistemology of Exercise and sport science. When it speaks of physical activity, it refers to the qualities, properties and features of the human dimension; knowledges about the existing relation among the body and the physical dimension of the person and its mechanism to learn, constitutes of the sciences of body and movement (Galimberti, 2002). In formal educational environment, the PE is identified in a specific setting where there are rules, management, arrangement and whole pedagogical missions, which means schools (Bertagna 2004, Fabbroni 1999). The interaction with other subjects and its interdisciplinarity and multidisciplinary give a great dimension, especially in the first cycle of education (Raiola 2011ab). The education is defined, in general, as an action that facilitates the physical, intellectual and moral development of a person, while the formation is understood as a process through which the potential personal gets the maturation of its own behavior and/or own learn, by interaction with the environment, by social and cultural participation and mediation or the support of figures and institutions, such as family, school, groups, associations, religious organism and so on (Farinelli, 2005). Physical activity allows you to productively fulfill some typically human needs related to the gameplay

experience by a psychoanalytic vision of unconsciously dimension (Winnicott, 1974); to learn by doing day for day and the expertise is the basis for the cultural changes (Dewey, 1949), moving and educative competition (Raiola, 2012, Napolitano et al., 2013ab) of a social life and groups (Parisi, Raiola, 2014ab, Polidoro et al., 2013). And, according to Bandura's theory (Bandura, 1977), the correlation between neurological aspects and auto generation of social behavior and so on shows that the child experiences the activities with its own emotions and affectivity through the psychomotor practice (Aucouturier, et al., 1984). The body lives precisely in relation with others and, with the phenomenon made by environment and educational settings, satisfies the need for sociability, but also the one for autonomy. Free activity and single initiative opposing to the mastery activity refines skills and relative drills and fundamental techniques and gestures.

The recreational physical activity of the human being (*homo ludens*) also has anthropological and social aspects as playful forms of fun and edutainment (Huizinga, 2002). According to this social and anthropological paradigm of ludic activity the educational processes interface frequently with self efficacy and self esteem as a part of pedagogy and andragogy. All these dimensions flow into the development of a strong sense of self-efficacy and an improvement of self-esteem. In the same way, the self esteem value has the concept basis for pedagogical action at school. Physical activity, along with socialization activities, is good indicator for assessing the degree of well-being of students and the quality of the relationships within the traditional groups (Raiola, 2015abc). In addition, physical activity can, in a productive way, meet some typically human needs related to experiencing games, movement, competition and group life, dimensions that they have an integration in the sports disciplines (Raiola, et al., 2016c, Sgro, Lipoma, 2015). Through the several physical manifestations it is possible to understand either the basics of the forms of learning and the level of growth and maturation of the child (Di Tore, 2016, 2014, Di Tore, Arienzo, 2014). The multidisciplinary dimension of the kinesthetic intelligence as a body tool of the skills in the plurality of intellectual forms (Gardner, 1994) and the cultural dimension regarding the value of experience connected to the body (Bruner, et al., 1981, Bruner, 2003, Dewey 1949) are two specific pedagogical aspects of the PE. A child, while playing, fully manifests its inner world than might not be exhibited verbally (Raiola, et al., 2016, Raiola, 2014ab, 2015), in the same time it highlights, through playful activities, its need to communicate and socialize with others and grow through the specific development's steps (Piaget, 1971). The child, in the playful activity, seeks and finds scope for its existential creativity, which will then to varying degrees affect the interest in the playful attitude in the various age classes. In fact, if the physical and sportive play fosters creativity, avoids repetition and reaches

new goals in relation at the proximal development area to acquire new skills and take in place other learning (Vygotskj, 1990), it develops the cognitive and emotional growth, creating personalities that are not running on preordained actions (Gaetano, 2012ab, Vivacqua et al., 2004)). To learn means to modify, change, you can learn by watching or listening, but also embracing. Learning through acts, physical exercises, body expertise and looking at others develops the mind and its functions related to survival and development of physical skills to get to complex forms of thought under more physical and performance aspects. From different point of view, the new theory is very complex and also includes the neurological part in Embodied Cognitive Science. It is developed in this period and is made by three main methodologies: 1) the modelling of biological systems in a holistic vision that considers the human being as a single entity and not in two parts: body and mind; 2) it does not consider the traditionalist approach in which there is the input-output system; 3) it refers heavily from embodied philosophy and the related research fields of cognitive science, psychology, neuroscience and artificial intelligence (Varela, 1999). In this way, Embodied Cognition examines a physical attributes of the body and its role of the physical aspect, particularly how it affects the learning and what are the properties to improve the skill to think. This part attempts to overcome the symbol manipulation component that is a feature of the traditionalist model. Depth perception requires that the brain detects the disparate retinal images obtained by the distance of the two eyes and, for instance, can be better explained under the embodied approach due to the complexity of the action (Scott Kelso, 2008).

When the head is turned in a given direction, objects in the foreground will appear to move against objects in the background. Consequentially, speaking of some kind of visual processing occurs without the need of any kind of symbol manipulation. This is because the objects appearing to move in the foreground are simply appearing to move. This observation concludes that depth can be perceived with no intermediate symbol manipulation necessary. A more poignant example exists through examining auditory perception. Generally speaking, the greater the distance between the ears, the greater the possible auditory acuity. Also, the amount of density in between the ears is relevant, because the strength of the frequency wave alters as it passes through a given medium. The brain's auditory system takes these factors into account as it process information, but again without any need for a symbolic manipulation system. This is because the distance between the ears for example does not need symbols to represent it. The distance itself creates the necessary opportunity for greater auditory acuity. The amount of density between the ears is similar, in that it is the actual amount itself that simply forms the opportunity for frequency alteration. Thus under consideration of the physical properties of the body, a symbolic system is unnecessary and

an unhelpful metaphor (Turvey, Fonseca, 2009). The other aspect draws heavily from George Lakoff's and Mark Johnson's (Lakoff, 2002, Johnson, 2014) work on concepts. They argued that humans use metaphors whenever possible to better explain their external world. Humans also have a basic stock of concepts in which other concepts can be derived from.

Conclusion

A conclusion can be made according to new theory about the mind theory of learning throughout of the body, physical activity and education. First of all, Embodied Cognitive Science theory and subsequently (Altavilla, Di Tore 2016, Altavilla et al., 2015ab,), which is an interdisciplinary field of mind investigation aimed for explaining functioning as a whole to highlight the human behavior and its learning. These basic concepts include spatial orientations such as up, down, front, and back.

Humans can understand what these concepts mean because they can directly experience them from their own bodies. For example, because human movement revolves around standing erect and moving the body in an up-down motion, humans innately have these concepts of up and down. Lakoff and Johnson contend this is similar with other spatial orientations such as front and back too. As mentioned earlier, these basic stocks of spatial concepts are the basis in which other concepts are constructed. Happy and sad, for instance, are seen now as being up or down respectively. When someone says they are feeling down, what they are really saying is that they feel sad, for example. Thus the point here is that true understanding of these concepts is contingent on whether one can have an understanding of the human body. So the argument goes that if one lacked a human body, they could not possibly know what up or down could mean, or how it could relate to emotional states.

References

- Adams, J.A. (1968). Response feedback and learning. *Psychological Bulletin*, 70.
- Adams, J.A. (1971). A closed-loop theory of motor learning. *Journal of Motor Behavior*, 3.
- Altavilla, G., & Di Tore, P.A. (2016). Physical education during the first school cycle: A brief social psychopedagogical summary. *Journal of Physical Education and Sport*, 16-20, 340-344.
- Altavilla, G., Furino, F., Di Palmo, M., & Raiola, G. (2015). The child hypokinetic and the over trained, *Sport Science*, 8, 72-74.
- Altavilla, G., Furino, F., Marika, D.P., & Raiola, G. (2015). Physical skills, sport learning and socio-affective education, *Sport Science*, 8, 44-46.
- Altavilla, G., & Raiola, G. (2015). Sports game tactic in basketball, *Sport Science*, 8(1), 43-46.
- Altavilla, G., & Raiola, G. (2014). Global vision to understand the game situations in modern basketball, *Journal of Physical Education and Sport*, 14(4), 493-496.
- Altavilla, G. (2014). Effects of the practice of muscle stretching, *Sport Science*, 7(1), 66-67.
- Aguirre, O.J.M., & Ugartechea, G.J. (1996). *Vie et oeuvre de Julian de Ajuriaguerra*. Paris: Masson.
- Aucouturier, B., Darrault, I., & Empinet, J.L. (1984). *La pratica psicomotoria. Rieducazione e terapia*. [Psychomotor exercise. Reeducation and therapy. In Italian.]. Roma: Armando Editore.
- Bandura, A. (1977). *Social Learning Theory*. New Jersey: Prentice Hall, Englewood Cliffs.
- Bernstein, N.A. (1991). *On co-ordination and its development*. Moscow: University press.
- Bertagna, G. (2004). *Scuola in movimento* [School in movement. In Italian.]. Milano: Franco Angeli Editore.
- Bruner, J. (2003). *La mente a più dimensioni* [About more dimensions. In Italian.]. Roma - Bari: Laterza.
- Bruner, J.S., Jolly, A., & Sylva, K. (a cura di), (1981). *It's Role in Development and Evolution*. New York: Basic Books.
- Edelman, G. M. (1987). *Neural Darwinism. The theory of Neuronal group Selection*. New York: Basic Books.
- Dewey, J. (1949). *Democrazia e educazione* [Democracy of education. In Italian.]. Firenze: La Nuova Italia.
- Di Tore, P.A. (2016). Spatial navigation cognitive strategies, perspective taking and special educational needs: Re-thinking orienteering sport in complexity. *Jl of Physical Education and Sport*, 16(2), 476-480.
- Di Tore, P.A. (2014). Perception of space, empathy and cognitive processes: Design of a video game for the measurement of perspective taking skills. *International Journal of Emerging Technologies in Learning*, 9 (7), 23-29.
- Di Tore, P.A., & D'Arienzo, D. (2014). Twisted eulenspiegel: An educational approach to role playing in the narrative contexts. *Mediterranean Journal of Social Sciences*, 5(20), 1118-1124
- Di Tore, P.A., & Raiola, G. (2012a). Exergame-design and motor activities teaching: An overview of scientific paradigms on motor control. *Mediterranean Journal of Social Sciences*, 3(11), 119-122.
- Di Tore, P.A., & Raiola, G. (2012b). Case study on physical education and sport in Naples, Italy. *Mediterranean Journal of Social Sciences*, 3(11), 471-476.
- Di Tore, P.A., & Raiola, G. (2012c). Exergames in motor skill learning. *Journal of Physical Education and Sport*, 12(3), 358-361.
- Frabboni, F. (1999). *Manuale di Pedagogia generale* [Manual of general pedagogy]. Bari: Pinto Minerva.
- Farinelli, G. (2005). *Pedagogia dello sport ed educazione della persona* [Pedagogy of sport and education of a person. In Italian.]. Perugia: Morlacchi Editore.

- Gaudino, P., Gaudino, C., Alberti, G., & Minetti, A.E. (2013). Biomechanics and predicted energetics of sprinting on sand: Hints for soccer training. *Journal of Science and Medicine in Sport*.
- Gallese, V., & Lakoff, G. (2005). The Brain's concepts: the role of the Sensory-motor system in conceptual knowledge. *Cognitive Neuropsychology*, 22(3/4).
- Galimber, U. (2002). *Il corpo* [The body. In Italia.]. Roma: Feltrinelli.
- Gardner, H. (1994). *Intelligenze multiple* [Multiple intelligence. In Italian.]. Milano: Anabasi.
- Gibson, J.J. (1979). *The Ecological Approach to Visual Perception*. Boston: Houghton Mifflin.
- Huizinga, J. (2002). *Homo Ludens*. Torino: Einaudi.
- Johnson, M. (2014). *Morality for Humans: Ethical Understanding from the Perspective of Cognitive Science*. Chicago: University of Chicago Press.
- Lakoff, G. (2002). *Moral Politics: How Liberals and Conservatives Think*. Chicago: The University of Chicago Press.
- Latash, Mark L. (2004). *Progress in Motor Control: Bernstein's Traditions in Movement Studies*. Champagne, IL: Human Kinetics.
- Moliterni, P. (2013). *Didattica e scienze motorie. Tra mediatori e integrazione*. [Didactics of motor science. True mediation and integration. In Italian.]. Roma: Armando Editore.
- Piaget, J. (1971). *L'epistemologia genetica* [Genetics epistemology. In Italian.]. Bari: Laterza.
- Jeannerod, M. (2006). *Motor cognition: What actions tell the Self*. Oxford: Oxford University Press.
- Jeannerod, M. (2002b). *La Nature de l'esprit* [Nature of the spirit. In French.]. Paris: Editions Odile Jacob.
- Napolitano, S., Tursi, D., & Raiola, G. (2013a). Water polo women's pattern tactical experience of an Italian team. *Journal of Human Sport and Exercise*, 8(3 PROC), 660-670.
- Napolitano, S., Tursi, D., Di Tore, P.A., & Raiola, G. (2013b). Tactics-based water polo training. *Journal of Human Sport and Exercise*, 8(2), 271-282.
- Parisi, F., & Raiola, G. (2014a). The serve in under 12-13 Italian volleyball team. *Journal of Human Sport and Exercise*, 9, S588-S591.
- Parisi, F., & Raiola, G. (2014b). Video analysis in youth volleyball team. *Journal of Human Sport and Exercise*, 9, S584-S587.
- Polidoro, L., Bianchi, F., Di Tore, P.A., & Raiola, G. (2013). Futsal training by video analysis. *Journal of Human Sport and Exercise*, 8(2), 290-296.
- Raiola, G., & Rago, V. (2014). Preliminary study on effects of hiit-high intensity intermittent training in youth soccer players. *Journal of Physical Education and Sport*, 14(2), 148-150.
- Raiola, G. (2012a). Motor learning and didactics into physical education and sport documents in middle school-first cycle of education in Italy. *Journal of Physical Education and Sport* 12(2), 157-163.
- Raiola, G. (2012b). *Didactics of volleyball into the educate program for coaches/trainers/technicians of Italian Federation of Volleyball (FIPAV)*, *Journal of Physical Education and Sport*, 12(1), 25-29.
- Raiola, G., Altavilla, G., De Luca, C., & Di Tore, P.A. (2016). Analysis on some aspects of the service in volleyball. *Sport Science*, 9(1), 74-77.
- Raiola, G. (2015). *Basketball feint and non-verbal communication: Empirical framework*, *Journal of Human Sport and Exercise*, 10 (Special issue 1), 360-368.
- Raiola, G. (2014a). Teaching method in young female team of volleyball. *Journal of Physical Education and Sport*, 14(1), 74-78.
- Raiola, G. (2014b). Motor control and learning skills according to cognitive and ecological dynamic approach in a vision on behaviorism, cognitive, Gestalt and phenomenology theories. *Mediterranean Journal of Social Sciences* 5(15), 504-506.
- Raiola, G., Scassillo, I., Parisi, F., & Di Tore, P.A. (2013a). Motor imagery as a tool to enhance the didactics in physical education and artistic gymnastic. *Journal of Human Sport and Exercise*, 8(2 PROC), 93-97.
- Raiola, G., Parisi, F., Giugno, Y., & Di Tore, P.A. (2013b). Video analysis applied to volleyball didactics to improve sport skills. *Journal of Human Sport and Exercise*, 8(2(S1)), 307-313.
- Raiola, G., Giugno, Y., Scassillo, I., & Di Tore, P.A. (2013c). An experimental study on Aerobic Gymnastic: Performance analysis as an effective evaluation for technique and teaching of motor gestures. *Journal of Human Sport and Exercise*, 8(2(S2)), 297-306.
- Raiola, G., & Di Tore, P.A. (2012a). Statistical study on bodily communication skills in volleyball to improve teaching methods *Journal of Human Sport and Exercise*, 7(2), 468-488.
- Raiola, G., & Di Tore, P.A. (2012b). Bodily communication skills and its incidence on female volleyball championship to enhance didactics. *Journal of Human Sport and Exercise*, 7(2), 365-375.
- Raiola, G., & Di Tore, A. (2012c). Non-verbal communication and volleyball: A new way to approach the phenomenon. *Mediterranean Journal of Social Sciences*, 3(2), 347-356.
- Raiola, G. (2012). Bodily Communication in Volleyball Between Human and Experimental Sciences. *Mediterranean Journal of Social Sciences*, 3(1), 587-597.
- Raiola G. (2015a). Inclusion in sport dance and self perception. *Sport Science*, 8(1), 99-102.
- Raiola G. (2015b). Sport skills and mental health. *Journal of Human Sport and Exercise*, 10(S1), S369-S376.
- Raiola, G. (2011a). Study between neurophysiological aspects and regulation documents on preschool in Italy. *Journal of Physical Education and Sport* 11(1), 42-47.

- Raiola, G. (2011b). A study on Italian primary school rules: Neurophysiological and didactics aspects on physical education and sport. *Journal of Physical Education and Sport*, 11, 43-48.
- Rizzolatti, G. (2006). *So quel che fai. Il cervello che agisce e i neuroni specchio* [What is going on. The brain that moves mirrored neurons. In Italian.]. Milano: Raffaello Cortina (ed.), *Il cervello e integrazione*.
- Schmidt, R. A. (1975). A schema theory of discrete motor skill learning. *Psychological Review* 82(4).
- Schmidt, R., & Wrisberg, D. (2004). *Motor Learning and Performance. Champagne, IL.: Human Kinetics*.
- Scott Kelso, J.A. (2008). An essay on understanding the mind: the Iberall Lecture. *Ecological Psychology*, 20.
- Turvey, M.T., & Fonseca, S. (2009). Nature of motor control: perspectives and issues. *Advances in Experimental Medicine and Biology*, 629
- Vivacqua, A., Siciliano, L., Sabato, M., Palma, A., & Carpino, A. (2004). Prostatomes as zinc ligands in human seminal plasma. *International Journal of Andrology*, 27(1), 27-31.
- Vygotskij, L. (1990). *Pensiero e linguaggio. Ricerche psicologiche, a cura di L. Mecacci* [Thinking and speaking. Psychological research - L. Mecacci. In Italian.]. Roma-Bari: Laterza.
- Winnicott, D. (1974). *Gioco e realtà* [Game and reality. In Italian.]. Roma: Armando.
- Varela, F. (1999). *Ethical Know-How: Action, Wisdom and Cognition*. Stanford: Stanford University Press.
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PEDAGOŠKA VRIJEDNOST TIJELA I TJELESNE AKTIVNOSTI U DJETINJSTVU

Sažetak

Istraživanje je pogled na pedagoške vrijednosti tjelesne aktivnosti. Ono produbljuje značenje tijela i njegovih mehanizama učenja, učestalost vježbe i razvojnog procesa djetinjstva, ističući potrebe prostora i vremena za kretanje. Fokusira se na odnos između tijela, pokreta i motoričkih vještina u djetinjstvu i, iznad svega, dana mu je pedagoška vrijednost razigrane aktivnosti kao najvažnijeg izvora učenja. Djeca osjećaju potrebu za vlastitim prostorom i vremenom za igru i to pokazuje njihove osobnosti u odnosu među njima u obrazovnom okruženju. Cilj je sažeti značenje složenog fenomena u vezi doprinosa pedagogiji i zaključiti u skladu s primjerom tjelesnog odgoja. Metoda je pregled literature s teoretsko-raspravljajkim procesom deduktivnog pristupa kroz određenu analizu bibliografskih aspekata. U zaključku, utjelovljena spoznajna znanost (ECS) mogla bi biti glavni tijek kojim se treba ići.

Ključne riječi: utjelovljena spoznajna znanost, učenje, vještina

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