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**Review of the doctoral dissertation by Maryna Khorkova  
entitled “The impact of the Eduball method on selected parameters  
of creativity and motor fitness in early school-aged children”**

The doctoral dissertation submitted for review constitutes a valuable and mature scientific study addressing a current and socially significant issue concerning the possibilities of fostering creativity in early school-aged children through innovative activities implemented within physical education classes. The dissertation has been prepared at a very high substantive, methodological, and organizational level, and its findings make a significant contribution to the development of knowledge in the field of physical culture sciences.

The dissertation is devoted to the analysis of the impact of the innovative Eduball method on the development of creativity and physical fitness among early school-aged children. The starting point for the research was the assumption that contemporary education should support not only students' cognitive development, but also their creativity, currently regarded as one of the key social and educational competencies. The Author emphasizes that physical education, despite its considerable developmental potential, is still perceived primarily as a space for developing motor fitness, while its significance for stimulating children's creativity remains insufficiently utilized.

The aim of the study was to assess the impact of the Eduball method – an interdisciplinary solution combining physical activity with cognitive tasks – on selected parameters of creativity and motor fitness in children participating in physical education classes. The research was conducted using a pre–post experimental design among second-grade primary school pupils aged 8–9 years. Carefully selected and standardized measurement tools were employed.

The obtained results demonstrated that the application of the Eduball method, particularly when implemented with greater frequency, positively influenced the development of creativity, motor imagination, and eye-hand coordination in children. The study also showed that innovative forms of movement-based activities may counteract declines in certain components of creativity observed under traditional physical education conditions. At the same time, no differences were found between girls and boys, which additionally highlights the universal nature of the implemented intervention.

The dissertation demonstrates very good and comprehensive theoretical knowledge of the candidate applying for the doctoral degree in the discipline of physical culture sciences. The Author shows excellent familiarity with the current state of research concerning creativity, physical activity, and the role of physical education in the multidimensional development of children. Particularly noteworthy is the ability to integrate pedagogical, psychological, and physical culture perspectives. The theoretical foundations presented in the dissertation are coherent, up to date, and well grounded in the literature, while the formulation of the research problems reflects the Doctoral Candidate's scientific maturity and excellent theoretical preparation.

The dissertation clearly confirms the Candidate's ability to conduct independent scientific research. Special recognition should be given to the correctly designed and consistently implemented experimental pre-post research scheme. The Author demonstrated a very good knowledge of research procedures, the ability to construct a proper experimental design, and an appropriate selection of diagnostic tools.

The Author's ability to interpret data and formulate cautious yet accurate scientific and practical conclusions also deserves very high evaluation. The dissertation as a whole reflects a high level of research independence, methodological rigor, and scientific awareness.

The dissertation constitutes an original solution to a scientific problem. Its innovativeness is expressed primarily through addressing the issue of the influence of the innovative Eduball method on the development of creativity and motor fitness in children. The Author convincingly demonstrated that an appropriately designed educational environment may effectively support the development of creativity alongside children's motor development. Particularly valuable are the findings indicating a frequency-dependent effect of the intervention and the protective role of the Eduball method against declines in selected creativity parameters observed in traditional physical education settings. The obtained results possess not only cognitive value

but also significant practical application potential for educational practice and the design of modern physical education programs. Therefore, the dissertation makes an original and valuable contribution to the development of research on children's creativity and innovative educational methods in physical education.

I would also like to emphasize that the findings constituting the basis of the dissertation have already been published in two scientific journals indexed in the Scopus database, which confirms the high scientific quality of the conducted research, its international visibility, and its positive evaluation by the scientific community. I particularly appreciate this model of scientific work, in which the doctoral dissertation summarizes a distinct stage of research inquiry and publication activity within a given thematic area.

Recognition should also be given to the Author's ability to conduct research within scientific teams and to collaborate effectively in research projects, which is reflected both in the organization of the project and in the quality of the presented results. The dissertation fully confirms the Candidate's competence to independently conduct scientific research, while simultaneously demonstrating a high standard of research culture and the ability to function effectively within the academic environment.

The technical quality of the dissertation should also be evaluated very highly. The work has been prepared with exceptional care, with great attention devoted to the clarity of the presentation of results, linguistic correctness, logical structure of the argumentation, and coherence between the theoretical, methodological, and empirical parts. The dissertation meets the standards of the highest-quality scientific studies and reflects the Candidate's reliability and professionalism.

At this point, I would like to formulate one suggestion worthy of consideration by the Doctoral Candidate. The dissertation adopted the hypothesis that boys and girls do not differ in terms of cognitive and motor creativity, which was justified by previous research findings. This hypothesis was empirically confirmed. At the same time, the Author correctly indicates that gender differences emerge in the area of physical development and motor fitness, which is also consistent with earlier research findings.

However, I consider the particularly interesting and original aspect of the dissertation to be the fact that the Eduball method – although strongly embedded in physical activity, stereotypically associated more often with the socialization of boys than girls – proved equally effective for both genders.

In my opinion, an interesting extension of the dissertation could involve a stronger incorporation of the perspective of gender socialization. Although the Candidate appropriately refers to studies indicating the absence of differences in cognitive development and the presence of differences in motor development, it would also be worthwhile to refer to research demonstrating that boys are more often socialized to perceive themselves as physically competent, motorically skilled, and more “naturally” predisposed to sport activities (np. Lee, A. M., Fredenburg, K., Belcher, D., & Cleveland, N. (1999). Gender Differences in Children’s Conceptions of Competence and Motivation in Physical Education. *Sport, Education and Society*, 4(2), 161–174. <https://doi.org/10.1080/1357332990040204>; Bedward, J. and Williams, A. (2000) Girls’ Experience of Physical Education. In A. Williams, (ed) Primary School Physical Education. New York, US: RoutledgeFalmer Press)

As a consequence, during adolescence girls often withdraw from physical activity. This phenomenon is described as “sports dropout among adolescent girls” (np. Bevan, N., & Fane, J. (2017). Embedding a critical inquiry approach across the AC:HPE to support adolescent girls in participating in traditionally masculinised sport. *International Journal of Learning in Social Contexts*, 21, 138-151. [doi.org/10.18793/ijlscj2017.21.11](https://doi.org/10.18793/ijlscj2017.21.11); Cowley, E. S., Watson, P. M., Foweather, L., Belton, S., Thompson, A., Thijssen, D., & Wagenmakers, A. J. M. (2021). “Girls Aren’t Meant to Exercise”: Perceived Influences on Physical Activity among Adolescent Girls—The HERizon Project. *Children*, 8(1), 31. <https://doi.org/10.3390/children8010031>; Moreno-Vitoria, L., Cabeza-Ruiz, R., Antón- González, L., & Pellicer-Chenoll, M. (2025). Factors influencing sports dropout rate among adolescent girls: a study on self-perception and sports identity. *Retos*, 70, 149–160. <https://doi.org/10.47197/retos.v70.113145>).

It could therefore be assumed that such beliefs and patterns of gender socialization might influence the course and outcomes of the intervention based on physical activity described in the dissertation. What is particularly interesting, however, is that in the case of the Eduball method such an effect did not occur. The intervention proved equally effective for girls and boys despite the existing differences in physical fitness and stereotypically different patterns of socialization related to movement and physical activity. This result has very important cognitive and practical implications because it suggests that it is possible to design physical education activities that are, to a significant extent, resistant to gender differences and social stereotypes concerning physical activity. Such interventions may also potentially protect girls against sports dropout during adolescence by building positive self-esteem regarding physical competence already at the early school stage.

Including this perspective could further enrich the interpretation of the results by demonstrating that appropriately designed educational and movement-based activities may create a more inclusive developmental environment supporting creativity and engagement regardless of gender.

My suggestion arises solely from the fact that the dissertation stimulated many interesting reflections while I had the pleasure of reviewing it. This is not intended as criticism, but rather as a contribution to scholarly discussion and perhaps as inspiration for future research projects.

### **Conclusion**

The reviewed doctoral dissertation is a scientifically mature, very carefully prepared work that makes a significant contribution to the development of the represented scientific discipline. Particularly noteworthy are the high methodological quality of the research, the originality of the undertaken topic, and the considerable cognitive and practical potential of the obtained results. The Author demonstrated very good theoretical preparation, high research competence, and the ability to conduct scientific work both independently and within research teams. **I conclude that the dissertation fulfills all the requirements set for doctoral dissertations under the applicable legal regulations. Therefore, I support admitting the Candidate to the subsequent stages of the doctoral procedure and recommend awarding the dissertation a distinction due to its particularly high methodological and practical value.**

A handwritten signature in blue ink, appearing to read "Sylvia J. Kubler".