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Conceptual Approaches Regarding the Added Value of Physical Education in the Integrated Teaching Process

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Abstract: The current time requires a permanent extension of the educational perspective by adapting contents according to the needs and interests of students in order to offer them a multilateral development with diversified skills and abilities, thus helping them to promptly respond to the requirements of the future and ensuring both school and personal success. Through the method of literature review analysis, we aim to argue, from a theoretical point of view, the importance and need for an interdisciplinary approach to physical education during the process of integrated education. We consider it necessary to facilitate the development of a global student by integrating the learning content with an emphasis on physical education in order to develop key competences that will ensure the qualitative acquisition of information with multiple possibilities for transferring, adapting and resolving situations required by the current knowledge society. The contributions to the educational area through physical activities implemented in integrated teaching projects aim to improve school progress and social integration, develop a positive attitude towards the educational process and provide creative, effective methods and strategies for organizing the learning content. The topic of this study is focused on both highlighting some models and good practices used by the discipline of physical education in the integrated teaching process as well as their impact on the development of primary school students and providing future directions for the implementation and evaluation of the research-based integrated physical activity.

Keywords: *integrated teaching, physical education, key competences.*

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Introduction

Since ancient times, physical activities have proven their necessity and importance in the multilateral development of the individual. The Greeks are the founders of the word "gymnastics", thus managing to conceptualise the multitude of physical exercises and identify their positive effects in physical, mental and social terms. Gymnastics significantly leaves its mark on the educational and civic model defined by the symbol "kalokagathia" (beautiful and good person). The Athenian desideratum embodies the ideal of harmony and perfection of the human being by developing physical virtues and participating in the moral, intellectual and spiritual qualities of an individual. The great philosophers emphasise the importance of practising physical exercise for the intellectual, moral and physical development. Niculescu (2012) recalls Aristotle, who states that the body must be formed before the spirit, and skills before reason. Cojocaru (2014) cites Plato, who says that, after music, humans need gymnastics to form a unity on the intellectual, moral, aesthetic and physical planes. Rousseau (1973) adds that the body must be in motion, and then the mind also begins to move. Physical education fulfils its role according to the complexity and diversity of the competences it claims, which are usually defined at the psychological, physical and social levels of the human being, highlighting the versatility of this field of activity and implicitly of the studied school subject. Unlike other education areas that address only the mind, physical education addresses the whole human being through the unitary form of the body, mind and soul components. Cucoș (2009) underlines the importance of this discipline that is neither new nor transient but a constant presence in human life, giving expression to a mentality, a lifestyle, a sociocultural model.

Current school physical education emphasises the function of training in the improvement of motor skills and the harmonious development of students. The components related to the cognitive, affective, social and cultural spheres, especially those coming from other disciplines, are less assessed. D' Hainaut (1986) states that education must prepare for life, but life and its problems are not divided into disciplines and must be approached with interdisciplinary steps. Participation in physical activity for pleasure is one of the most important psychological factors that can influence the development of the child from an early age, with positive effects throughout life. An integrated curriculum approach suggests the relationship of school subjects through actions that associate them in the

same learning planning, which shows that the student is no longer a receiver of information but a participant in knowledge and action.

Integrated curriculum involves approaches and perspectives that go beyond the specialised boundaries of educational disciplines. There are many renowned countries for providing quality education by combining and integrating knowledge from different studied subjects, successfully implementing student-centred learning, training key competences, ensuring broad preparation for the next school year and current requirements of society and fulfilling the educational goals specific to compulsory education. The benefits of such an approach also arise among teachers in terms of strengthening collaborations and assessing the importance of each school subject. Every teacher should respect and understand the need to deepen all disciplines and contribute to the dissemination of such an idea.

Kaittani and al. (2017) consider physical education as basic in the interdisciplinary approach to contents because it enables to easily establish links between disciplines and gives teachers effective and attractive ways of teaching. Miller (1960) points out that "physical education becomes a part of the integrated curriculum when one considers the importance of activity in the learning process" (p. 20), and integrated activities should develop key competences in line with the general and specific competences required by the physical education curriculum. Rauschenbach (1996) adds that the use of means of acting in an integrated way is not merely an accumulation or mixture of knowledge but they need to be approached as a process of action and resolution of situations that requires adaptation to various areas. By training students' key competences, they will also be able to prove the consolidation of motor skills needed to complete elementary school and the development of intelligence necessary to solve situations quickly, efficiently and creatively by combining learned strategies. In the integrated curriculum, concepts, social interactions, the development of motor and cognitive skills are carefully selected and applied so that the student assimilates as many skills as possible during elementary school (Placek & O'Sullivan, 1997).

Research purpose

Through the method of literature review analysis, the study aims to argue, from a theoretical point of view, the importance and necessity of an integrated approach to physical education in the educational process and its effects on the multilateral development of students, contributing to the training of key competences needed to determine the profile of the elementary school student.

Hypothesis

By studying models and good practices used by the discipline of physical education in the integrated teaching process, we will seek future directions for the implementation and evaluation of the research-based integrated physical activity, which will have a positive impact on the acquisition of key competences and the development of primary school students.

Topic Addressed

Integrated curriculum

Integrated curriculum is the approach to content that can be transferred to different situations in order to avoid traditional separation. According to Mara (2018), integrated curriculum can be approached at monodisciplinary, multidisciplinary, interdisciplinary and transdisciplinary levels and has the following characteristics:

- connection between school subjects;
- creation of relationships between phenomena, concepts and processes in different disciplines;
- application of learning outcomes to everyday situations;
- focus on integrated activities such as project types;
- the principles of curriculum organization are thematic units, concepts or issues;
- plasticity in organizing learning content to provide borrowings from one field to be used as support in another field;
- transversality, which requires involving several disciplines to build themselves;
- capitalisation on the purpose of education.

Key competences

Key competences are a collection of knowledge, skills and attitudes that students develop and apply throughout their lives, depending on the needs of the society in which they live. The European Commission (2018) specifies eight key competences recommended at European level:

- literacy competences;
- communication competences in foreign languages;
- competences in science, technology, engineering and mathematics;
- digital competences;
- personal, social and learning how to learn competences;
- citizen competences;

• entrepreneurial competences;
• competence of awareness and cultural expression;

These eight areas of key competences develop their components following the analysis of the framework plan and curricula and are called content elements in each skill and attitude (Mândruț et al., 2012).

Integrated teaching

Integrated teaching is a modern strategy for organizing and running contents, and the concept of integrated work refers to an action that includes methods and means of teaching and learning knowledge, covering different fields and a wide range of skills and abilities for students. Skills and attitudes are precisely converted through the level of achievement of these key competences, and the interdisciplinary approach is the achievement of common learning objectives to train them.

Fullan (2007) reveals multiple problems in the current education system and offers helpful solutions to achieve an educational act according to current standards:

• although the progress through the curriculum has been achieved, the teaching process is lagging behind, and the fact that the profession itself represents a high-stress factor, the conditions are not improved and family involvement is increasingly low often causes many teachers to leave the system;

• in addition to their daily activity, teachers are responsible for various committees, work activities, parent counselling, extracurricular activities, pedagogical circles, training courses, organization, etc. and thus their ability to focus on the most important act - the teaching process - or place the student at the centre of their actions is increasingly low;

• teachers view students as an accumulation of results, skills, knowledge and less often as participants in the process of changing, organizing and improving life;

• to achieve an educational process in which the student can apply the acquired knowledge to different situations and actively participate in the demands of society, cooperation between teachers, families and the community is required with a single common goal: using knowledge from one field to gain knowledge in another field while continuously ensuring that understanding and educational performance are enhanced and the challenges of life are successfully adapted;

• the exchange of teachers' ideas, school and extracurricular activities along with the combination of traditional and modern teaching will lead to the reinvention of teaching, and parental involvement will develop the

child's interest. Coleman (1998) calls the parent, student and teacher collaboration "the power of three". These problems are found in most schools around the world, and integrated teaching with a specific focus on the student largely depends on overcoming these difficulties. Obviously, some teachers are more reluctant to modernise the teaching process and consider that traditional methods are more effective and especially safe because they avoid confusion in learning; it is worth mentioning that even some supporters of the integrated curriculum recognise certain shortcomings in the application of an integrated approach (Manson, 1996). For the success of such an approach, appropriate documentation and teacher training are needed.

Integrating teaching models

• Bottom of Form

There are countries where schools have a well-established education system, with continuous multilevel investment and success in implementing effective methods centred on the constant and positive development of the student. One of them is the Finnish school, which enjoys impressive attention from many countries in terms of positive outcomes and success in student-centred education. The Finnish education system has gradually managed to bring multiple improvements to become a knowledge society with a high level of values, occupying a world-leading place as regards the qualitative and quantitative education of students for the challenges of life.

The innovative elements of the Finnish curriculum explicitly refer to the categories of competences through which they are produced, the standard terms of knowledge, skills, values, attitudes and expectations, the applicability of the taught subject to everyday life, thus laying the foundations for building a sustainable future:

C1 - Competence of reasoning (thinking) and learning to learn, implemented through: research- and creativity-based learning, the concept of "learning how to learn", the school as a learning community;

C2 - Competence for participation and active citizenship, implemented through: the structure and rules of society, ways of influencing, building the future;

C3 - Competence for responsibility and self-care, implemented through: competence for everyday life and life in society, safety and society;

C4 – Multi-literacy competence, implemented through: communication, multimedia, contextual skills;

C5 - Digital and technological competence, implemented through: research and creativity, practical skills and programming, responsibility and safety, interaction in the digital world;

C6 - Entrepreneurship and career competence, implemented through: labour market training, social interaction at work, business practice;

C7 - Intercultural, emotional intelligence and communication competences, implemented through: the understanding of other cultures, emotional skills, the culture of participation.

The Finnish education system also has research-based programmes as part of the curricula, for example:

• Schools on the move (2021): creating an active school culture in various ways, improving health, well-being and educational outcomes, creating a pleasant atmosphere;

• Anti-bullying KiVa (2021): involves a holistic application that includes prevention, intervention and monitoring.

Both programmes are based on sports activities that are addressed together with different knowledge specific to other disciplines, and their implementation has successful outcomes.

The Finnish system supports the integrated approach to discipline with a focus on the personalisation of knowledge while taking into account community traditions and student's learning skills. Physical education, as part of the national education system, successfully contributes to student development along with other disciplines. Teachers have autonomy in adapting the curriculum to the needs of students and organize content so that the knowledge gained in one discipline can help to learn others. Compulsory school begins at the age of 7 with the elementary level in grades 1-6, the secondary level in grades 7-9, and then the vocational level, which is not compulsory. In grades 1-4, students participate together in physical education, and in grades 5-9, they are divided into groups by gender: girls are taught physical education by female teachers, and boys, by male teachers. The number of hours assigned to grades 1-6 is two hours, with the possibility of a one-hour extension. Finnish school physical education has general objectives that can be applied throughout life: promoting a healthy and active lifestyle, developing motor, social, ethical and well-being skills, all of this with guidance on the practice of physical activity in qualitative and quantitative terms (Yli-Piipari, 2014). Teachers should contribute, through their chosen activities, to achieving the goals of the national curriculum and those decided at the school level. Students are constantly encouraged to help plan activities and apply the knowledge they learn, for example: various games learned at school to apply at home in their free time, physical

activities performed during breaks and on their way to school thus encouraging walking or cycling. Every school year, students participate in at least an integrated teaching module tailored to the needs and interests of the community in order to manage to link the costs of different areas of study and apply them to meet the requirements (Finnish National Board of Education, 2016).

According to Heikinaro-Johansson et al. (2014), the physical education process contributes to implementing the integrated approach to curricula through physical activities performed during lessons, breaks and before/after school, sports competitions, walking, running and games as part of the curriculum, which is why teachers should have knowledge of other disciplines such as biology, social sciences, healthcare but also technological, digital and communication skills that are so necessary in teaching and evaluation.

Placek and O'Sullivan (1997) support the importance of collaboration between teachers to overcome the barriers imposed by separate curricula through the acquisition of knowledge from one field together with that specific to another field, for example, the development of motor skills coupled with learning knowledge from other disciplines, such as pulse, main muscle groups, names of English exercises or environmental influences on the body.

"Fit Newton's Great Adventure" is the name of a project successfully implemented through the integrated curriculum, which combines elements of science, reading, writing and physical education to solve problems with integrated requirements, with examples of activities performed in pairs or groups, role-playing activities, etc. The study involves actions using means specific to physical education with written tasks, scrabble and application of knowledge from another discipline to the resolution requirements. The activities integrate physical education and sciences. The writing and collaboration skills facilitate project implementation, being gradually developed in compliance with the principle of accessibility through daily planning and highlighting the importance of communication between teachers to determine what components should be scored and how activities should be constantly evaluated to see their benefits for students and provide further additions (Buchanan et al., 2002)

Boyraz and Serin (2017) confirm the positive effects of the interdisciplinary approach through game-based physical activities aimed at the acquisition of knowledge in the science field within the programme called "Let's Learn About Force", which used the first pilot application of 8

games to 36 students, and then 12 games in 36 lessons to 3 experimental groups of students with a total of 82 third-grade students in Turkey.

Another project implemented in a US elementary school addresses physical and mathematical education, with the physical education teacher working with two mathematics teachers to conduct the project (DeFrancesco & Casas, 2004). They highlight the project's positive effects on the successful collaboration between teachers, the inclusion of common goals in the teaching process and the effectiveness of learning strategies by integrating knowledge during motor activities. The above study reveals the importance of physical education for the multilateral development of the student, who can thus grow more rapidly in cognitive terms and cope more easily with learning knowledge from other disciplines.

Physical education, in addition to its physical and social benefits and attractiveness for students, has undeniable merits in the cognitive development, which is so necessary in the knowledge process. Castelli and Hillman (2007) recognise the relationship between physical education and cognitive development stating that the constant demand of the brain through the information provided by other disciplines makes the student become careless, disobedient, bored and tired, and here, physical activities to relax brain functions through oxygen supply provide regeneration and well-being. We can conclude that an integrated approach to physical activities with subjects having different disciplinary contents will build the student's adequate and well-prepared behaviour in the educational process because it will happen in a low-level environment with a recreational accumulation of information. In this regard, an example is provided by Mavilidi et al. (2019), who successfully assess the implementation of a TWM-E (Think While Moving in English) programme based on the positive outcomes reached by a previous TWM (Think While Moving in Math) programme. In the 6-week/3 x 40 min/weekly study applied to 3rd and 4th graders in 10 public schools in New South Wales, Australia (starting from the fact that students spent 25-35% on English lessons on weekends, 20% on maths and only 6-10% on physical activities, personal development or health, barely reaching the minimum of curriculum and evaluation standards), they achieved positive outcomes with improvements in physical activities, behaviour towards imposed activities and cognitive development; therefore, the physical, cognitive and social benefits of physical activity are precisely those that lead to academic success, namely the improvement of the current standard of teaching and evaluation. As a result of teacher participation in the accredited refresher courses needed to carry out the various physical

activities of the programme during English lessons, they accessed online models and material resources received from researchers.

Mathematical concepts are taught in an integrated way through physical activities within the "Math and Movement" project, which consists in working on mathematics while performing physical exercise (Wade, 2016). Physical education teachers can successfully introduce various maths by helping with material resources (such as carpets, numbered carriages, wall-sticks or numbered targets) and musical backgrounds, thus ensuring quality and originality in the physical education class and consolidating the practice of mathematical competences. We consider these models of activity to be successful, especially in the first elementary grades where children begin to learn the first basic concepts of both mathematics and physical education, because they help them make a connection between school subjects.

Practical applications of physical education approaching the integrated teaching

In Romania, teachers must accumulate 90 training credits in 5 years and thus try to move towards student-centred learning with interactive teaching methods through the training courses attended; however, teacher adaption to the curricular needs remains a challenge.

The physical education curriculum focused on general and specific competences started to be applied to preparatory grades 1 and 2 in 2013, and to grades 3 and 4 in 2014. Regarding the presence of key competences in physical education curricula for primary school through both general and specific competences and content, it can be seen that the emphasis is on personal, social and learning competences, while those related to communication, literacy, science, math and technologies are less addressed by content. Multilingual, digital, civic, cultural expression and awareness competences are not addressed through the physical education curriculum in primary school. Obviously, physical education curricula are adapting to a series of changes due to the desire to highlight their importance for student development and the fact that they are not covered by general and specific competences or content at the curriculum level, which does not mean that other key competences cannot be addressed through the multitude of means used by the discipline itself. Its versatility proves that it can contribute to the development of competence of awareness and cultural expression by proposing physical activities with specific cultural characteristics such as dance or games, and the use of images, films or specific applications can contribute to the acquisition of digital competences. Multilingual competences can also be addressed through various dances, which require

the student to perform different movements against the background of foreign songs or consolidate their vocabulary through relays or thematic games.

We note that, most of the studies use games as a means of action at the primary and secondary cycle level, in order to promote the acquisition of contents offered by existing school curricula in the same time with the acquisition of general and key competences. The game has an impressive effect in students on getting used to different rules or simply in accumulating new information without the appearance of boredom. Based on the idea of play, physical education offers integrated teaching possibilities and the assimilation of key competences, by applying theme games. For example, in elementary school students we can use games to:

• developing skills offered in the physical education curriculum simultaneously with strengthening the learned alphabet by performing running games to arrange different letter cards to build a sentence or for making ascending order on books with random numbers.

• learning body parts by touching them according to the lyrics of a song, either in a native language or in the foreign language provided in the school curriculum.

• making games in nature with imitation of animals, exploring nature or protecting the environment: running games collecting objects, making a healthy menu by transporting cards with various foods, jumping like frog, crawling like snake, and others.

For the secondary level, physical education uses other disciplines present in the school curriculum to explain some specifical technical elements or to strengthen students' theoretical knowledge. Scientific, technological and mathematical competences are highly developed during this period, and many of the mathematical knowledge is found in the teaching of physical education:

• teaching acrobatic gymnastics using mathematical terms and knowledge, such as learning the stand on the head by creating an equilateral triangle from the palms and the anterior part of the head.

• explication of the body position for learning the start steps for the speed run, thus assimilating and some knowledge of perpendicularity learned in mathematics, using anatomy templates to perform harmonious physical development exercises, as well as using mobile medical devices to observe practically taking the pulse or blood pressure and how they change depending on the effort performed during the physical education class.

Another element increasingly used to acquire key competences in the integrated teaching process relates to the use of extracurricular activities.

Erasmus projects are part of the incentive activities category for the assimilation and verification of key competences. An example of the discipline's involvement in such a project is the organization of activities with students from several participating schools, with a collage of traditional dances for each country to which the school belongs. Dance thus offers a strong imprint on strengthening the cultural awareness an expression, socialization but also communication in foreign languages competences. Another example implemented in Romania is the participation of students in thematic sports activities on certain fields of trades. Here we are talking about the road education contests organized by the Police and those organized by the Inspectorate for Emergency Situations, respectively utility-applicative contests for firefighters and first aid. Participation in such competitions involves specific sports training simultaneously with the learning of theoretical knowledge. The training of students takes place through the discipline of physical education, taking advantage of other disciplines such as biology, history, social education and developing especially personal, social and learning to learn and citizen competences.

Future directions for the research-based integrated physical activity

Integrated curriculum involves reorganizing the content and the teaching-learning process through themes and activities that can be addressed in an interdisciplinary way, where knowledge from one discipline complements another and leads to the formation of skills and attitudes. For this reason, approaches are being sought to ensure that students perform activities applicable to life experiences whose resolution will require the use of competences and knowledge acquired from multiple disciplines. Elements of the integrated curriculum add benefits, especially in primary grades where the teacher teaches more than one subject and has the opportunity to address the learning content in an integrated way, taking advantage of the age characteristics and the student's elastic ability to adapt to learning situations.

Another positive factor is the low number of primary school teachers who teach other subjects (physical education, religion, English), which makes it easier for them to work together and achieve the proposed objectives. The fact that physical education is at the top of preferences for elementary school students is widely known, and teachers should take advantage of this and use the movement as a main means of teaching subjects in different areas. Many teachers do not pay due attention to physical education, considering that their own subject is the most important and teach content in a traditional way. Therefore, the successful approach to

such a process also depends on the teacher's relationship with the other actors involved in this large project (director, classmates, family, community) and, by extension, on the greater amount of work required to draw up the teaching plan, but this will bring more benefits to the development of the child than traditional teaching. For this reason, the family and community become the main vectors that help the teacher to transfer formal activities to informal and non-formal ones, thus fostering the acquisition and consolidation of knowledge.

After studying the different models offered by teachers from various countries and noting the multiple positive effects induced by the use of physical education in integrated teaching, we consider these examples as the starting point for conducting research that will provide an appropriate way to acquire and strengthen the key competences needed for the development of primary school students. Therefore, we will try to prepare and implement an integrated teaching project for the physical education subject in elementary school, which will provide answers to its educational impact on students: Are they better prepared? Are they more involved in the educational training process? Do they respond more promptly to certain requirements? Are they able to shape and turn the learned content into practical behaviours? Are they better integrated into new groups and new activities?

Discussion and Conclusion

The challenges of life require rapid change, modernisation and adaptation, and the education process is trying to keep pace looking for the most suitable methods to face them. Schools in Romania try to keep up with those in the European Union, so implicitly the teaching process is in a permanently adaptation, emphasizing the integrated approach that will contribute to a greater extent to the development of key competences.

Traditional education places more emphasis on the amount of information acquired, modern education focuses more on the quality of information, and the integrated curriculum approach attempts to incorporate it by reinventing the teaching process. Our teaching experience shows that a student with high grades in several subjects is not fully prepared unless they have the ability to adapt and apply the acquired knowledge to various situations. The term "integration" arises from the desire to seek and find ways of transferring it using learning experiences that can offer opportunities for future exploration. Integrated teaching will not consider the evaluation process as an accumulation of notions and results justified by grades but will rather focus on student progress through training, knowledge, skills,

attitudes, and making connections between information in various fields based on adaptability and transfer ability.

A complete teacher is the one who prioritises the assimilation of useful knowledge that nourishes their desire to build up students' life experiences, seeing them as participants in the process of organizing, selecting and forming their own values and meanings. All this can only be achieved by teaching through continuous training and collaboration, observing and being observed, criticising and being criticised, thus seeking innovative teaching situations that involve the student in the education process from an emotional, physical and cognitive point of view.

The assimilation of key competences is the basic element in ensuring the quality of the educational environment for students, and physical education has a high percentage in their participation in their educational training. So, the formation of key competencies and through the help of this discipline is a necessary for the future adult. All the activities implemented based on physical exercise must be refocused on their application throughout life and adapted of course according to the situations occurred at a certain time. The presented studies based on the implications of the analyzed discipline, demonstrate its value in approaching the integrated teaching process and implicitly on the formation of key competences.

We believe that physical education is required for an integrated curriculum approach due to the desire and interest of students in participating in these classes, and the use of physical activities to incorporate knowledge from other disciplines can be a fun and creative way of training the competences needed to define the profile of the elementary school student.

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