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A Knowledge-Based Approach to Physical Education: A Systematic Review

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Abstract: *In the current period, there is a growing interest in finding solutions for the new generation to have a more physically active life. One of the main tools we can act is the physical education lesson. Purpose: This paper aimed to find out if there is a new approach to the physical education class, one with a much more pedagogical (knowledge-based) character than the traditional approach based on competition and physical performance (sport-based). Method: Based on the PRISMA statement's guidelines, several 105 papers were selected. Results and Discussion: The most commonly used terms to describe this new approach are: "physical literacy", "conceptual physical education" and "fitness education". The main role of this knowledge-based approach is to complete the practical activity and not to replace it. To achieve this, the theoretical component of physical education provides the student with knowledge of concepts, principles and methods, essential for effectively managing physical activity. The last part of the paper presents the main barriers that make teachers reject this knowledge-based approach.*

Keywords: *physical education, knowledge-based approach, theoretical component, conceptual physical education, physical literacy, fitness education.*

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1. Introduction

The positive influence that physical activity has on health has been unequivocally demonstrated (Warburton & Bredin, 2017). But the obvious question that concerns the specialists is: how can we increase the physical activity level of the population?

To answer this question, physical education as a school subject is presented as the main opportunity by means of which action can be taken to increase the population's level of physical activity (Corbin, 2021; Kohl et al., 2013). But as the historian Parck (1989) showed, in the last 100 years, this school subject is in a continuous process of transformation. The author delineates two clear stages and foresees the third:

(1) The first stage of physical education was one whose objective was to prepare the population for a possible war and was carried out using regimental exercises specific to the army and exercises specific to gymnastics.

(2) Then, there is a stage known as the "sport-based approach" - which uses sports games and competition to motivate students to be physically active. But this approach has more and more opponents. The main accusation refers to the fact that it promotes (hyper)masculine values (Mierzwinski & Velija, 2019; Ennis, 1996, 2015; Macdonald, 2011; Kirk, 2010; Jackson, 2006; Flintoff & Scraton, 2001).

(3) More than 30 years ago, Parck (1989) predicted the birth of a new approach to physical education - one that will have as its main catalyst the emergence of the science called 'kinesiology'. This approach, according to the historian, will be characterized by the provision of systematized knowledge, critical thinking and the ability to make logical connections and see interdependencies.

This type of approach to PE is increasingly present in the discourse of several researchers and organizations in the field (Corbin, 2021; Maldari et al., 2021; Iconomescu et al., 2021; Corbin et al., 2020; Jones & Penney, 2019; Parviainen & Aromaa, 2015). This approach, which we will refer to as the "knowledge-based" approach, has as its main characteristic the emphasis placed on the role that theoretical knowledge plays in the educational process in PE. The "knowledge-based" approach is very well defined when Brown & Penney (2013), talk about the need to build a rational image of physical activity in the student's mind. For this, the authors state that students must acquire knowledge related to anatomy, biomechanics, physiology, sociology, psychology and even philosophy. Jones & Penney (2019) are of the same opinion and, in addition to the clear demarcation they

make between a theoretical and a practical component within PE, they also talk about the complementary relationship between the two. So, theory supports practice, and practice reinforces theory.

2 Aims

The present paper started from the vision of the historian Roberta Park (1989) who, after delineating two clear stages regarding the PE approach, predicted a third one, characterized by the introduction of a theoretical component that would provide the student with a thorough understanding of physical activity. So the main purpose of the paper was to find out if this approach is a reality - if it really manifests itself in the contemporary physical education lesson.

The hypothesis is that Park (1989) correctly predicted the emergence of a knowledge-based approach to replace the sport-based approach. If so, the objective was to provide a clearly defined image of this knowledge-based approach. For this, 4 secondary objectives were established: (1) to research the specialized literature in order to identify the methodological approaches of PE that focus on theoretical knowledge; (2) to present philosophies/theories based on which it is proposed to implement a theoretical component within PE; (3) to present a compact discourse on the role that theoretical knowledge plays in the educational process in PE and (4) to identify the main obstacles that prevent the implementation of the knowledge-based approach.

3. Methods

Considering, on the one hand, the multitude of types of evidence synthesis projects and, on the other hand, the objectives of our study, we chose to conduct in this work what Grant & Booth (2009) call 'Qualitative systematic review/qualitative evidence' synthesis'. As the authors explain, this type of systematic review integrates and interprets findings from several works, in order to identify "themes" or "constructs" in order to expand the understanding of a certain phenomenon.

The construction methodology of this review is based on the PRISMA statement's guidelines (Moher et al., 2009). The search for the relevant materials took place between 01.07.2020 - 15.04.2021, in the SCILIT database. This database is maintained by MDPI and imports daily data from CrossRef, PubMed and 319 other journals. The reason this database was used is that using a single search, results from all representative databases are provided.

To identify relevant papers, we used the Boolean search strategy using combinations of the following terms: physical education / cognitive component / theoretical component / knowledge / physical literacy / conceptual physical education / fitness education / promoting healthy lifestyle / promoting active lifestyle. Also, the references of the works selected for the study were used, to identify several sources on the topic that interests us. There was no limit to the year of publication of the selected works, precisely to be able to identify the beginning of this new approach. The criteria that a paper had to meet in order to be included in the systematic review were: (1) published in English; (2) peer-reviewed literature or conference reports available in full-text format; (3) the works must be in the field of physical education, health or sports; (3) the main subject of the paper should be the educational process; (4) within the educational process, a theoretical component must be distinguished.

The steps of identifying and selecting the relevant papers on which this systematic review is based are described in the figure 1 . In the first step of this process, in order to avoid the risk of bias (Ahmed et al., 2012) in an individual search, two reviewers carried out the same activity of identifying and selecting the relevant papers based on titles and abstracts (Identification & Screening from fig. 1). After each one finished his activity, during a meeting, the results were compared, the differences were analyzed and the works were included in the next stage with the unanimous agreement of all members. In the second stage a team was formed consisting of the 5 authors of this paper. The titles together with the abstracts that were selected in the previous stage were taken over by each member of the team for an analysis of the full-text materials. Also at this stage each reviewer provided for others the additional materials identified in the references of the studied materials.

After these two stages, a meeting of all team members took place. Each of them made a presentation on the most important aspects identified by him in relation to the theoretical component of physical education. Following these presentations, discussions were held in which it was established which will be the most relevant topics to provide a clearer picture of this theoretical component. Then, with the stability of these topics, the researchers went on to analyze the full-text materials for the second time, each providing the data they considered relevant.

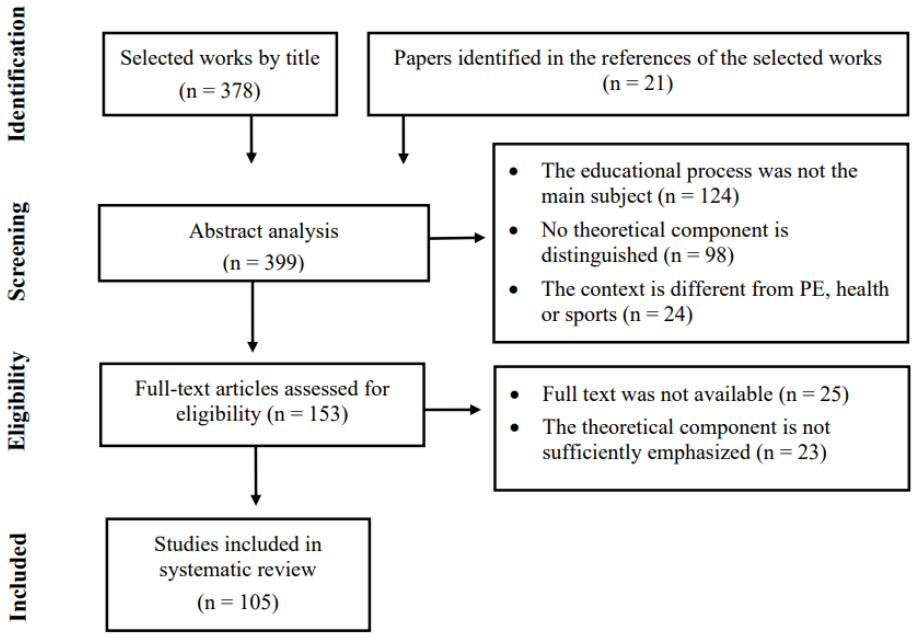


Figure 1 - PRISMA flow diagram showing the process of literature identification and inclusion.

4. Results

The focus of this paper will be laid on physical education as a school subject, as it is perceived by researchers of our time. We will try to compile the opinions of a group of researchers who seem to have the same views concerning the direction towards which this field should be heading. The common element is the importance that knowledge and understanding plays in health promotion - as opposed to the traditional view (sport-based), which concentrates on achieving standardized physical performance criteria. For this goal, we cumulated opinions gathered from various sources.

4.1. What are the names specific to this approach?

This chapter presents the main names of the methodological approaches to PE subjects whose common characteristic involves giving increased attention to the implementation of a theoretical component.

Conceptual Physical Education (CPE)

One of the oldest records found by us is the one related to the first edition of the book "Concepts of Physical Fitness" which, in 1967, proposed

a mixed approach to the physical education lesson, consisting of a part held in the classroom, in which theoretical notions specific to the subject were taught, with the help of a specialized textbook and, a second part, this time practical, in which the knowledge gained in the theoretical lessons was put into practice. (Weimo, 2018). The early programs were developed at the college level where fewer and fewer students chose to take part in the physical education course, when it was optional (Corbin et al., 2019; Corbin, 2021; Corbin et al., 2020).

This way of conducting the physical education lesson, with the help of a knowledge-based component was called "conceptual physical education (CPE)" - this name being adopted by several authors (Corbin, 2021; Shangguan et al., 2017; Liu et al., 2017; Corbin & David, 1978). According to the authors' description, CPE aims at teaching and understanding the concepts, principles and techniques of independent physical activity management, in order to promote a healthy life. This program within PE has as distinctive feature the fact that it takes place in the classroom and it uses a textbook or other printed materials (Corbin et al., 2020; Iconomescu et al., 2021;Corbin & David, 1978)

In USA, the first attempts to implement this new conceptual physical education (CPE) approach in high schools was made in the late 1970s. The conceptual approach, that includes a knowledge component, took various names including: "Fitness for Life", "Personal Fitness", "Concepts of Fitness and Wellness", etc. But, after the success demonstrated at this level (Kulinna et al., 2018), the conceptual approach was adopted at other education levels (e.g., elementary, middle school). (Corbin, et al., 2019).

Fitness Education (FE) A particular typology of CPE is "fitness education (FE)", about which, Corbin et al. (2020) tells us that it emerged as a response to the public health movement in physical education. Studies indicating increases in the number of people at risk (obesity, sedentary lifestyle, chronic diseases, etc.) have led to an increased attention given to health-related fitness testing movement, but also to the motivation to include FE in the education system curriculum. (Corbin et al., 2020)

The Society of Health and Physical Educators (2012) defines FE, in the document "Instructional Framework for Fitness Education In Physical Education", as "a subcomponent of the total physical education program, focusing on helping students acquire knowledge and higher-order understanding of health-related physical fitness, the product, as well as habits of physical activity and other healthy lifestyles, the process, that lead to good health-related physical fitness, health and wellness" (p: 1). This subcomponent, as defined by the Society of Health and Physical Educators

(2012) was introduced in the national curriculum in the United States and is most obvious in Standard 4: "Students demonstrate knowledge of physical fitness concepts, principles, and strategies to improve health and performance." (California Department of Education, 2009: 17)

Physical Literacy (PL)

Internationally, the term that best encompasses this post-modernist approach to PE is "physical literacy (PL)". As we will see below, this term includes more than a theoretical component. According to the International Physical Literacy Association (2016), Margaret Whitehead first proposed this term within the International Association of Physical Education and Sport for Girls and Women Congress in Melbourne, Australia. As first defined, in Whitehead's vision, a physically literate individual is the one who possesses motivation, confidence, competence, knowledge and understanding to lead him to an active and healthy life (Whitehead, 2015).

Once proposed, the term "physical literacy (PL)" has been adopted by more and more countries to express a new and holistic mindset in which it is desired to educate not only students but also adults and the elderly. Countries such as Canada, England and Wales are seen as the countries that are most concerned with implementing physical literacy among the population and have a wide range of initiatives. They are followed by noteworthy results from Australia, New Zealand, Northern Ireland, Scotland, the Netherlands, Venezuela and the United States. All these countries understood and were convinced of the need for this new approach and began implementing programs based on physical literacy. (The Aspen Institute, 2015)

As it was shown in a review by Edwards et al. (2017) the concept of PL has received several interpretations. But one of the aspects with which all schoolers seem to agree is that within PL we find 4 domains: (1) physical; (2) psichological; (3) social; and (4) cognitive. All four domains are interconnected but different methods and tools are recommended to act on each (Sport Australia, 2009).

What interests us in this paper is the cognitive domain - in relation to which Ennis (2015) states that it is 'at the heart of PL' and involves both the accumulation and understanding of a theoretical content – witch refers at knowing what to do and how and when to perform.

Within the PL concept, attention is drawn to the fact that the four domains must be approached only as a whole (Young et al., 2020). But the role of theoretical knowledge is to support the development of the other

three areas by providing the theoretical foundation (Cale & Harris, 2018; Whitehead, 2001).

Other names that fit the knowledge-based approach

The three terms presented so far (CPE, FE & PL), have been identified as the most used terms in the literature in order to refer to the theoretical component of physical education. In addition to these, we also encountered other terms such as: health-related fitness knowledge (Keating et al., 2009), knowledge of physical fitness (Barnett & William, 1994), exercise knowledge (Desmond et al., 1990) or knowledge of health and fitness concepts (Stewart & Mitchell, 2003).

4.2. What are the philosophies / theories behind the knowledge-based approach?

Scott (1999) was the one who, in his book, "Health promotion planning: An educational and ecological approach" stressed the importance of the fact that any intervention that aims at being scientific and professional, should be based on a philosophy or theory. This chapter presents the philosophies and theories that represent the rationale behind the "knowledge-based" approach.

Monism, Existentialism & Phenomenology

Monism, existentialism and phenomenology are three philosophical visions that we mainly find at the base of the concept of "physical literacy". The authors who support this concept state that the first step which should be taken to put PL into practice is the understanding and appreciation of these three philosophical visions (Durden-Myers et al., 2018; Edwards et al., 2017; Whitehead, 2001).

Monism assumes the vision within which the individual is perceived as a holistic being made up of an affective, a cognitive and a physical component (Gibbs, 2006; Sartre, 1957). The implications of this vision refer to the need for teachers to be focused on the subject, as a unique individual, and less interested in teaching a standard content (Durden-Myers et al., 2018).

Existentialism refers to the need for the education process to take into account the coexistence of the subject and the environment "which grounds the possibility of developing conscious awareness and knowledge" (Burkitt, 1999, p. 74). The environment forces the individual to act, and each action leads to the improvement of the subject's experience. With this vision in mind, the teacher uses requirements and challenges carefully selected according to the individual's competencies with the aim of positively

influencing the 4 domains: (1) motivation, (2) confidence, (3) competence and (4) knowledge and understanding (Whitehead, 2015).

Phenomenology is the philosophical vision that highlights the fact that the previous experiences of each individual make subjects see, appreciate and understand a certain phenomenon differently (Gallagher, 2012). The existence of this vision brings with it three implications in the educational process: (1) each individual had his own experiences, which led to subjective perspectives - and this fact must be respected; (2) the awareness of the fact that the physical and emotional experiences that the teacher creates will, in turn, influence the perception of the subjects; and (3) considering that subjects will have different evaluations of a lesson – the evaluation of the lesson should be based on the perspectives of the subjects who participated (Durden-Myers et al., 2018).

The place of theoretical knowledge regarding these three philosophical trends is found when the transition from the abstract of philosophy to the concrete of practical applications is made. Developing knowledge and understanding is an aspect without which one cannot talk about establishing lifelong participation in physical activity (Durden-Myers et al., 2018; Cale & Harris, 2018).

The Transtheoretical Model

"The Transtheoretical Model" or "Stages of Change" - as the name suggests, this is more than a theory, it is a model that describes the stages of behaviour change. This model was developed by Prochaska & DiClemente (1984) while analysing the reasons why some people manage to quit smoking more easily than others. The Transtheoretical model states that behaviour change involves six stages (Figure 2). These stages become an important support in the design of the intervention because each stage recommends different strategies and means of influence.

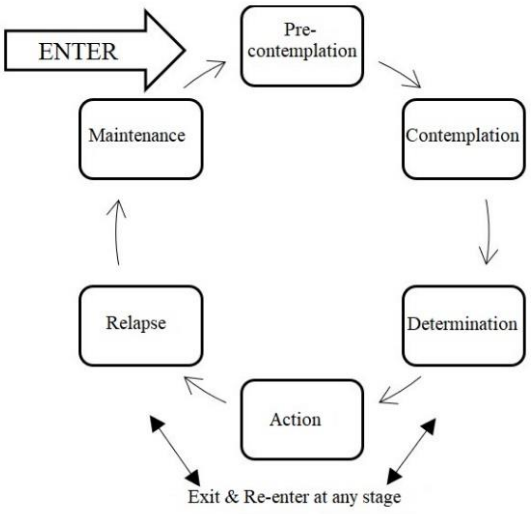


Figure 2 - Transtheoretical Model stages of behaviour change. Adapted from: (Prochaska & DiClemente, 1984)

The authors of this model, Prochaska & DiClemente (1984), describe in detail the characteristics of each stage but also the most appropriate strategies to help the individual to advance to the next level.

This last theory is one of the most used in the interventions that introduce the knowledge-based approach (Strobl et al., 2020; Ennis, 2015; Viggiano et al., 2014) . Knowledge & understanding is especially useful in the first 4 stages / steps (Pre-contemplation, Contemplation, Determination and Action). With the help of theoretical notions, the individual can be helped to evolve to the next stage. For example, being in the "pre-contemplation" stage, if the student is taught notions related to the harmful effects of a poor diet, lack of physical activity, tobacco, etc., he can be helped to become aware of harmful habits and thus move to the stage of "contemplation". Likewise, the theoretical notions can be helpful in the "determination" stage to be able to conceive a concrete action plan on their own - in the particular case of the PE, we are talking about a nutritional or physical training plan.

An intervention that highlights the use of this transtheoretical model extremely clearly, is the one created by Frenn et al. (2005). In this intervention, an interactive questionnaire was developed that can be run on a computer / smartphone. This questionnaire, through strategically designed questions, establishes the stage the student is in in real time (based on the transtheoretical model) and then provides personalized feedback to help him

move to the next level. For example, if it is established that the student is in the "determination" stage - the feedback advises him: "A definite date and a plan mean you are on your way to healthy exercise." (Frenn et al., 2005: 9).

Intervention Mapping

The term "Intervention Mapping" was proposed by Bartholomew et al. (2001) and refers to a systematic planning guide for an intervention. This rationale is the basis for planning the majority of interventions that fall under the knowledge-based approach (Iconomescu et al., 2021).

The starting point of this theory is the fact that the nutritional and physical activity choices that people make are categorized as voluntary choices in many societies.

But these choices are strongly influenced by a complex and interdependent set of so-called "mediators" or "determinants" of eating and physical activity habits. In addition, choices are conditioned by different cognitive processes and environmental factors, such as food availability and accessibility (Baranowski et al.,1999). Another aspect worth considering when referring to determinants/mediators, is the environment in which an individual lives. It has been shown that an environment that promotes unhealthy habits makes any intervention, no matter how well-planned, inefficient (Schwartz & Puhl, 2003). In this case, the goal of interventions should be to raise awareness of unhealthy habits, increase motivation, confidence and equip individuals with skills to help them cope with such an environment. The influence of the environment has led to the development of the socio-ecological theory, which focuses on the changes that need to be made in the environment. According to this theory, there is a need for a distinction between individual and environmental determinants / mediators (Crawford & Ball, 2003).

To describe the process of planning an intervention, Brug et al. (2005) offers 5 methodical steps. The first step is to identify serious problems that justify the use of resources of any kind. In the second one, it is recommended to identify behavioural risk factors related to health problems. The third stage requires the analysis of the elements that lead to unhealthy habits. These determinants or mediators will then be transformed into intervention objectives, strategies and methods for changing behaviour, which will all be integrated, in the fourth stage, into a complex plan that will try to achieve the desired result. The last stage, the fifth, is reserved for the actual implementation of the intervention.

This model of intervention planning is used by researchers who use the knowledge-based approach to try to change a wide range of behaviours, including those related to nutrition and physical activity.

4.3. What is the role of the theoretical component in physical education?

Having seen the main terms used for defining this new direction of physical education and having presented the main philosophies and theories on which it is based, we shall now try to make a compilation of the informed opinions that support the idea that physical education should contain a mix between a theoretical component and a practical one.

The contemporary period is increasingly affected by dangers such as obesity and sedentary lifestyle. This practically forces physical education to adapt its methods to meet current requirements.

Accordingly, Jackson (2006) highlights the changes regarding the evaluation in PE. The author presents in his work, the changes that occurred over time, from the period when physical performance was at the forefront, to the contemporary period, dominated by public health promotion. His observation is supported by Macdonald (2011) who believes that testing and reporting motor performance tests or body mass index may be contrary to the educational intent of PE.

This evolution of the approach to Physical Education has led to a new educational goal where knowledge and understanding occupy the first place, unlike the previous approach, which focused on athletic skills and on the simple participation in the PE lesson (Gemma & Iasonas, 2006).

Beginning with the 20th century, PE has been identified by many researchers as one of the most important tools to act on the younger generation, given that it can easily act on most students (Kohl et al, 2013). In the opinion of the President's Council on Physical Fitness and Sport (2009), a quality PE curriculum should not focus only on involving students in physical activities with moderate and intense effort. It should also provide all students with ample opportunities to acquire and understand the knowledge needed to maintain an active and healthy life throughout childhood and for the rest of their lives.

Brown (2013) talks about the need to build a rational image of physical activity in the student's mind. For this, the author states that students must acquire knowledge related to anatomy, biomechanics, physiology, sociology, psychology and even philosophy. Jones & Penney (2019) are of the same opinion and, in addition to the clear delimitation they make between the theoretical and the practical component, the authors also

talk about the complementarity relationship that exists between the two. In this complementary approach, theory supports practice, and practice strengthens theory.

Kohl et al. (2013) admits that "First, the 60 minutes per day of physical activity that is health enhancing is nearly impossible to achieve through physical education, even with the highest-quality physical education curriculum. Second, quality physical education must include time for teaching activities and lessons that may not be physically active. Third, political and economic pressures on education systems (Voinea & Apostu, 2008) to improve standardized test scores have had the unintended consequence of reducing or eliminating physical education curricula and thus students' opportunities for physical activity." (p: IX-X). The solution offered by Institute of medicine (IOM) refers to the content taught during the Physical Education lesson: "Instead of focusing exclusively on having children move constantly to log activity time, a new curricular approach emphasizes teaching them the science behind why they need to be physically active in their lives. The curriculum is designed so that the children are engaged in physical activities that demonstrate relevant scientific knowledge.?" (Kohl et al., 2013: 202).

The main objective of Physical Education teachers is to train students in the efficient and independent management of physical activity throughout life. Analysing the path on which a teacher must lead his students, Corbin et al. (2020) illustrates, in the form of a stairway, the steps to follow in order to achieve the ultimate goal (Figure 3).

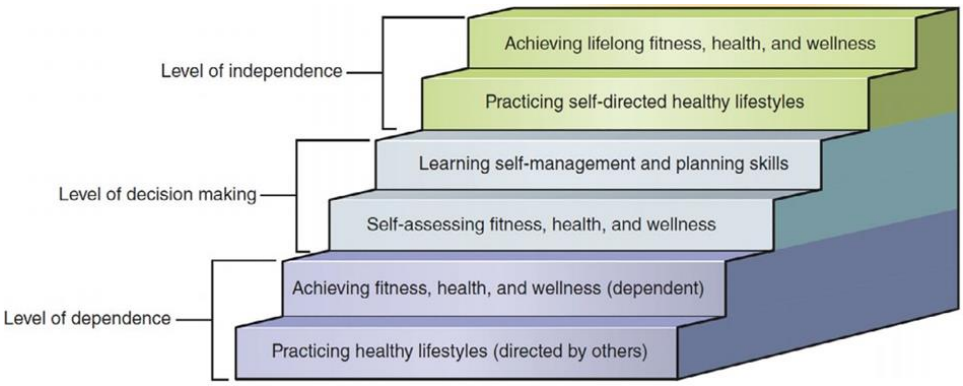


Figure 3 - The Stairway to Lifetime Fitness, Health, and Wellness.
(Corbin, Kulinna & Sibley 2020: 3)

The first level, that of dependence, contains the first two stages. This is the only level approached by the classic form of teaching PE. Here, students, under the guidance of the teacher, benefit from physical activities that can lead them to obtain a good physical shape, but without an understanding of the principles underlying the means used. Students participate in these lessons and benefit from the exercises they perform, being totally dependent on the teacher (Corbin et al., 2020).

The next level is composed of the 3rd and 4th steps, being characterized by the students' ability to make decisions. This level cannot be reached if there is no theoretical basis on which the student can learn to self-assess his fitness level and learn the principles and techniques of effort planning. This stage is an intermediate one, in which the transition is made from a totally dependent activity to the capacity of efficient self-management of the physical activity (Corbin et al., 2020).

The last level is characterized by the ability to perform independent and scientifically based motor activities. Students who have reached this level are able to plan and make decisions that affect their fitness and long-term health (Corbin et al., 2020).

The Physical Education teacher should lead his students from the first level, in which they are totally dependent on him, to the last level, in which the students become autonomous. This transition is possible only by going through the intermediate level, which involves the acquisition of a number of theoretical notions by students - the cognitive component.

A group of researchers has been identified who substantiate their vision on the work of Arnold (1979). He distinguishes 3 types of education within PE: (1) education in movement, (2) education through movement and (3) education about movement. The first of them (education in movement) is described as the practical activity on the sports ground / in the gym in which the experience is oriented towards the sensations perceived by the senses, and the student thus learns about the world around him and about himself. (Jones & Penney, 2019; Arnold, 1979; Brown & Penney, 2013; Thorburn, 2007) The second type (education through movement) refers to an instrument that achieves objectives, other than the motor ones, such as team spirit, aesthetic sense, different values and / or attitudes. (Brown, 2013; Thorburn, 2007; Jones & Penney, 2019) The third, education about movement, is the one that is of interest to us, because it expresses the cognitive component, the purpose of this work. Brown (2013) considers that this aims at building a rational image of physical activity. So, it focuses on anatomical, biomechanical, physiological, sociological, psychological and/or philosophical information. Examples of learning units

for this type of education are: understanding heart rate thresholds in order to develop endurance, calculating caloric intake and daily caloric needs, psychological training strategies before a competition, etc. It is thus observed that the acquisition of theoretical knowledge and its understanding is the main feature of "education about movement". Jones & Penney (2019) believe that the approach of this type of education (i.e. education about movement) in physical education, has the effect of creating an integration of theory and practice, in order to provide a meaningful training process.

Theoretical knowledge and understanding have been identified by Cale & Jo (2018) as the basis without which we cannot talk about promoting a healthy lifestyle for the entire life. The authors conclude that, in order to be successfully involved in lifelong physical activity, it is imperative that students know and understand: (a) how to engage in physical activity effectively and safely, (b) the body's responses to participating in physical activities, (c) the reasons why we should participate in physical activities, (d) what kind of physical activities to engage in, where and how to do them. Following the same line of thought, Castelli & Valley (2007) state that theoretical knowledge and physical skills are the two elements that cannot miss from a balanced curriculum that aims at promoting students' physical activity throughout life.

In a paper that analysed 129 interventions at school level, which were focused on improving the level of physical activity of students, Demetriou & Höner (2012) concluded that, to achieve the ultimate goal, "health and fitness", it is necessary to change the behaviour. In turn, the behaviour can be changed by acting on the psychological determinants. The authors present these psychological determinants as: knowledge, self-concept, attitudes and motivation. This paper demonstrates the essential role that this cognitive component plays in achieving the ultimate goal of physical education.

The need and role of theoretical notions were highlighted more than 30 years ago, when Fox et al. (1988) said that Physical Education, which focuses on human body, should contain some information about basic medical sciences, such as physiology and anatomy. This is an inevitable fact in order to better understand the effects of exercise on the body. Matveev et al. (2020) note as the main subject of modern physical education, the education of the future adult in order to be able to self-conduct physical activity throughout life. To this end, the authors speak of the interconnectivity of three terms: (1) knowledge, (2) habits, and (3) skills necessary in order to be able to strengthen their health independently.

Fullan (2001) emphasizes the fact that current education focuses on what students know, in the sense of declarative knowledge, and on what they can do (applied knowledge) - in relation to the specifics of the subject. This highlights an essential aspect that must be taken into account in teaching Physical Education: when the institutionalized educational process is over, students should be able to establish clear links between what they know and what they can do. On the same topic, Keating et al. (2009) assert that, determining the knowledge that students possess at different educational levels, requires increased attention from physical education specialists, to be consistent with current general education. In order to develop an active, efficient and meaningful lifestyle, it is necessary for students to acquire theoretical knowledge related to the objectives pursued in physical activity (Keating et al., 2009).

From what has been presented so far, it can be concluded that the literature has quite clearly highlighted the importance and the essential role that this cognitive component has in ensuring a meaningful training process that promotes critical thinking.

4.4. Is there resistance to changing the approach in physical education?

The traditional approach in PE is the one dominated by sports and the fulfilment of a standard scale of physical performance. Regarding this approach, Vertensky (1992) states that it was built by men for men and boys, respectively. It is a form in which the aggression and domination of the strongest or fastest finds a space in which it is socially accepted. Ennis (1996) considers that students are owed an apology by those who subjected them to sport-based PE classes in which stronger, faster or more aggressive students were encouraged to eliminate the weakest or most timid. The author goes on to state that this form is discriminatory and, in addition, this approach denies many students the right to education.

The subject of sports-based physical education also interested Portman (1995), who also noted the unpleasant experiences that low-skilled students in the 6th grade are forced to go through. The author even quotes the students' words: "I don't like PE when we play volleyball." (Paul); "I try my best, but I am just terrible at games." (Heather); "I know how to throw it (football), but I just don't like it. I just don't want to learn it." (Marsha); and "I let the ball go past me, and it hit me in the face. I am afraid of balls. I just want to sit out." (Yasmine) (Portman, 1995: 450-451).

After this description of the traditional way of teaching physical education, we will further present the main factors that oppose the change

to the knowledge-based approach that we have described in this paper. Even if the difference between the two approaches is more than obvious, the changes do not happen so fast and do not happen at the same pace in each country. But let's see, however, what are the forces that create a resistance to change.

Corbin et al. (2019), following the numerous workshops organized to prepare teachers to teach a theoretical component, complementary to the practical one, tells us that, when referring to the implementation of a theoretical component in physical education, the most common criticism, but also the most obvious and correctly expressed is: "How is the presence of students in the classroom justified when it is proven that they do not meet the minimum level of physical activity?" To answer this question, we must start from the main goal of physical education, which is to promote a healthy lifestyle for the entire life. It is true that theoretical physical education classes reduce the volume of physical activity of students during those days - but we must not forget that theoretical lessons are not planned to occupy all the hours assigned to this subject. However, it has been shown by multiple researches that these theoretical lessons lead to more physical activity in the future, for the rest of the life. So, if conceptual physical education provides students with the knowledge, techniques and motivation to be able to logically understand and independently conduct their physical activity for the rest of their lives, we can conclude, without being wrong, that the time spent in the theoretical classes was one that was well worth it (Corbin et al., 2019).

The extra work that the physical education teacher has to carry out to teach a conceptual physical education program has been identified as one of the biggest barriers raised by teachers in the early stages of implementing this approach. Here, we refer to written papers or portfolios that need to be corrected and graded, planning and programming the theoretical content to be taught - all this is a great difficulty especially for teachers who, before, did very little planning work and used the phrase "let them play" (Corbin et al., 2019).

The authors also identify a conflict that arises in physical education teachers who are also coaches in a sports branch. These teachers are undoubtedly making a double effort. But what is worth mentioning is that, most of the time, they perceive the coaching profession as more important, because the physical / sports performances of those children are superior to those of other children in school. These teachers are not willing to make an extra effort in the area of physical education to teach a conceptual physical education program (Corbin et al., 2019).

Corbin et al. (2019) also speak of a resistance on the part of students to participate in theoretical lessons. However, the same author noted that

this is never an obstacle if the teacher is convinced of the value of the content transmitted in these courses and if he adequately communicates this belief to them.

In Russia, the same resistance to change was reported when Matveev et al. (2020) proposed for implementation a modular program that also included a theoretical component. The authors present the educational system in Russia that tries to make the transition from the typology of the "society builder", which involves the development of a harmoniously developed personality, to the typology of the critical thinking student, who thinks independently. The implementation of this new vision has generated resistance from those involved in the education system because, so far, they have been asked to educate students who matter to society (a person for society), and now they are required to educate independent students. (a person for himself/herself) (Matveev et al., 2020).

Resistance to change was much stronger in the early years when a theoretical component was proposed to complement the practical one in PE. In the United States, in 1967, a book entitled "Concepts Book" was proposed for publication, offering a mixed approach, consisting of a theoretical module that took place in the classroom and also used a specialized textbook, in combination with a practical component, through which to experience the theoretical notions previously acquired in the classroom. The response of the publishers was extremely clear: no one wanted to print such a book because, they said, no one would ever use a textbook in the field of physical education. So, in order for the book to be printed, the authors had to guarantee the sale of 2,000 copies with their personal money. Fortunately, they did not have to pay for a copy, because this book has been printed in more than 30 editions for over 50 years (Weimo, 2018).

In the end, we will present how The Aspen Institute (2015) tried to answer to the following question: "What should be done to promote physical literacy worldwide?". The authors recommend "creating an army" of people who understand the concepts of physical literacy and who are able to convey its potential and values to others. These people will share this phenomenon by the power of example. The Institute also recommends conducting as many long-term studies as possible to prove the effectiveness of physical literacy. This involves methods that focus on the progress of the individual in each of the 4 areas: emotional, physical, cognitive and social. All these actions are all the more important as most of the adult population has lost interest and motivation to get involved in physical activities. This circle must be broken (The Aspen Institute, 2015)!

5. Discussion and conclusions

The starting point of this paper was the work of the historian Parck (1989), who proposed to follow the general patterns through which PE has gone since the first years of its crystallization. The author expressed her hope that the new emerging science - kinesiology - will be the one that will provide a new form of PE in the 21st century, a form in which knowledge about and understanding of it receive more attention from specialists in the field. The rhetorical question that the author asked was: "Can Physical Education Become the Renaissance Field of the 21st Century?".

The type of review conducted by us (qualitative evidence synthesis) has as its main characteristic the identification of "theme" or "constructs" in order to expand the understanding of a certain phenomenon (Grant & Booth, 2009). In the present case, it was about the PE phenomenon and the theme/construct was the approach that Parck (1989) predicted would dominate the 21st century – an approach that we called knowledge-based.

The results presented in the previous chapters showed that in the specialized literature there are several names that fall under the knowledge-based approach. All these names, even if they encompass concepts that differ more or less, have as a common characteristic the fact that they support the achievement of a mix between a theoretical and a practical component in the instructional-educational process of PE. Also, the results indicated that those concepts that fall under the knowledge-based typology are sound from a scientific point of view - being built on the foundations of recognized philosophies and theories.

Regarding the speech of the specialists who promote the knowledge-based approach, it can be summed up that: knowledge and understanding of a concept cannot miss from any educational process, and PE is no exception. In the absence of the cognitive component, confusion will occur. No matter how physically competent an individual may be, without knowledge they will never be able to develop the motivation and confidence to practise physical activity independently. But the transition from sport-based to knowledge-based is not always easy and is not achieved with the same speed in each country (Johannes et al., 2023).

Demetriou & Höner (2012) carried out a review paper in which they analysed which the most effective interventions are in order to build healthy habits regarding physical activity. In conclusion, the paper highlighted that the determinants of psychology are the central element that must be modified to change behaviour. And, among these psychological determinants, the first place is occupied by "knowledge". In another review,

analysing school-based interventions which promote both physical activity and healthy eating in Europe (De Bourdeaudhuij et al., 2011), the conclusion reached by the authors is that the most effective approach is the one that combines an educational component with a practical one.

The implications that this work brings to the field are both theoretical and practical: (1) from a theoretical point of view, it provides an image of the transformation that PE is going through in the 21st century and challenges specialists to a debate on the most general aspects of this school subject and, (2) from a practical perspective, the study raises awareness regarding a phenomenon that affects the PE at the most general levels - specialists in methodology (particular aspects), understanding the general trends, can generate intervention tools adapted to social requirements. For example, as far as this practical implementation of the knowledge-based approach is concerned, Iconomescu et al. (2021) carried out a review in which they presented the concrete ways by means of which theoretical knowledge can be implemented within PE - adapted to each educational level.

More than 30 years ago, Parck (1989) concluded his work by saying: "The attitude that prizes systematized knowledge, constant questioning, and the ability to forge logical links and see interdependencies, however, must infuse the work of the teacher, coach, [...] We are, as a profession, closer to achieving this than we were in 1889. Whether we will succeed, however, has yet to be seen." (p. 20). And 26 years later, Ennis (2015) seems to answer him, asserting that we will succeed: "Innovative approach to physical literacy curricula integrating physical activity with conceptual understanding of concepts, procedures, and principles have proven immediately beneficial both within and outside the PE classroom." (p. 123).

6. Limitation

As with the majority of studies, the design of the current study is subject to limitations. The knowledge-based approach highlighted by us in this review is based on the opinions of the researchers who support it. This fact underlines the subjectivity of the opinions compiled in this work.

From this perspective, as future research directions, it is noted the need to make comparisons regarding the pro and con opinions of researchers who support different approaches to the PE discipline.

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