

Teaching and learning processes in Physical Education from a cultural-historical perspective of human development

Os processos de ensino e de aprendizagem em Educação Física a partir da perspectiva histórico-cultural de desenvolvimento humano

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ABSTRACT

This article discusses the organisation process of Physical Education teaching aimed at appropriating theoretical knowledge of body culture activities. Methodologically, a pedagogical proposition with the content of a collective game, carried out with children in the first year of Elementary School, is analysed. Learning situations – understood as a synthesis between teaching objectives and the conditions effectively proposed for students' performance with these objectives were developed to show the children some of the contents that need to be perceived and analysed in the game for voluntary creation of playful attack and defence actions. To sum up, three considerations are presented about teaching and learning processes in Physical Education from a cultural-historical perspective of human formation: the organisation of the direction of fun in the

RESUMO

O artigo discute o processo de organização do ensino em Educação Física direcionado à apropriação dos conhecimentos teóricos das atividades da cultura corporal. Metodologicamente, analisa-se uma proposição pedagógica com o conteúdo jogo coletivo, realizada com crianças do primeiro ano do Ensino Fundamental. As situações de aprendizagem – compreendidas como uma síntese entre os objetivos de ensino e as condições efetivamente propostas para a atuação dos educandos com tais objetivos – foram elaboradas de modo a evidenciar para as crianças alguns dos conteúdos necessários de serem percebidos e analisados no jogo para a criação de ações lúdicas de ataque e defesa. Como síntese, são apresentadas três considerações sobre os processos de ensino e de aprendizagem em Educação Física a partir de uma perspectiva histórico-cultural de formação humana: a organização da direção do divertimento no jogo; a

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game; the transformation of the teaching object into a learning object; the knowledge to be taught as instruments of thought.

transformação do objeto de ensino em objeto de aprendizagem; os conhecimentos a serem ensinados como instrumentos do pensamento.

Keywords: Physical Education. Cultural-Historical Psychology. Teaching.

Palavras-chave: Educação Física. Psicologia Histórico-Cultural. Ensino.

1 Introduction

In consciousness, the word is what – in Feuerbach’s words – is absolutely impossible for one person but possible for two. The word is the most direct manifestation of the historical nature of human consciousness. (VYGOTSKY, 2009, p. 486).

Investigating educational and didactic principles based on the Cultural-Historical Theory has gained ground among Brazilian researchers who aim to systematise conceptual tools for teaching activities in relation to the organisation of teaching aligned with critical pedagogical perspectives, for example, Libâneo (2014); Eidt and Duarte (2007); Moura et al (2010); Bernardes and Moura (2009); Nuñez (2009); Facci (2010); Moura, Sforini and Araújo (2011); Sforini (2015), Lavoura and Marsiglia (2015); Nascimento and Marcassa (2021).

The philosophical assumptions of the Cultural-Historical Theory posits that the subject appropriates knowledge as he/she works with it, making comparisons, analyses, syntheses and generalisations aimed at problem-solving (VYGOTSKY, 2009; VYGOTSKY, 1995). This problem, originally social, can have an increasingly personal character for the subject (RUBINSTEIN, 1973), which enables us to state that the appropriation of knowledge is an act, fundamentally, of the formation of *willingness*, *consciousness* and *personality* in relation to different historically formed *human activities* (LEONTIEV, 1983; VYGOTSKY, 2009).

In order for teaching to effectively assume a role that fosters the development of subjects as a personality, the content of the teacher's teaching activity and the children's learning activity should express *theoretical* knowledge or a concept (DAVYDOV, 1988; VYGOTSKY, 2009). The task of systematising how a certain way of organising teaching can contribute to triggering the formation of theoretical

thinking is a challenge for research in education in the field of the Cultural-Historical Theory. Davydov (1988, p. 6, emphasis added, our translation) considers that

The essence of theoretical thinking is that it is a special procedure in which man focuses on understanding things and events by analysing the conditions of their origin and development. When students study things and events from this perspective, they begin to think theoretically.

Given the specificity of the research object of this article – School Physical Education and its teaching and learning processes in a cultural-historical perspective of human formation – it is assumed that the formulation of *body culture* (COLETIVO DE AUTORES, 1992) as an object of teaching in Physical Education is the one that best allows systematising the problem of *theoretical* knowledge in the area.

Considering “[...] the need not to reduce the “theoretical” dimension of knowledge in school work by adopting verbalised or graphic *didactic actions* (NASCIMENTO, ARAUJO, 2019, p.690) and, at the same time, considering that the concept will be synthesised in the word, and this is the “[...] most direct expression of the historical nature of consciousness” (VYGOTSKY, 2009, p. 486), the main didactic problem for Physical Education teaching is in the explanation about how conceptual syntheses of body culture activities – games, dances, fights, etc. – can be appropriated by the subjects in the pedagogical activity.

This text aims to present and discuss an organisation process of Physical Education teaching focusing on the appropriation of *theoretical knowledge* of body culture activities, particularly, the Collective Game. To this end, it is in line with the understanding that the formation of “theoretical thinking” (DAVIDOV, 1988), or “higher psychic functions” (VYGOTSKY, 1995), or of “personality” (RUBINSTEIN, 1973; LEONTIEV, 1983) refer to the same process: the cultural-historical development of the subjects.

Methodologically, a pedagogical situation carried out in a state school with children in the early years of elementary school is analysed. The teaching proposal was developed based on the understanding that the specificity of the

Collective Game is in the existence of *mutually opposing attack and defence objectives* (NASCIMENTO, 2014; MILAK, 2018).

As syntheses, three methodological considerations on the teaching and learning processes in Physical Education are discussed: organising the direction of fun in the game; the transformation of the teaching object into a learning object; teaching knowledge as instruments of thought.

2 Methodological considerations on the proposition of teaching the Collective Game

In order to discuss the objective proposed in this article, a pedagogical proposal for teaching the Collective Game carried out with a group of 1st year- pupils in a Public⁵ Elementary School is analysed. Twelve children, between six and seven years old, and the classroom teacher, who also played the role of researcher in the present investigation, participated. The twelve classes given over six weeks were recorded on video (with a fixed and a mobile camera) and in a field notebook.

*Learning situations*⁶ were developed, understood as a synthesis between the proposed teaching objectives and the effectively organised conditions for the students' performance with these objectives. These situations were oriented so that the subjects of the pedagogical activity – teachers and students – transformed the initial conditions of a game (its objectives and rules) to show evidence, from this transformation, of the contents that were considered necessary to be perceived and analysed to consciously create game actions.

The development of these teaching actions was guided by the understanding that the specificity of the Collective Game activity lies in the existence of “*objectives that are mutually opposed to each other*” (NASCIMENTO, 2014; MILAK, 2018), which leads to (for those who play) the need to permanently seek

⁵ The participants were given the terms of free consent by mediation of the school board.

⁶ Leontiev (1983) and Davidov (1988) call this relationship “objectives and conditions” of tasks. Davidov, more specifically, formulates the concept of “study tasks” as part of his proposition about the study activity (DAVIDOV, 1988). In Brazil, Moura et. al. (2010) formulate a specific conceptualisation for this general idea of “objectives organised under certain conditions” based on the proposition of the Guiding Teaching Activity: the concept of *a situation that triggers learning*. In this article, we have chosen to use the general term “learning situation”.

answers on how to *control the game space to consciously* create playful⁷ attack and defence actions. This problem, which contains the nucleus of the concept of Game, the “unit” from which all the different forms and situations of “game” derive, is configured in the structural problem with which subjects need to be permanently involved so that they can produce and reproduce Game activity for itself as a specific or singular type of human activity that, nevertheless, involves human-generic ways of perceiving, memorising, feeling, imagining, planning and positioning oneself in the world (EUZEBIO, 2017; COLOMBO, 2021).

The analysis of the relationship between the learning situations proposed for the children and the study actions that were actually carried out by them is presented in this article – based on video recordings and the field notebook – to constitute what Moura (2004, p. 276) methodologically established as *teaching episodes*. It is a way of organising research data that can comprise a set of scenes, not necessarily linear, that “[...] can reveal interdependence between the elements of a formative action”, in this case, the formation of thought theoretical in relation to the Collective Game study. To situate the genesis of the scenes, the summary description of the activity developed with the children, based on the sequence of proposed learning situations, was considered relevant.

3 Children's learning actions considering the proposed teaching situations

The learning situations proposed for the study of the Game were organised based on a specific game called “Getting the balls”. In this one, the objective was to “get as many balls as possible to fall in a hula-hoop”, considering that, initially, the balls were in the centre of the playing field and the players could choose, in each new game, where to place their hula hoops (Figure 1a). The problem that materialised as an object of awareness for the children's performance in this game was, initially, the very action of catching the balls as quickly as possible, given certain conditions given by the rules.

⁷ Playful, according to Elkonin (1998), can be conceptualized as the process of synthetic and symbolic reconstitution of social relations, deprived of their direct utilitarian purposes.

The proposed learning situations (for example, the performance of successive games and the analysis, with the children, of the conditions from which each player acted) sought to highlight the first content about the relationship between rules and objectives of the game: the need for equidistance between the hula hoops and the target – relationship with the game space. This synthesis later became part of the rules framework as a necessary condition for the beginning of each game (Figure 1b).

Based on this first form game “getting the balls”, the learning situations were developed and conducted based on transformations in the structure of the game (alteration of the rules and objectives) that potentially highlighted a new object of consciousness for children when playing: the existence of mutually opposed game objectives.

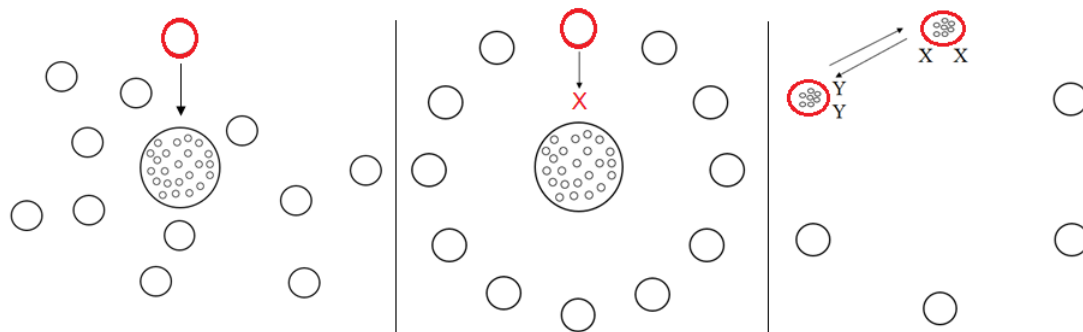
The first transformation proposed by the teacher in the “getting the balls” game was to introduce a new role among the players: the “ball keeper”, whose function was to protect the balls in the central circle (Figure 1b). This adjustment enabled the players, in the very structure of the game in which the children were already participating, to mutually oppose the objectives, insofar as, now, the player who sought to catch the ball from the central circle started to face another player (initially the teacher) that prevented him/her from catching the balls directly (Figure 1b). Thus, even maintaining the game's general objective of "catching the greatest number of balls possible", this first change in the initial conditions of the game led to transforming the object of attention of the children when playing: from the action of catching the balls to the action of adequately occupying the game space – considering the space occupied by the keeper – to then pick up the balls and take them to the hula hoop itself. This transformation in the game materialised the existence of mutually opposing objectives, although at that moment this relationship appeared in a simple way because each player played only one role (“attacker” or “defender”).

The second adjustment proposed for the game was the possibility of picking up the balls not only from the central circle, but also from their

classmates' hula hoops. This rule change introduced a new need for the players, which was perceived by the children during the games: in addition to catching the greatest number of balls possible, they also had to prevent the balls from being caught by others in their hula hoop. This change in the initial conditions of the game then led to, in the very dynamic of the game “getting the balls”, having simultaneous roles for each player/child: i.e., the “ball catcher” (attacker) and, at the same time, being the “the ball keeper” (defender), which established a more complex relationship of “objectives mutually opposed to each other”. Thus, there is a more explicit need to intentionally create situations of attack and defence in relation to the game space, as well as possibilities for intentional collective actions to achieve the objectives of the game.

From this second transformation in the form of carrying out the game “catching the balls”, the children understood that it was possible – and, in certain cases, necessary – to intentionally act in pairs. This resulted in a third change in the rules of the game: now the students started to work in pairs (each pair with a hula hoop with 7 balls), eliminating the central hula hoop (Figure 1c).

Figure 1 (1a, 1b and 1c): Initial structure of the game space getting the balls



Source: Authors' work

These adjustments in the game structure were presented to the children concomitantly with the proposition of a set of learning situations, expressed through guiding questions (DAVIDOV, 1988), which sought to mobilise them to think about the specific problem of the Collective Game: how can we occupy the game space

considering that there are mutually opposing objectives? The aim was to engage children in the perception and analysis of existing contents in the Collective Game and that were necessary to be transformed by the players to create new objectives and game actions. Among them, the understanding that the rules of a game comprise the general framework from which and with which specific attack and defence objectives can be created, which then directly guide the players' actions.

In the next section, some scenes highlighted from the experimental situation are presented to analyse how the proposed teaching organisation mode guided a certain relationship between the children and the learning process of the Collective Game.

4 The formation process of theoretical thinking in Physical Education teaching

The learning situations proposed for the Collective Game study can be apprehended in the relationship between the questions that the teacher proposed to analyse the game situations experienced by the children and the objectively created conditions for acting in the game. These situations, which sought to place as an object of children's attention the actions created and/or possibly to be created by the players in relation to the game space and the target-objective to be achieved, were synthesised in four scenes (Table 1). Based on them, the teaching organisation process and the formation of theoretical thinking in Physical Education classes are analysed.

Table 1: Teaching episode about the Collective Game

<p>Scene 1:</p> <p><i>The children start the “Getting the balls” game [Class 1]. The initial aim is to “take as many hula hoop balls from the central circle and bring them to your hula hoop”. José positions his hula hoop away from the centre circle, while Maria positions hers as close as possible. At the end of the first game, Maria has more balls than José. The teacher proposes a first movement of analysis regarding the relationship between the objectives and the rules of the game, seeking to highlight as content what the “initial conditions of the game” and “conditions of the game that result from the players’ actions” would be.</i></p> <p>Teacher: Why did José manage to catch only three balls and Maria managed to catch a lot? Children: Because we ran... Teacher: Okay, but who is closer [to the central hula hoop]? A child: Maria...</p>
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A new game starts. The teacher asks each child to choose where they want to place their hula hoop. Almost all the children place the hula hoop as close as possible to the centre circle. José, Joana and Daniel put them in more remote places. Joana and Daniel observe that all their classmates have positioned their hula hoops close to the central circle and then bring their hula hoops closer. José keeps his hula hoop at the back of the court, as far away from the centre circle as possible. The game ends and the teacher goes back to talking to the children.

Teacher: Just for me to understand, why did you put the hula hoop here, very close?

Child: Because we can catch more!

Teacher: Oh, yeah! And José, why did you put it so far away?

José: Because the important thing is not to win.

Teacher: What's important?

José: The important thing is just to have fun.

Teacher: Well, José said that the important thing is not to win, it's to have fun, but the teacher told you before that our **objective here is to think of the best solutions to be able to catch as many balls as possible** [.. .] everyone had fun, okay, but the goal was to think of a solution to get as many balls as possible... [...] most put them close by so they could come quickly to the centre.

Scene 2:

The "getting the balls" game now takes place based on a new condition: there is a ball keeper, who was initially played by the teacher (Class 2). The teacher proposes that the children analyse some game situations.

Teacher: How did you come up with a strategy to come here and get the little balls without me catching you?

Child: We turned around...

Laura: When you were there, distracted by the others, we would go... [...].

Child: Go underneath the teacher

Teacher: Oh! But will there be time?! I closed my legs first.

Child: It's not... it's not.

Teacher: Is there any other plan we can make to catch these small balls?

Lucas: Of course... I was coming here, then I saw if you were coming here, I turned around and picked up the ball [...].

Teacher: **Did anyone think of anything else besides going the other way to what I was? [...].**

Teacher: There was something that everyone did but didn't notice. For example, when the teacher tried to catch you, what did you do?

Douglas: Dodged.

Teacher: Dodged, didn't you?! Most of you tried to dodge in some way, didn't you?

Carlos: Me too?! [doubtfully].

Teacher: Everyone [...].

José: I thought of a plan that when we were there, I told Douglas: Douglas goes one way and I go the other.

Scene 3:

The children analyse the game considering the new role they play: keepers of the central hula hoop [class 4].

Teacher: **Carlos, what did you think about doing to protect the centre circle? Where were you looking, to begin with?**

Carlos: Forward, then I looked back.

José: Did you know that it was very easy for us to get past Carlos? I even managed to walk by!

Teacher: **And what strategy, what plan, do you think Carlos thought of, José? What do you think he did right and what did he do wrong?**

Jose: What he did right was to stay here around the white circle, so no one could go in here. But what he did wrong was to always stand in front of the person.

Teacher: And what do you think he could have done? [...] to improve?

José: I could have done... not stand there for too long [...].

At a later time, José becomes the keeper and at the end of the game, the teacher again proposes that the children analyse the game actions performed.

Teacher: José, was it easy to protect here? [José says no]. Why?

José: Because there are a lot of people... then I would run after people and then go back to go after other people.

Teacher: Do you think it is more important for the keeper to catch the person with or without the ball?

Children: With.

Teacher: Why?

Douglas: Because then they protect the balls and put them back.

Teacher: Okay... and in this relationship, where should the keeper keep looking?

Douglas: Here [points to centre].

Teacher: To the centre, is that it? [...]. And how far away should that person be?

So, for the next class, we'll start thinking about this: where the keeper should be to protect the centre and how they should act. And how we are going to think of a way for us to get past this keeper without him/her catching us, okay?

Scene 4:

The children begin to play in pairs. The teacher talks with the children about the solutions that each pair has planned to play and achieve the game's objectives. At that moment, the children assume simultaneously the roles of attacker and defender of the hula hoops [Class 9].

Teacher: I'm going to ask each of the pairs what you planned, what worked and what didn't.

José: Eduarda stayed there on the hula hoop, I picked it up and then we swapped.

A new game is started. In the middle of the game, three of José's game actions can be clearly seen:

I. José goes behind a classmate who was protecting the hula hoop and does not notice him. José catches a ball and successfully gets away from his classmate, who notices José's action "late".

II. José looks for a new target to catch the ball: he watches those hula hoops that are relatively unprotected. He also helps out on defence, returning from time to time to join his teammate/pair.

III. José tries to catch the teacher's hula hoop. In the middle of the action, he notices that the hula hoop of the next pair is more unprotected. He changes his target, successfully takes the ball from the other hula hoop and takes it to his hula hoop.

During the conversation about the game, in the circle (Class 10), a child's voice can be heard: "Yesterday, José stole all my balls".

Source: Authors' own work

The first content proposed by the teacher for the children's analysis referred to the relationships between the results of a game (or the "game advantages") and the actions performed by each player. On the one hand, the results of a game can appear as an approximately direct product of the initial conditions of the game – which the subjects do not directly control, unless they change the rules of the game –; on the other hand, they can manifest as a result of tactical actions intentionally created by players to achieve attack and defence

objectives. This knowledge about the Collective Game was proposed as an object of reflection for the children considering a unique situation that arose in the game they performed regarding the spatial arrangement of the hula hoops in relation to the central circle (Scene 1): Positioning his hula hoop away from the central hula hoop, José caught few balls; Positioning her hula hoop next to the central hula hoop, Maria caught many balls.

This situation was considered, by the teacher, as a potential expression of the general problem about the initial conditions from which each player acts, which could show – as an object of analysis for the children – the role of the game space for the creation of actions of each player. The following question was then formulated for the children: “Why did José manage to catch only three balls and Maria managed to catch a lot?” (Scene 1). It was intended, as a summary, to understand that whoever is positioned closer to the target has an initial advantage in relation to the final objective of the game “getting the balls”.

The children's responses denote, however, that this question initially led to different objects of attention, because they understood the *meaning* of the question differently. When the children answer: “*because we ran...*”, the apprehended meaning of the question seems to have been: “*Well, to catch a lot of balls and reach the objective of the game, the most important thing is to run*”. In fact, “running a lot” is the most direct and immediate way to reach the objective of the game “getting the balls”, which indicates that the *movement of thought* of these children is correctly directed towards the objective of the game (“to get as many balls as possible from the centre”). However, the understanding of this objective does not yet carry, for children, the understanding that thinking about the game space is a relevant and necessary means to better achieve this objective.

Thus, this first question proposed by the teacher – devoid of a collective analysis of its content – could indicate as an object of children's attention only the apparent or immediate aspects of the Game, among them the direct association of the final data of a game with the “effort” or “competence” of each player. It is

along these lines that José's sentence seems to be situated, when he says: "*The important thing is just to have fun, and not win*" (Scene 1), showing his interpretation that his "failure" in the match could be opposed to the search for fun. From this scene, three didactic considerations on the organisation of teaching in Physical Education stand out: creating fun in the game; the transformation of the teaching object into a learning object; and the knowledge to be taught as an instrument of thought.

4.1 Creating fun in the game

"Winning" and "having fun" seem to be two diametrically opposed relationships when thinking about teaching the Game. However, the phrase reproduced by José that "the important thing is just to have fun" can carry relations of oppression and alienation as much as its opposite, "the important thing is to win". The discourse that the important thing is to "have fun" or "participate" often occupies the role of compensation for the possible "failures" that a subject experiences in games or other bodily practices, "failure" not in relation to the result itself of a game (it is not the result "alone" that is the determinant), but fundamentally in relation to the subject's perception of his/her non-learning in that activity and, thus, of his/her impossibility to act creatively and autonomously in it.

Enjoyment in the game is not an absolute *a priori* but must be perceived fundamentally as a result of the subject's engagement with the creation of "exquisite" game actions. This means that the possibility of having fun in the game also develops and is directly linked to the knowledge that the subject has to act creatively with the core problem of this activity: how to control the game space in the face of mutually opposing objectives. Knowing what to do and being able to accomplish what you know – seeking to create increasingly qualified and deliberate game actions – can lead to fun that we could call "not immediate". This sense of "fun" is summarised in Ralkavsky's phrase, quoted by Arnold (1979, p. 50, our translation):

Basketball allowed me to discover the true feeling that accompanies the pursuit of perfection. I can now appreciate what a musician experiences as he/she struggles to achieve a perfect combination of notes, or a writer as he/she strives to achieve a perfect arrangement of words.

Considering this problem allows us to state that fun is something that develops in the game and that, therefore, can be transformed from the teaching and learning processes, not being a “property” in itself of the action of playing. This naturalistic understanding of pleasure has camouflaged, in teaching, the need to intentionally create conditions so that everyone can learn to have fun in body culture activities, which necessarily entails appropriation of knowledge specific to the Collective Game (fighting, dancing, gymnastics, etc.).

The direction of this fun in the game is related to the possibility of being able to play well with others. However, playing with others is intertwined with the conscious mastery of one's own actions in the game, therefore, the better the game is played, the wider and deeper the understanding of the problems established and proposed in the activity (which are in fact the objectives of the game). “Better” is played in an articulated relationship with the knowledge that one can intentionally put into action. There is a relationship – although not direct, mechanical and necessary – between “playing better” and having fun in the game. And finally, we found the intended understanding that “I play better (and have more fun!) according to when my partner plays better”.

This specific solidarity in the game (according to the specific object of this activity) develops when children can and want to share solutions, making each other responsible for everyone's learning.

Throughout the teaching situations analysed here and described in scenes 1 to 4 (Table 1), José demonstrates actions of appropriation of the proposed teaching object for the study of the Collective Game, both verbally, in the conversation circles, and in the game actions he performed (especially in Scene 4). José seems to have been able to approach the possibility of being a good player, recognised by himself – in his increasingly protagonist actions in the

game and in his analyses carried out about the game (Scenes 2 and 3) – and by his colleagues: “Yesterday, José stole all my balls” (Scene 4).

José's learning movement, through this new object of action proposed while teaching with the Game, perhaps allowed him to transform the meaning of the statement that *"the important thing is just to have fun, and not win"* into an orientation that: *"what is important is being able to create game activity together with my classmates and, to do that, I need to know how to intentionally produce playful attack and defence actions"*. Here, from the set of proposed teaching, one of the expressions of the formation of theoretical thought as a formative orientation of the teaching of body culture activities within the framework of the Cultural-Historical Theory: a certain direction for developing higher psychic functions supported by the appropriation of certain objects for their performance when playing.

4.2 The transformation of the teaching object into a learning object

The teaching situation highlighted throughout Scene 1 enables us to discuss a second didactic-methodological consideration. Between the teaching intention that seeks to propose a particular object of attention for children and their understanding of that same object, a prolonged and systematic teaching process needs to be created. In principle, no content or teaching objective can be transformed into content appropriated by the student in just one “situation” or the first times a question is formulated and answered. Behind the apparent obviousness of this didactic consideration, there is a pedagogical relationship that is not always so obvious: the systematic character of teaching at school is expressed in a systematic treatment by the teacher with the content he/she intends to work on (VYGOTSKY, 2009). To effectively mobilise the subjects' thoughts towards the desired content, the question formulated for the students must be placed in a system of questions, which will be analysed by the children so that, collectively, they can understand the problem to be answered.

The first question proposed to the children (Scene 1): *“Why did José manage to catch only three balls and Maria managed to catch a lot?”*, can only be understood as part of the totality of learning situations created by teaching,

which sought to organise the relationship between the game space and the target-objective to be achieved as an object of analysis for the children. Along these lines, a set of questions asked by the teacher can be found (“*Okay, but who is closer [to the central hula hoop]?*” or “*Just for me to understand, why did you put the hula hoop here, very close?*”), as well as the objectively created conditions for the performance of the children in the game, for example, the general methodological guideline that in each new game the children could choose new positions for their hula hoops.

This first content about the game could seem “unnecessary” to be taught, given its simplicity, however, the children’s actions during classes (putting hula hoops randomly in space and/or formulating as a response that they were able to catch more balls “because they were running”) seem to show that it is necessary knowledge to be brought as a direct object of the children’s analysis as part of the process of understanding the structural problem of the Collective Game.

Permanently resuming the teaching objective and/or objectives of a task is the main aspect of effective systematic teaching: in the case of the Collective Game, a study that enables children to think about how to intentionally create game actions based on the rules and objectives originally proposed in the game. At the end of Scene 1, the teacher explains the content to the children that everyone should think about, analyse and systematise: “[...] *our objective here is to think of the best solutions to catch as many balls as possible [...]*”.

Furthermore, the very structure of the game, intentionally modified in its rules and objectives, led to certain relationships being an object of attention and action by children. The first adjustment made in the structure of the game – introducing the ball keeper – proposed some study actions that sought to emphasise the need for a deliberate action in the attack and defence relationship in the game (Scene 2), allowing “[...] the development of a conscious relationship with the ends (the objectives) and the means (the modes of action, the tactical and strategic knowledge) to achieve such ends [...]

(NASCIMENTO, 2014, p. 173).

The particular problem that was proposed for the children's reflection referred to how to get the balls into the centre when there is a keeper protecting them (Scene 2). The teacher had a moment of reflection with the children that sought to highlight the need to analyse the relationship between the existing conditions in the game and the actions created by the players: “*How did you think of a strategy to come here and pick up the balls without me catching you?*”; “*Is there any other plan for us for us to get these balls?*”. Many children initially responded to these questions by highlighting as a general solution “waiting for a moment of distraction from the ball keeper”; others highlighted that they sought to dodge the keeper; one child mentioned that he tried to carry out an action together with a classmate (Scene 2).

These different children's responses allow us to point out that carrying out game actions that are more or less adequate to the rules and objectives - for example, dodging correctly from the opponent without being caught and reaching the final aim of the game (scoring a point or preventing the other from doing so) – do not yet indicate that the subject is establishing a conscious relationship with the process of creating such actions. Thus, the action to dodge – as an action that arises almost directly when someone stands in front of the subject and then makes him move to the opposite side – if not reflected with the children as a particular expression of response to the occupation problem of play space, can remain at this “casual” level for many children for a long time. One can continue dodging and even doing more complex actions without being aware of it, and not being aware of one's own actions generally reduces the possibility of voluntary and creative actions with the Game.

Thus, it is not natural to dodge (as a kind of casual action) to make *a feint*, as a deliberate attempt to cause a change of direction in the other to gain advantage in occupying space. For this, the feint must occupy the place of structural content of the subject's activity, as Leontiev says (1983, p. 202-203, our translation):

[...] what becomes conscious at a given moment is content that it occupies within the activity that performs a completely determined structural place and that constitutes the object of its action (the direct objective of this action) external or internal [...]. Really conscious content is only that which manifests itself before the subject as an object to which the action is directly directed.

The questions proposed by the teacher (Scenes 2 and 3) sought to trigger an analysis movement with the children about what would be the necessary content to be perceived by them in the game situations that they acted in order, then, to intentionally engage in creating attack and defence actions: perceiving the modes of action created by oneself and by colleagues to begin to establish an intentional and voluntary relationship with the process of creating attack and defence actions.

Although it was – at first – an “individual” game, that is, one that did not formally present “teams” in its structure, some children began to realise that this game allowed for the existence of joint actions to achieve the proposed objectives, because the action of the other could directly interfere with the possibility of my action. When children begin to act deliberately with this condition – José's case (Scene 2) – we can say that the development of a perception about the collective dimension of the Game begins, as a new condition for each player's own individual performance. Between this initial perception and voluntary and systematic actions with this new condition of the game, it is also important to systematically learn the knowledge of the game that can act as instruments of thought for each player to perceive and analyse the relationships between attack and defence situations.

4.3 Knowledge to be taught as an instrument of thought

More systematic reflections on the possibility of collective actions in the Game initially emerged as a result of defensive actions in the “Getting the balls” game having two keepers at the central hula hoop – two children – (Scene 3). From this situation, children began to be confronted with the need to think about game actions in relation to defence. It is known that the

attack usually occupies the focus of children's performance in most games, among other things, because it is the one that immediately conditions the result of the match (MAHLO, n/d). However, the predominance of the child's interest in the attack is not formed naturally but stems from a way of introducing and working with games. That is why it is important to create learning situations, in teaching, that show the possible or necessary means to achieve the desired ends as an object of attention, means that synthesise knowledge about the relationship between attack and defence in the game.

The main question that guided the children's study actions in Scene 3 was: *"How can we protect the central hula hoop balls when there are other players wanting to catch them?"* In the collective analysis of the game in which Carlos was the keeper, José manages to indicate adequate and necessary content to be perceived to organise the defender's actions (for example, staying close to the central circle trying to prevent the attackers' action; not standing still facing the person as there were other attackers which would mean having to mark more than one at the same time). However, even correctly perceiving these relationships, when José became the keeper, his defensive actions did not take place directly and immediately according to the understandings he had verbalised, and José recognises that he had little success in preventing his classmates from catching the balls in the central circle because "there were a lot of people".

What before (when it was the classmate performing the role of keeper) seemed simple to be resolved through a general game principle (for example, focusing on who can go into the place where the balls are), now, in the role of keeper, proves to be quite complex. Realising that there are many people performing a function opposite to the one being performed leads to the understanding of the existence of a very significant numerical superiority between attack and defence, which, in turn, tends to show the need for a transformation in the initial conditions of the game (for example, having more than one keeper), in addition to deliberately creating defensive tactical actions, realising, for example, where to direct one's attention.

The rule allowed the keeper to catch the attackers with or without the ball, but it was up to the keeper to realise that catching the attacker without the ball could even delay his/her attack but would not bring consistent advantages to accomplishing the goals of the defence. Thus, the questions that the teacher proposed to the children (Scene 3) sought to highlight as an object of perception the position to be occupied by the defender so that he/she could control the attack space of the greatest possible number of players who tried to leave the central circle with the balls. This position could not be too close to the centre, as it would hinder their peripheral vision and the possibility of defensive coverage on the sides of the field. Thus, positioning oneself correctly in relation to the target to be defended is an important knowledge to be intentionally perceived by children, acting as an instrument to create defence actions in the game.

Since thinking is an action taken to solve a certain problem (VYGOTSKY, 2009), and knowledge plays a role as a means of thinking to perceive, analyse and plan the subject's activity, depending on the type of problem we have before us and the means (knowledge) that are presented for its resolution, the subject will have for him/herself one or another object to be made aware of and, at the same time, one or another orientation for his action.

Before going to Elementary School, children play and, eventually, learn about some games of a collective nature (such as the many forms of tag). In these games, they already begin to relate to the *rules* with some degree of willingness, which means that, to some extent, they become aware of the *objectives* of the game. As Leontiev (2010, p. 138, emphasis added) mentions, “the development of the game with rules also consists of a differentiation and an increasing *awareness of the purpose* of the game”. However, from the teaching point of view, we should ask about how this awareness of the objectives of the game can be raised and developed during the children's learning actions. What is the object of consciousness proposed for the child when studying the Collective Game at school? Why is this object proposed as an organising content for teaching the Game? And, equally important, how does this object become, for the child, through teaching, a conscious object?

In the case of the Collective Game, being aware of its objectives concerns understanding how to act creatively in playful situations that mutually present opposing objectives, content that potentially should occupy the role of the direct object of the subject's action when playing. This problem of the Game expresses the core from which a great deal of knowledge about the Collective Game was developed, which results in appropriating the theoretical concept of the Game implying being able to understand and act creatively in this human activity. Voluntarily adjusting the game situations in which one participates allows one to simultaneously modify him/herself as a subject, becoming aware of the position one occupies in the world, others and oneself.

The whole development process of teaching the “Getting the balls” game enabled children to think about game problems and the best solutions for them. The last scene (Scene 4) portrays part of the understanding of the Game that was possible for José considering the proposed teaching. It cannot be stated that all the children understood it the same way as José, but it can be observed, by the set of four scenes, the direction of the proposed teaching and, thus, the object of attention that was potentially present for the actions of the children in the Collective Game.

Although playing the subject can develop a series of psychic functions that could be formally separated (“attention, perception, memory, imagination, reflection” etc.), teaching that promotes development – based on the assumptions of the Cultural-Historical Theory – and the very conception of “higher psychic functions” (VYGOTSKY, 1995) refer fundamentally to the formation of personality, as a synthesis of the subject's consciousness, of the attitude one assumes towards things, the world, others and oneself (LEONTIEV, 1983).

This means that the teaching of the Game has a formative direction: the understanding that everyone can learn to create the game, and to do that, the process of appropriation of the means (knowledge) needs to be organised that allows the creation of playful attack and defence actions by each player. Acting in this creative way in the Game is part of the formation

of the awareness that human activities are, all of them, historical creations, which implies understanding that we can collectively project what these activities are and what we ourselves, as subjects of such activities, can become. It is along these lines that we locate the formation of theoretical thought, as an affective-cognitive unit of the subjects' development and synthesis of a certain direction of forming personality.

5 Final considerations

In this article, we sought to discuss a process of organising teaching in Physical Education based on the foundations of the Cultural-Historical Theory. On the agenda was the analysis of didactic-methodological problems that need to be faced and systematised to carry out teaching that fosters development, particularly, the development of theoretical thinking (DAVIDOV, 1988; VYGOTSKY, 2009).

The way in which the teaching of the Game was organised, in the analysed experimental situation, led to a discussion about the relationship between the immediate problems that arise in the very structure of the game – as unique situations of each game – and the teaching actions proposed with such situations, which sought to transform immediate *problems into learning problems* (RUBTSOV, 1996). Teaching was oriented so that the subjects of the pedagogical activity – teachers and students – could transform the initial conditions of a game (its objectives and rules), thus highlighting the necessary contents to be perceived and analysed to intentionally create playful attack and defence actions.

Thus, the teaching sought to materialise the relationship between *the general problem of the Collective Game*, which characterises it as a unique human activity (how to consciously occupy the game space in view of the existence of mutually opposing objectives), *the knowledge of the Game* (the means to act voluntarily with the objectives of attack and defence) and *a general formative orientation for learning* (the desire to create a game activity with others from the intentional development of attack and defence actions).

This teaching organisation movement is configured in one of the expressions of the formation of theoretical thought within the framework of the Cultural-Historical Theory, because it indicates a certain direction of development of higher psychic functions.

The appropriation of knowledge about the Game (fighting, dancing, gymnastics, etc.) can act as instruments for each subject's action when playing (fighting, dancing, etc.), helping to form an increasingly voluntary and conscious activity of creating playful attack and defence situations, actions based on the understanding that the better others play, the better the possibilities for everyone to have fun playing. Thus, a specific and concrete form of manifestation of solidarity is created through body culture activities: the desire to share the solutions found, taking responsibility for everyone's learning, which reaffirms the Vygotskian idea (VYGOTSKY, 2009, p. 486) presented in the epigraph of this text, that “[in] consciousness the word is precisely what, according to Feuerbach's expression, is absolutely impossible for one man and possible for two. It is the most direct expression of the historical nature of consciousness.”

Los procesos de enseñanza y aprendizaje en Educación Física desde la perspectiva histórico-cultural del desarrollo humano

RESUMEN

El artículo discute el proceso de organización de la enseñanza en Educación Física con el objetivo de apropiarse del conocimiento teórico de las actividades de la cultura corporal. Metodológicamente, se analiza una propuesta pedagógica con el contenido juego colectivo, realizada con niños del primer año de la Escuela Primaria. Las situaciones de aprendizaje – entendidas como una síntesis entre los objetivos de enseñanza y las condiciones efectivamente propuestas para el desempeño de los estudiantes con tales objetivos– fueron elaboradas con el fin de resaltar para los niños algunos de los contenidos que necesitan ser percibidos y analizados en el juego para la creación de acciones lúdicas de ataque y defensa. A modo de síntesis, se presentan tres consideraciones sobre los procesos de enseñanza y aprendizaje en Educación Física desde una perspectiva histórico-cultural de la formación humana: la organización de la dirección de la diversión en el juego; la transformación del objeto de enseñanza en objeto de aprendizaje; los conocimientos a enseñar como instrumentos del pensamiento.

Palabras clave: Educación Física; Psicología Histórico-Cultural; Enseñanza.

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Received in April 2022.
Approved in January of 2023.