

TEACHING STRATEGIES IN PHYSICAL EDUCATION: A CONFRONTATION BETWEEN DIRECTIVE AND INDIRECTIVE STYLES IN VOLLEYBALL LEARNING

ESTRATÉGIAS DE ENSINO EM EDUCAÇÃO FÍSICA: UM CONFRONTO ENTRE ESTILOS DIRETIVO E INDIRETIVO NA APRENDIZAGEM DO VOLEIBOL

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RESUMO

Embora a Educação Física escolar tenha historicamente se baseado em estratégias de ensino predominantemente diretivas, é possível especular que metodologias menos diretivas possam contribuir de forma mais efetiva para o aprendizado. O objetivo do presente estudo foi comparar as possíveis implicações da utilização de diferentes estilos de ensino na aprendizagem do jogo da modalidade esportiva voleibol. Para tanto, 27 adolescentes divididos em três grupos (Grupo Diretivo; Grupo Indiretivo e Grupo Controle) foram submetidos a um programa de intervenção de oito encontros voltados ao ensino de conteúdos procedimentais do voleibol. De modo geral, os resultados encontrados sugerem que estilos de ensino indiretivos contribuem de forma mais efetiva para a participação no jogo e para a tomada de decisão, o que provoca uma reflexão sobre a necessidade de se revisitar as estratégias de ensino utilizadas pelos professores e pela necessidade de uma abordagem mais sistêmica para o ensino de jogos.

Palavras-chave: Estilos de ensino. Educação Física. Aprendizagem. Voleibol.

ABSTRACT

Although Physical Education has historically been based on teaching strategies predominantly directives, it is possible speculate that less directive methodologies might contribute more effectively to learning. The aim of this study was to compare the possible implications of using different teaching styles for learning volleyball game. Thus end, 27 teenagers divided into three groups (Directive Group; Indirective group and control group) took part for an intervention program of eight meetings aimed at teaching procedural volleyball contents. Overall, the results suggest that indirective teaching styles contribute more effectively to participation decision, which causes a reflection on the need to revisit the teaching strategies used by teachers and the need for a more systemic approach to teaching games.

Keywords: Teaching Styles. Physical Education. Learning. Volleyball.

Introduction

Admittedly Physical Education is an area of knowledge engaged with the commitment of social construction. In this sense, it becomes relevant the discussion about the contents related to it and the methodologies of application of these in class. This context leads to questions about the relevance of the choice of contents for physical education classes and the methodologies for applying these contents. However, in spite of the questions about the prevalence or not of procedural contents in the classes of school Physical Education, part of the literature has been focused on how to understand the pedagogical practice of teachers¹⁻³. Some questions arise from this: (1) is it possible to learn attitudinal elements associated with sports modalities in physical education classes? (2) can be established associations between the learning of these elements and the teaching styles used by teachers? Both in objectives and methods.

In general, in the intervention contexts, a certain predominance can be identified in the teaching styles proposed by Mosston and Ashworth⁴, but there is a lack of studies on the implications of their use in Physical Education classes. This would happen, since in part of the work found one of the central concerns corresponds to the effectiveness of these styles in

the motivation and attitude of the students⁵. The possible influences of these styles to facilitate the learning process of the students is also something relatively little investigated.

Among the studies that seek to identify the possible implications of teaching styles in learning, a look at isolated motor skills prevails, without taking into account the practice of collective sports modalities, which are identified by situations of greater perceptual and decision complexity (contexts of greater environmental instability)².

One of the presuppositions for the expansion of the use of this methodology is that, given the nature of the contexts in which the collective sports modalities take place, some non-directive teaching styles can assure the learner the experience of solving problems and are therefore supposed to be more indicated. However, many Physical Education teachers still resort to teaching sports, supported by an analysis of isolated motor skills and by means of directive and technical teaching styles. On the contrary, it may be more appropriate to invest more time in solving problems and in elements associated with tactics.

Griffin and Buttler⁶ corroborate this premise by stating that "it has been apparent for many years that teachers prefer to prepare themselves as material to teach technique, for they tend to assume that these elements are more predictable and easier to teach than tactical." Another finding for the hesitation in the use of less directive styles is that the works found in the literature present relatively long periods of practice, which can be considered unfeasible in face of the reality of Physical Education classes in Brazilian schools.

Based on Brazilian reality, it is possible to infer that, before the multiplicity of approaches that permeate School Physical Education, the instructional models, very consolidated in the teaching of sports modalities of other countries, in part are replaced by teaching styles. Therefore, the justification posted by Hastie & Mesquita⁷, on the need to seek an effective understanding of how the instructional approaches operate and how can they be improved.

Considering the relevance of the discussion about the elements described in the literature, it was intended to study the application of contrasting teaching methodologies from the point of view of theoretical background in the development of content collective sports modalities.

Teaching styles and Physical Education

In an attempt to categorize the teaching methodologies used by Physical Education teachers, Mosston and Ashworth⁴ proposed a taxonomy that aims to categorize styles based on the role of teacher and student in the learning contexts. From this taxonomy, the existence of predominantly directive and less directive teaching styles is considered. In the first case, they are characterized by the predominance of the teaching figure in decisions about the pedagogical process, which is responsible for crucial decisions about "what to do?", "How to do it" and "when to do it". In general, from these styles the teacher is more incisive and direct adopting positions supported by more traditional conceptions, guiding their practice in the repetition of gestures on the part of the students. On the other hand, the less directive teaching styles have as a presupposition the student protagonism and for this reason, the stimulus to autonomy. In this case, teachers assume the role of provoking and questioning, stimulating problem solving and creating new models by students^{4,8}.

Vieira and col.⁹ when discussing the applicability of Mosston and Ashworth's proposal for Physical Education classes for children with disabilities, present these styles following the original organization proposed by the authors, which forms part of the most directive and traditional teaching styles and reaches the most indirect ones. they: A-Command; B-Task; C-Reciprocal; D- Self-check; E-Inclusion; F- Guided discovery; G- Problem solving (convergent) and (divergent); H-Individual; I- Started by the student; J- Self-teaching.

Vieira and col.⁹ analyzing all the proposed styles, point out that there is a fine line to differentiate them, as well as the existence of characteristics common to all of them, especially when one takes into account the complexity of relations and intervening variables in the learning contexts⁶. In this sense, the authors suggest as an alternative the division of styles into three broad categories: A-D grouping - more directive in its essence, is characterized by the reproduction of knowledge and identified by the teaching protagonism; E-G grouping - would be related to the discovery of new concepts and production of new knowledge, with a relative degree of autonomy and decision making power on the part of the student; H-J Grouping - the valorization of discovery, creativity, and autonomy prevails, impelling the student to go beyond the information already available, indicated for contexts in which the students are largely autonomous.

In general, it is recognized that the option of teaching style declares the conceptions and representations of the teacher about what is to teach and learn¹⁰. In this sense, the influence of the military and hygienist roots on the choice and prevalence of some of them in Physical Education classes, especially for the more directive ones, is recognizable¹¹. It is worth mentioning that the adoption of more directive styles has been criticized for being alienating, passive and also because of the insufficient possibility of stimulus and the exercise of autonomy^{12,13}, contributing to the capitalist production model and the dominant class^{14,15}.

Other lines of thought about the choice of teaching styles are pointed out in the literature. Among them, there are those associated with the motivation of teachers and students^{16,17}, relating them to age and time of profession¹⁸. In particular, older Physical Education teachers with more professional time opt for managerial teaching styles or tend not to worry about the learning process of the students. In contrast, younger and less experienced teachers tend to adopt intermediate teaching styles.

Another consensus among the authors is the impossibility of choosing one style only from the beginning to the end of a lesson, because due to the diversity of situations and complexity of the contexts lived by the teachers, coherence would not be supported¹⁹. There is also evidence that the option would have a great influence on the cultural context of the teachers, a fact evidenced by the cross-cultural study conducted by Hein et al.¹⁷, comparing the preference for more directive styles of the teachers of Physical Education in Eastern Europe in relation to teachers of Latin origin, more likely to use less centralized strategies.

Considerations on the teaching style dedicated to Sports Modalities

The academic literature presents some studies that relate the teaching styles applied to the teaching of sports modalities. Cai²⁰, for example, compared the effectiveness of three different teaching styles (Command, Inclusion and Reciprocal) during the learning process of table tennis and Karate of 121 students. It has been identified that students who participated in the table tennis program have more effectively responded to less directive teaching styles such as reciprocal and inclusion, while Karate learners have shown more interest in the program from the leadership style of command. It was concluded that there is a relationship between the teaching style and the nature of the sports modalities practiced.

On the other hand, Chatoupis²¹ investigated the possible influences of different teaching styles in the soccer dribble learning process, comparing the learning process with and without the use of reciprocal teaching styles. The results indicate that reciprocal styles were significantly more effective in motivating and learning the task. Outdat²² compared the effectiveness of using two different teaching styles in the learning process of a basketball game.

Although he did not use the taxonomy proposed by Mosstone Ashworth⁴, he compared a more directive proposal with another one based on problem solving. The results indicated substantial differences in learning in favor of the group taught through strategies

based on problem solving. Finally, Pritchard, and col.²³ investigated, the implications of using different teaching methodologies for elementary students comparing a traditional teaching style with another that valued more general aspects of the game in a program for the teaching of volleyball. The studied variables were the specific motor skills of volleyball and some concepts about the modality. Although no statistically significant differences were identified between the groups, the authors highlight the more autonomous and interactive posture of students taught through less directive proposals.

One of the aspects that have been raised in the literature regarding work with collective sports modalities is the need to adopt a systemic approach to the investigation of performance in the game. In particular, this approach would imply a situational tactical model based on the concept of problem solving²⁴⁻²⁶. Some studies were carried out using this approach²⁷⁻²⁹ in order to test the possible influences of teaching methodologies in the teaching of sports modalities. However, there was a tendency to investigate, fundamentally, isolated aspects of the game, as a group of culturally determined technical gestures^{30,31}. In essence, investigations based largely on technical parameters of the game emphasize the individual dimension of motor performance, with relatively few studies based on the investigation of skills that can be improved through non-directive practices guided by Physical Education teachers. It is assumed that the reduced time of Physical Education classes would make it impossible to acquire technical and tactical skills of the games, as well as an improvement of a series of motor skills.

The premise is that the use of indirect teaching styles and more focused on elements of tactics, would contribute in a more effective way to develop students' decision making, than others more directive and based on technical fundamentals of sports, relatively common in School Physical Education classes⁶. In addition, contrary to what has been alleged in some studies, it is crucial to emphasize the understanding that these styles of teaching would be more feasible to be applied in the field of Physical Education, especially when considering the limitations of time and the comprehensiveness of the contents of the area. It is fundamentally understood that by devoting much time to teaching fundamentals of sports, the gains associated with learning such content would be very small and would depend on successive practice sessions and many repetitions of specific gestures. On the other hand, the option for a more systemic view of the game, accompanied by the use of predominantly indirect teaching styles could represent an interesting alternative for the School Physical Education classes.

Some studies were developed in searching to investigate the impact of different instructional models for learning process of collective sports modalities^{32,33}. All of them emphasize the importance of a more systemic conception for the orientation of the instructional processes. However, when it comes to school Physical Education, there is a gap regarding the possible development of teaching styles.

Therefore, in this second moment, when considering that the possible implications of teaching styles in Physical Education is still a problem that needs a lot of research, especially, regarding the process of learning contents of a procedural nature. The present study aimed to verify the possible implications of the use of different teaching styles in the learning process of volleyball, guided by the following questions:

- 1) Would occur learning of volleyball game in just a few Physical Education classes?
- 2) What elements of volleyball would be learned in only a few Physical Education classes?
- 3) Would learning of volleyball be influenced differently due to the use of different styles of teaching?

Methods

Participants

Twenty-seven elementary school students aged 12 to 13 years (mean age = 12.4 years and standard deviation = 0.6 years) participated in this study. All participants were submitted to a Physical Education program aimed at improving motor performance in volleyball. For that, the youngsters were evaluated in two moments, Pre-Test (Pre-Intervention) and Post-test (Post-Intervention). The post-test took place in the tenth session after the pre-test, totaling eight intervention sessions aimed at improving game skills. The young participants of this study were divided into three groups: Directive Group (DG, n = 9 participants); Indirect Group (IG, n = 9 participants) and Control Group (CG, n = 9 participants).

Before the first intervention session, all participants were informed that they would participate in a survey on methodologies for teaching sports. They were also informed that participation in the research would imply involvement with the practice of the modality during the sessions and that they could not be absent during practice moments. The participants were given the Informed Consent Term (TCLE), which was signed by the legal guardian of the students and by the researcher, leaving a path with each of the parties. Participants were guaranteed the anonymity, the confidentiality of the information granted, as well as the right to withdraw at any moment of the research. This study was approved by the Ethics Committee of the University of City of São Paulo, according to the protocol number: 1.510.638.

It is worth remembering that the participants had little experience with the modality and underwent an input evaluation that indicated their level of ability in the typical tasks of the modality³⁴. The idea of this entry test was to exclude youngsters who already knew how to play volleyball. Of the 32 young people evaluated, five were excluded, resulting in the group of 27 young people who composed the study sample. The composition of the groups was defined by lot.

Procedures

Considering the intention of comparing directive teaching styles with indirective ones, the option was made to contrast the styles of group A-D with others of the group E-G. We chose not to use H-J teaching styles (identified by student-oriented styles of teaching), as these would be more consistent with objectives associated with the conceptual dimension, as well as its difficult application in the face of the nature and complexity of volleyball.

Thus, the program identified by the use of predominantly directive teaching styles was conducted through the Command and Task styles. On the other hand, the program identified by the use of predominantly indirective teaching styles was characterized by the use of the Problem Solving (divergent) and Guided Discovery teaching styles. The Control Group was not submitted to any intervention session.

The time of the classes destined to the improvement of the skills to the game corresponded to 20 minutes of the total time of the Physical Education class, since this time corresponds to what is often destined to the practice of motor activities in the classes of Physical School Education³⁵. This form of work was developed during a program lasting 8 sessions of intervention.

Instrument and Task

In the pre-test and in the post-test all students were submitted to "Game Performance Assessment Instrument – GPAI". This instrument was validated by Osolin and col.³⁶ and in particular, in the case of volleyball, allows access to the following components.

- 1) Appropriate decision Making (AD) e inappropriate decision Making (ID). The AD correspond to the answers identified in the evaluated ones during the practice that indicate the choice by motor strategies adapted to the contextual demands. In contrast, ID correspond to the responses identified by misunderstandings in the selection of motor strategies. It is note worthy that both AD and ID indicate decision levels of the processing mechanism during the accomplishment of the motor tasks.
- 2) Effective execution of skill (EE) and ineffective execution of skills (IE). EE correspond to the executions in which the motor strategies used reach the objectives. IE correspond to the occasions in which the motor strategies used do not reach the objectives outlined.
- 3) Game Involvement(AD, ID, EE and IE). More global indicator that indicates the number of effective participations that the evaluated ones presented during the game of volleybal. More specifically, this indicator corresponds to a summation of the decision-making and executions of the specific motor skills of the modality.

The pre and post-intervention sessions were recorded through video recordings using a Sony HDR-PJ340 camcorder, positioned at one end of the volleyball court (Figure 1) in order to observe all technical and individual and collective tactics of students in games.

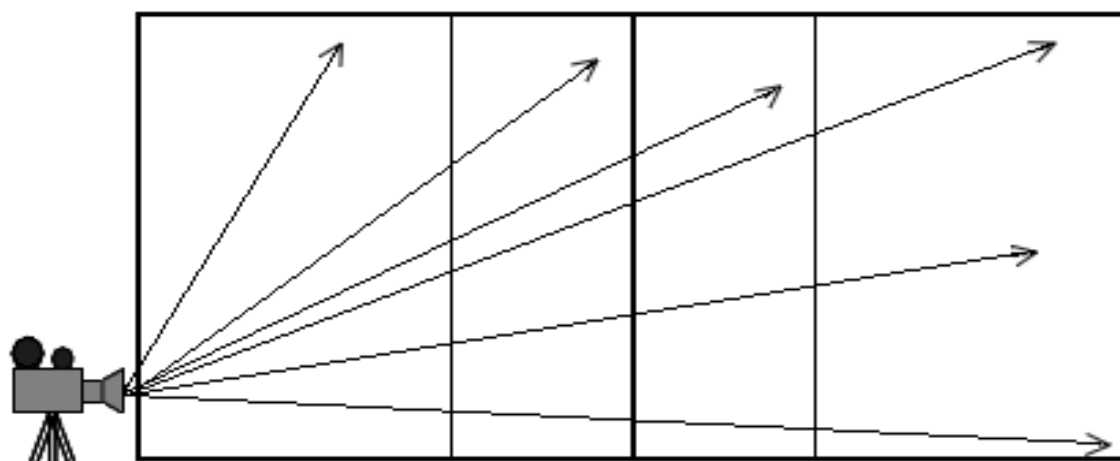


Figure 1. Camcorder Positioning

Source: The Authors

The practice sessions were held in a multi-sport court, whose dimensions for the volleyball court corresponded to the official specifications.

For visualization and analysis of the images was used the program Cyberlink Dvd Suite and all data were tabulated in the program Microsoft Excel.

Data Analysis

The data collected were analyzed by two experimenters, for whom an inter-rater concordance index of 0.87 was calculated, indicating reliability in the evaluation and analysis of the data conf. Thomas, Nelson e Silverman³⁷.

Performance data were compared. More specifically, an intra-group evaluation was sought to verify the existence or not of change in performance and inter-grouping, and whether the possible differences between the groups (DG, IG and CG) would be associated or not with the teaching styles used.

For the statistical treatment and comparison of the data between the groups, the Mann-Whitney and Wilcoxon test was used in the SPSS version 13.0 program, adopting the significance value corresponding to $p < 0.05$.

Results

Table 1 gathers the data of the three groups (DG – Directive Group, IG – Indirective Group and GC – Control Group) in all dimensions proposed by the IPCA, in the moments of Pre and Posttest.

Table 1. DG, IG and CG Means and standard deviations values of appropriate decision making (AD), inappropriate decision making (ID), effective technical executions (EE), ineffective technical executions (IE), and game involvement (GI) in Pre and Post test

Groups		AD		ID		EE		IE		GI	
		Pré	Pós	Pré	Pós	Pré	Pós	Pré	Pós	Pré	Pós
Directive Group (DG)	X	5,22	10,00*	4,55	4,77	6,66	12,11*	5,11	5,77	21,55	32,66*
	S	1,98	4,94	3,71	1,48	2,50	6,21	3,25	1,78	7,89	10,09
Indirect Group (IG)	X	1,22	11,77*	1,88	4,11*	2,00	10,44*	3,55	7,33*	8,66	33,66*
	S	0,97	6,37	1,61	1,83	1,32	6,20	1,94	1,73	3,96	13,62
Control Group (CG)	X	6,11	2,11*	4,33	3,22	9,22	3,33*	6,11	2,66*	25,77	11,44*
	S	4,22	2,57	2,12	2,43	4,63	3,90	2,97	2,17	12,49	8,54

Note: * $p < 0,05$

Source: The Authors

Discussion

Overall, the results suggest that only eight sessions are enough to promote some form of learning in a sporting modality. These results converge with the findings of Gimenez and Onha³⁸ on the possibilities of learning basic elements of pre-sport games in Physical Education classes.

Analyzing the table, it is possible to notice that DG presented significant difference between pre-test and post-test for AD, EE and GI. The results for ID and IE remained similar between the post and pretest. For IG, the results were also significantly different in all variables analyzed. Finally, CG did not present substantial differences in performance in the variables, except for ID. This observation leads us to think that the indirect styles are supposed to be more adequate in the teaching of collective sports modalities and corroborate the assumptions of previous studies^{22,39}.

Thinking about the questions that guided this study, it is possible to suppose that only a few Physical Education classes are enough to guide a change in the attitude of the students regarding problem solving during a game, although no learning retention test, the change factor may be indicating for internal changes in the system, characterizing this learning.

Regarding the possible elements to be learned in the collective sport volleyball, the results indicated a favorable tendency of decision making, execution of the gesture and involvement in the modality. However, appropriate decision making and involvement in the game stood out in comparison to the execution of the gesture, which indicates that the understanding of the logic of the sport is sensitive to changes, especially when taught through indirect teaching styles, corroborating study findings that point to decision making as a key element in the teaching of collective modalities^{6,22,38}.

However, it is worth emphasizing that previous studies were not oriented by the analysis of attitudes from the practice of the game and not by the effective learning of elements of the game itself. This factor corresponds to a differential of the present work. In this sense, especially regarding the change in the understanding of the logic of the game, the magnitude of the difference between the pre- and post-test stated that the indirect teaching styles caused a substantial change in the state of perception and decision making of the students³⁹.

It is possible to emphasize that these results are in agreement with the study proposed by Griffin and Buttler⁶ that affirms to be premise of the use of the indirect teaching styles to deal with the elements of the tactics of the sport modalities contributing effectively for the development of the decision making.

It is worth mentioning that the results of this work deserve to be compared with others about the instructional models adopted on volleyball. Although these studies assume the need for a longer intervention time, in general, it also advocates systemic conceptions for the teaching process of sports modalities such as volleyball^{32,33}. In general, the results point to a certain advantage in favor of the indirect teaching styles in view of the comprehensiveness and time limitation for the development of the contents in classes of Physical Education in the schools.

The present study advances in relation to previous work insofar as it confronted the issues associated with teaching styles, relatively little discussed in the intervention research, with the time required to learn some elements associated with sports modalities in Physical Education classes. In general, the effective possibility of learning has been identified since elements such as the nature and form of the proposed activities are rethought. The overlapping of class time with fundamentals of modalities promoting practice of modal foundations could be replaced by practices guided by problem solving, giving priority to contexts of greater complexity such as those typical of pre-sport games.

Among the limitations of the present study, it is possible to highlight three crucial factors: the GPAI test, the practical conflicts between teaching methods for sports modalities and teaching styles for Physical Education classes and the participants' practice control.

In particular, with regard to the GPAI test, although it is a relatively used instrument for the evaluation of the performance and learning process of sports modalities, limitations are identified in the same one, when assuming as theoretical reference concepts of complexity, such as those typical of the intervention contexts of Physical Education classes³⁴. In other words, the test, even because it is based on elements such as the sum of scores, is conceptually and methodologically distant from an array of complexity. This would happen, since he fails to consider the performance in the game as the result of a dynamic interaction that is established between the elements of a group that changes radically through changes in time and space. In part, some limitations of this nature regarding the application of the GPAI for research are pointed out by Memmert & Harvey⁴⁰. For these authors, this test starts from an isolated analysis of the dimensions of the game, which obscures the effective understanding of the complexity of the elements of the collective modalities and of its evaluation system.

Thus, it is understood that other instruments, or even constructed tests, can contribute in a more significant way to the analysis and observation of the variables of the game in Physical Education classes.

Regarding teaching styles, because non-directive methodologies are based on "trigger" situations or "problems", they end up being confused in practice contexts with the global methods for teaching pre-sports games. In a similar way, it happens with the directive teaching styles, which end up being confused with partial methods. Thus, it is essential that future studies also seek to guide their research by improving this distinction or, even,

assuming this approach, especially when adopting a conception of complexity for the analysis of the phenomenon in question.

Another limitation of the present study is associated with the fact that the participants were not randomly selected by lot. Individuals who proposed to participate in the proposal were part of the group.

Finally, another difficulty was to exercise effective control over the practice performed by study participants outside the proposed sessions. Although it has been advised that this was a research design, there is no way to control possible simultaneous and similar experiences in extracurricular contexts.

It is necessary to emphasize the need for future studies to orient their research by exploring other teaching styles and also other corporal practices used as content in Physical Education classes, in order to contribute to the structuring of a relatively more solid theoretical framework to improve the methodologies used in Physical School Education.

Conclusion

Physical Education as an area of knowledge has over the last decades sought to sustain its performance in the educational field through studies that transcend the technical logic of the execution of movements, which have pointed to the need to act in the field of schooling in order to meet the student's needs for an understanding of the world differentiated from common sense and, thus, to contribute to a citizenship formation.

Some studies point to a new era more focused on the way of exploring corporal practices in the school environment, since the progress in determining the object of study and possibilities to approach the contents are better established. Although there is no consensus and, possibly, should not be, it is the moment of implantation of ideas in the school context, as well as evaluation of the ways in which these contents are used by the teachers and their respective consequences on the students' learning process. to contribute to a permanence of the experiences lived in the classes of Physical Education beyond the school walls.

One way of operationalization discussed in the literature is the teaching styles proposed by Mosston and Ashworth⁴ with the intention of guiding teachers through a taxonomy that creates categories for pedagogical practice highlighting the level of teacher and student participation in the elaboration and organization of the process teaching and learning. Understanding that in the school context the predominant categories are the directives and indirect it becomes fundamental to compare them and discuss them with regard to the forms of operationalization of the contents, a question that guided the development of this study.

The application of classes respecting the two tendencies proposed by the authors made it possible to verify that there are changes in observed behavior of the students participating in the study for both categories. However, it is possible to emphasize that the magnitude of the change provoked by the indirect styles leaves some marks pointing to this path if it constitutes as more adequate in the understanding of the organization of the collective sports modalities. At the teaching level, this means acting more persistently so that the student experiences more situations of problem solving and at the student level a greater concern with reading, interpretation and decision making when in a situation of practicing sports modalities.

In this way, it seems possible to consider the most appropriate indirect teaching styles for the performance of Physical Education teachers interested in providing their students with experiences that can contribute to the effective exercise of learning.

It should be noted the need for further study guide your research to explore other teaching styles and also other bodily practices used as content in Physical Education classes in order to contribute to the development of a relatively more solid theoretical framework to

improve the methodologies used in Physical School Education. It is also important to highlight that these studies should also take into account issues associated with instructional models, especially in the case of studies involving teaching of collective sports modalities.

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