



## PHYSICAL EDUCATION IN THE DECADE OF EDUCATION FOR SUSTAINABLE DEVELOPMENT: A STUDY WITH BRAZILIAN PHYSICAL EDUCATION TEACHERS AND EDUCATORS

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RENATA OSBORNE

Salgado de Oliveira University, Niterói, Brazil

### ABSTRACT

**Purpose.** In light of the UN Decade of Education for Sustainable Development, an international proposal led by UNESCO beginning in 2005 and continuing until 2014, this study's objective was to investigate how physical education, at a local level, can contribute to the goal of sustainable educational development. **Methods.** In order to analyze the research objective, a qualitative method was used. Sixteen professionals from public schools participated in the study. Seven schools and three administrative buildings were visited with data collected by means of interviews, observations and document analysis. **Results.** The following issues were addressed: school culture; the relationships between Environmental Education, Education for Sustainable Development and physical education; the cultivation of values through cooperative and competitive games; various challenges; and the opportunities for physical education within the UN's Decade of Education for Sustainable Development initiative. **Conclusions.** This study concluded that: future partnerships with schools should be aware of and respect school culture; efforts should be made to facilitate schoolwork done outside of school; there is a need for investment in school resources as well in the continuing education of teachers; it is necessary to treat both Environmental Education and Education for Sustainable Development as one symbiotic entity and focus more on the execution of its prerogatives rather than nomenclature.

**Key words:** Environmental Education, sustainability, sports, public schools

### Introduction

The concept of sustainable development has emerged as an alternative to the previous pattern of economic development, which in the past has generated a great deal of environmental destruction. Sustainable development is intended to have economic growth compatible with nature conservation and community well-being.

Sustainable development implies that there are limitations on the use of environmental resources as well as the need to respect the limited ability of the biosphere to absorb the impact of human activities. It is a difficult process of change, in which investment, technology and institutions must be reoriented to meet both present and future needs. In addition, it is largely dependent on political initiative [1].

Since the 1970s, Environmental Education has been discussed and practiced, with the United Nations organizing a series of international conferences that culminated in 2005 to discuss a new program labeled the Education for Sustainable Development. As a result, the United Nations Educational, Scientific and Cultural Organization (UNESCO) launched the Decade of Education for Sustainable Development, which is to continue until 2014. The Education for Sustainable Development (ESD) program appears to be a continuation of the previous initiatives led by Environmental Education. ESD claims that while it has been built on the experiences of Environmental Education (EE), they are

not the same thing [2]. However, the boundaries between these programs are unclear.

Marcinkowski [1] claims that a complex relationship has evolved between ESD and EE since the 1990s. In our opinion, the relationship between ESD and EE is still a matter of discussion. Freitas [3] states that the majority of experts who participated in the debates on ESD consider the program to be an evolution of EE. Nevertheless, various authors have challenged this new way of perceiving ESD.

In the present study, we felt it was important to use both concepts, EE and ESD, to sustain the gains EE has made over the last forty years and due to the fact that many of ESD's ideas actually originated from EE. In our opinion, the main difference between EE and ESD is that EE has developed a wide range of practices, varying from a simple behavior change orientation to a more complex philosophical, political approach, while ESD is more focused on a partnership between education and development. However, we do not agree with UNESCO [2] when it attempts to downgrade the concept of EE and present ESD as being broader. We think a focus on education and sustainable development is important for developing countries, especially Brazil. Therefore, we recognize that all are invited to participate in the Decade of Education for Sustainable Development and that a significant contribution from the realm of sports and physical education is expected.

Both EE and ESD use interdisciplinary activities

and projects that involve teamwork among teachers. According to Chen et al. [4], interdisciplinary teaching provides students with meaningful and relevant content, motivates students because they recognize that knowledge can be applied in real-life situations and provides opportunities for collaboration between teachers. Physical education scholars find that interdisciplinary teaching helps to reduce the marginalization of physical education, in that other teachers come to recognize it as an integral part of school curriculum [4].

The environmental theme is complex; therefore, teaching it in schools can be a challenge. Collares [5] concluded from his study of Environmental Education in Brazilian public schools that teachers face difficulties in implementing environmental issues in their curriculum due to their own lack of training, the conservative tendencies of schools and lack of relevant instructional texts. Collares also reported that teachers were willing to work with the environmental theme but were uncertain how to successfully implement it in their classrooms.

It seems that physical education teachers share the same difficulties as other teachers and that the activities they develop when working with the environmental theme are not shared with other teachers. Moreover, it is significant that physical education is still marginalized even though Brazilian curriculum standards claim that physical education is an essential component of basic education. When physical education is not integrated in the planning and evaluation of a school's content, physical education teachers become isolated [6].

Thus, the purpose of this study was to investigate how physical education professionals envision their contribution to the theme of sustainable development and to identify the activities that they develop to achieve their objectives.

The following questions guided the study: (a) what is a school's context in terms of its culture, projects and relationships with the community? (b) What is the situation of physical education in the context of school? (c) From the perspective of the participants, what is the role of physical education in the Decade of Education for Sustainable Development? (d) What kinds of partnerships have been developed? (e) What difficulties are there? (f) Which physical activities are employed to address sustainable development? (g) What is the potential of physical education to promote sustainable development?

### Material and methods

This research study was qualitative in nature. Marshall and Rossman [7] explain that this type of research should be conducted in a natural setting; it is interpretive, concerned with the meaning individuals give to their social interactions and is grounded in the lived experiences of people. In the same direction, Flick [8] affirms that qualitative research (a) has the complexity

of people's interaction in daily life as the object of study; (b) investigates the perspectives of different participants, studying their knowledge and practices; (c) positions communication between the researcher and the participants as an essential part of the research process; and (d) uses a variety of methods of data collection.

Although there are many genres of qualitative research, this study could be characterized as ethnographic in nature as it takes into account the concept of culture. However, such a cultural interpretation was performed only for a part of the analysis. Wolcott [9, p. 5] explains that "[...] the purpose of ethnographic research is to describe and interpret cultural behavior"; in other words, culture interpretation is the essence of ethnographic research.

### Participants and setting

To select the research participants, a snowball or chain sampling strategy was used. This means that an initial group was selected from which more could be learned and these participants then recommended other participants at the request of the researcher [10]. Administrators and physical education teachers who had a good understanding of environmental and social issues were chosen by such a process. A total of sixteen professionals working in public schools in two cities in Brazil participated in the research study. Five worked in public schools in Rio de Janeiro and eleven worked in public schools in Niterói. Only two of the subjects were not physical education teachers. All were interviewed in their work setting, where a total of seven schools and three administrative buildings were visited.

### Data collection and analysis

Data were collected through interviews, observation and document analysis. A structured interview guide [11] was created. Following the interviews, the researchers wrote field notes [12] based on the information that they gathered in the six schools and three education administrative centers. They also took 108 pictures and analyzed 20 documents, such as school newspapers, educational materials from schools partners as well as a manuscript written by a physical education teacher.

To analyze the data, the researchers of this study created a chart with priori categories based on the research objectives and subcategories that emerged from the data. The principles recommended by Miles and Huberman [13], such as data reduction and data display, were used to guide data analysis. Triangulation of data from different sources (interviews, observations and document analysis) was used in order to establish the reliability of the data [12].

The research results were written in a fashion based on what Bauer and Gaskell [14] describe as the goal of

qualitative research; rather than counting ideas or people, this approach explores different representations of the topic of investigation.

### Results

The results of the observation and document analysis mainly elucidate the general context that surrounds the specific questions studied, while the findings from the interviews focused on responding to specific questions related to the process and role of physical education as a promoter of sustainable development.

#### Observations and document analysis

The schools that were visited were named after educators whose pictures were displayed on the schools' walls. Diverse religious images and quotes from philosophers and politicians were also displayed on the schools' premises. The schools work on various themes related to the world and to citizenship and their social environments were found to be comfortable and full of creative teachers and students. A contrast in the available resources between the visited administrative buildings was found. While some were equipped with computers and adequate space to work, others were not.

The study noted that various Environmental Education projects had already been undertaken in these schools, such as campaigns against fireworks and balloons, encouraging tree planting, solid waste recycling, oil recycling and teacher training. The schools worked with the community and private organizations as partners on these projects. One school received a prize due to a reforestation project.

Document analysis provided an overview of the project diversity with public and private organizations within the community. According to one school's newspaper, the school's Environmental Day celebrations included a theater play, a lecture by an expert on Environmental Education and sanitation, a cleaning of the school and the planting of fruit and ornamental trees donated by local merchants. The school dedicated the whole month of June to activities related to the environment. The newspaper also included articles on recycling and the importance of good nutrition together with physical activity for a healthy life.

Another newspaper, published by a non-governmental organization, reported on the Brazilian Indians' struggle to maintain their land and culture in the face of the economic interests of mining and logging companies and monoculture farming, all of which have a negative impact on the environment. Other collected documents were part of the National Program for the Rational Use of Oil and Natural Gas, which aims to train teachers on how to address environmental issues such as non-waste, the efficient use of energy and care for the environment. The teachers attended a training

course and received teaching materials to use with the students.

The documents also found that various community groups partnered together with the schools. The Brazilian Lawyers Organization, for example, distributed informational materials to teachers and students about their rights as citizens. There were also other initiatives such as one organized by the government to assist families with identity card procurement and activities on health and environmental conservation.

On the one hand, it was observed that physical education did play an important role in school projects. For example, at one school, a project called "Gentleness Generates Gentleness", cultivated positive values and behaviors that contribute to interpersonal relationships inside and outside of school. On the other hand, a certain weakness was observed in the realm of physical education. For example, a law that mandates the teaching of physical education had not been fully implemented. One administrative employee showed her concern on that matter. She commented that recreation in primary schools is led by individuals who are not trained in physical education. Another weakness was the lack of appropriate space for physical education classes. One good school, for example, had to use a community sport center to conduct physical education classes. Another school, which had its own sports center, wanted to enter into partnerships with neighborhood organizations and universities in order to expand the extracurricular activities they offered.

One document specifically addressed physical education by discussing cooperative games as a way to overcome the competitive nature of sports in school. The article explained that cooperative games develop values such as solidarity, understanding and tolerance, which promote personal growth and a positive social environment. According to the author, this revolutionary pedagogical practice cultivates the idea that the students will have more success through cooperation rather than competition, and that this new attitude would contribute to a more just and fraternal society.

#### Interviews

Although the participants knew the term "sustainable development," the majority of participants were not familiar with the Decade of Education for Sustainable Development. They believed, however, that such an initiative could promote positive values, foster a critical attitude toward poverty and environmental degradation, and enable all people to access important information by use of media. One participant commented that all individuals need to participate in sustainable development, independent of the time period established by the Decade initiative. Moreover, it was stated that the Decade of Education for Sustainable Development needs to "jump out of the paper" and penetrate

schools to remedy social problems and help to establish a more egalitarian society.

The difference between Environmental Education and Education for Sustainable Development is still unclear. Some convictions state that there are: (a) no differences or (b) that there are similarities as well as differences between the two approaches. For those who identified differences between the two programs, the opinions were: (a) the Education for Sustainable Development initiative is broader than Environmental Education or (b) Environmental Education is related more to preserving the environment, while Education for Sustainable Development provides mechanisms for economic development that do not harm the environment.

Because there was not a clear distinction between Environmental Education and Education for Sustainable Development, the researchers opted to treat them as if it did not matter which one the participant chose when asked about the contribution of physical education in relation to these programs. One participant said that physical education develops the conscience through the cultivation of values such as respect, an acceptance of rules, cooperation, teamwork and learning how to lose or win through cooperative or competitive games. Another participant commented that physical education cannot by itself collaborate with Environmental Education and Education for Sustainable Development. The issue instead is to create dialogue, work together, establish partnerships and integrate multidisciplinary work with pedagogical school planning. It was also stated that the environment is a theme that cuts across all disciplines and that physical education should integrate sports practiced in nature to expand the curriculum beyond school walls.

Certain characteristics of physical education, including its connections to the fields of health and education, appear to facilitate the concepts of Environmental Education or Education for Sustainable Development. Therefore, this study affirmed that physical education must connect to a diversity of issues and unite efforts to build a better society.

From the participants' perspectives, important partnerships can be carried out on various levels, such as between teachers, institutions, the private and public sectors as well as between families, schools and communities. However, they also commented that, in their experience, certain partnerships were undesirable as the objective of the partner was not entirely compatible with the school's objective. Their examples included a table tennis confederation that was seeking talent in a school whose mission was in conflict with the school's physical education prerogative of not selecting individuals out of a group but rather to make the sport available for all students. The participants provided suggestions for desirable partnerships between private and public organizations as well; with a goal to develop literature on physical education for the schools' students, to offer

transportation for extra class activities and to develop sport activities after school hours.

The difficulties in associating physical education with sustainable development have to do with teacher training, the devaluation of physical education and a lack of resources. According to the participants, low wages, which lead to the need to work in more than one school, make it difficult for teachers to be able to invest in continuing training. It was also mentioned that schools lack the appropriate space for physical education classes. Moreover, other academic subjects are more valued than physical education and that physical education is not always connected with the overall pedagogical plan of the school.

One specific challenge encountered was the common practice of some physical education teachers giving students a ball for them to do whatever they wanted with it. This leads to the expectation that physical education class is a time for fun and not a class in which concepts should be taught. One participant explained that students think physical education class is a time to "play ball", in other words, to play soccer. The cultural tradition of physical education for students is to, literally, "roll the ball." This unfortunately results in the creation of a soccer and volleyball "monoculture". The participants in this study felt that the range of options for physical education of children and youth should be expanded. They stated that physical education teachers should work with concepts and make physical education content meaningful.

Concerning the difficulties related to the school system, participants reported that it was not possible to carry out work outside the school due to a lack of financial resources. Another challenge is the need for instructional materials, such as a physical education textbook, for students.

Some examples mentioned by the interviewees of physical education attuned to the goal of sustainable development were: (a) working with its values and guidelines in outdoor physical activities; (b) taking walks in the neighborhood to become aware of environmental problems such as garbage disposal and sewage treatment; (c) developing recreational activities with scrap material incorporating an environment theme; (d) developing alternative materials for practicing sports; (e) making use of cooperative games and sports with modified rules in order to facilitate participation and inclusion; and (f) developing dance activities that work with the environment theme.

Cooperation and competition were issues frequently discussed by the participants. One participant said that it is important to learn to cooperate before taking part in competition. Another participant affirmed that sports are not only about competition; he also claimed that this message needs to be better understood and used to promote cooperation and solidarity. It was stated that children need to learn to have fun, to "pass the ball"

and to understand that his or her happiness depends on the happiness of others.

The participants believed that physical education can help children and youth in adopting a healthy lifestyle. They also believed that physical education teachers should work together with other teachers so that physical education develops along other academic disciplines. It was also said that physical education should work with the sustainable development theme, but that this does not have to be the primary focus.

### Discussion

#### School culture, community and physical education

Within the examined schools, a practice of celebrating the educators of previous generations and of promoting dialogue between the ideas of religious men, politicians and philosophers was found to be a part of the schools' organizational culture. Each school seemed to possess a spirit that was manifested in its classrooms, murals and walls.

Deal and Peterson [15] explain that organizations have identities manifested by their members' behaviors, ideas and rules. This cultural concept helps us understand what these patterns are, how they are established and how they influence productivity. The culture of a school is a complex system developed over a certain amount of time that includes a school's history, its present and its future. This culture can be transformed and is composed of unwritten rules, informal expectations, values, beliefs, preconceived ideas, ways in which people interact as well as its mission and objectives. It is present in daily rituals, ceremonies, in the school's architecture and in its signs. The culture of a school produces something similar to that which is experienced in tribes or clans. People develop profound relationships, values and traditions that give meaning to daily life [15].

This study observed that the examined schools were environments open to the community; where groups from various kind of organizations from private, government and community spheres of life participate with the public school. While the involvement of the community in the school is treated as almost customary, it was found that public school students rarely interacted with their own community in order to expand their learning. This option was found to be very difficult for most due to a lack of school resources.

The community education concept is useful to understand the relationship between the school and the community. Kerensky [16] explains that education is a creative and holistic process that involves the whole community. Public schools that understand this community education concept perceive their community as a partner.

What, then, is the role of physical education in the context of school? What is its place and how does it behave in relation to the school culture?

Regrettably, a devaluation of physical education emerged both in the study observations and in the statements of the interviewees. The first fact to be discussed was that although Brazilian law mandates physical education, there is a lack of physical education teachers in primary schools. Carvalho [17] had already identified this problem in her research on a Brazilian project that involved volunteering in schools. The state was providing some physical education teachers but not enough to cover all grades. Moreover, they were also not providing any art teachers. The school Carvalho studied managed to hold physical education and art classes with the help of individual volunteers and with help from local organizations. However, these disciplines are mandatory and, therefore, should have been covered by the state according to the Brazilian Education Laws [6]. This situation contributed to a devaluation of those teachers who work in these fields, fewer work opportunities for them and a lack of education content for public school students.

Plank, cited by Carvalho [17], criticized the Brazilian education system saying that there is an incoherence between the educational objectives affirmed in the Brazilian official mandates and those that are actually pursued. He added that the education system in Brazil is less developed than in other South American countries and that this disparity is emphasized by the traditionally weak protection of citizens' rights in Brazil.

This weakness, in our opinion, is not related to a lack of physical education teachers. There is a lack of resources and infrastructure as well as a widespread feeling that physical education is less valuable than other disciplines. It is also believed that physical education teachers are partly responsible for the devaluation of physical education, as many of these teachers do not involve themselves in schools meetings and do not develop meaningful content in their classes.

#### Relationships between Environmental Education, Education for Sustainable Development and physical education

For the research participants, the differences between Environmental Education and Education for Sustainable Development remain unclear. Hesselink, as cited in Freitas [3], identified four positions in the debate over Education for Sustainable Development (ESD) and Environmental Education (EE): (a) that ESD is a new stage of EE, (b) that EE is part of ESD, (c) that ESD is part of EE and (d) that EE and ESD are partially congruent.

Micheown and Hopkins, as cited by Freitas [3], affirmed that the answer to the question "which hat is bigger", in regards to EE or ESD, depends on the perspective one is looking from, and consider that this ques-

tion is not really important. We, the authors, concur with this opinion.

For Sauv  [18], the principles of Environmental Education already include sustainable development, and the new orientation of Education for Sustainable Development does not seem to add new objectives to Environmental Education. The characteristics of both seem to be the same: holism, interdisciplinary programs, a clarification of values, critical thinking, active learning and working within a local context. We agree that their characteristics seem to be the same, but we also understand that the focus of ESD is more on education and development. The ESD link to other United Nations initiatives, such as Millennium Development Goals, Education for All and the United Nations Literacy Decade, aims to enhance the quality of basic education.

The case of the undesirable partnership described in the Results of this study is also worthy of discussion. In that example, a partner institution had the objective of selecting talented students instead of making a sport accessible to all. The conflict between the role of sports in schools and high performance sports programs has already been discussed by Bracht and Almeida [19]. They studied a program of sports in schools that resulted from such partnerships. The authors reported that this was a tense relationship, in which physical education was subordinate to the interests of high performance sports, thereby weakening the pedagogical project of physical education within the school context.

The difficulties in using physical education to foster the concepts of sustainable development are a consequence of both historical and infrastructural aspects: (a) the devaluation of the physical education teacher, (b) a lack of resources, (c) a lack of training for teachers and (d) a recurrent practice of viewing physical education as an unnecessary class in which the children only play.

In regard to these aspects, Darido and Neto [20] lament the practice of some teachers who only provide a ball to students and simply monitor the time length of whatever activity children decide to play. As such, the teachers do not intervene in their physical education class. Kunz, as cited in Darido and Neto [20], called this a recreational model. This is a consequence of academic discourse that criticizes what should not be done in physical education classes, but does not present any alternative proposals, and public policies that do not offer adequate work infrastructure nor support teacher training.

In our opinion, the recreational model adopted by some irresponsible teachers leads to a poor approach and does not produce change and perpetuates a relationship of mediocrity, in which the school system does not give much and the teacher responds by giving even less. These teachers should be reprehended and such situations should immediately be remedied. The need to invest in continuing education and creating instruc-

tional materials for physical education is seen in public schools in other cities as well. A study conducted in public schools in S o Paulo found a lack of teaching materials and appropriate working conditions and recommended partnerships between universities and public schools in order to discuss and improve school physical education [21].

To better serve the cause of sustainable development, physical education should not only emphasize cooperative games, but should also seek to understand sports on a deeper level. In this regard, Murad [22] provides a sociological analysis of cooperative games in relation to competitive sports. He explains cooperative games as play activities based on Hegel's idea of "balancing" and one based on the pedagogical pillars of Piaget. The best form of social interaction is cooperation as this helps to reduce competition and neutralize conflict. Such cooperation, the author explains, with reference to Piaget, is essential in the process of learning and cognitive development. The mission of the school would be to create citizens who are, among other things, able to question and identify injustice. On the other hand, Murad said it is necessary to deal with the element of competition because it is also part of the human condition. According to Simmel, as cited in Murad [22], an absolutely harmonious group does not correspond to real life. Society needs harmony and disharmony as well as association and competition.

For Figueiredo [23], it is the task of physical education to promote cooperative behavior, recreational activities, socialization between boys and girls in order to undermine patriarchy, and a sense of commitment between members of different generations. Therefore, the author recommends: (a) cooperative games, working with the principle of "playing with another" and not "playing against another"; (b) traditional games, which value the regional culture and the legacy of past generations; (c) *frescobol* (paddleball), a game where there are no rivals but partners; and (d) *capoeira*, a Brazilian practice of dance and fight that originated from the slave period and is still a part of Brazilian history as well as presenting a vision of the world that questions the standards of modern Western society. As a side note, we the authors would add *peteca* (shuttlecock), alongside paddleball, to this list, which is a game that originated from indigenous culture and is also played between partners. However, Figueiredo [23] adds that it is not enough to choose certain activities; the intentionality of the teacher is fundamental in the educational process in order to encourage students to think critically.

This study highlighted the potential of physical education to contribute to a healthy lifestyle, which includes regular physical exercise and proper nutrition. In this sense, according to Gadotti [24], rather than educating individuals on sustainable development, which relates to how society produces and reproduces its exist-

tence, one must educate towards a sustainable way of life. Such a societal transformation is made possible only by individual change. These lifestyle changes include reducing consumerism and consuming food in a sustainable manner, where Gadotti remarks that schools have the potential to educate children and youth in this direction.

### Conclusion

The first consideration of this study relates to school culture. To understand any phenomenon within a school context, it is necessary to be aware of and respect the culture of a school, not as something sacred but as something alive and constantly reinventing itself.

Individuals and institutions with different objectives and agendas should enter into partnerships with schools, but these relationships require care. There is a need for caution in establishing partnerships considering the differences in priorities between the school and its potential partners. The trend of the community visiting the school is more frequent than the reverse, where the school visits the community. In our opinion, students would benefit from schoolwork done outside the school. Therefore, efforts should be made to facilitate this interaction.

The second consideration refers to the difficulties that physical education needs to overcome in the school system: a lack of resources and teachers, the view of physical education class as playtime, without any important meaning, and the inaccurate perception of physical education as having less value in comparison to other subjects. Hence, there is a need for investment in greater resources and materials for teaching physical education, supervision on the work developed by teachers, as well as for investments in continuing education.

The third consideration concerns the similarities and differences between Environmental Education and Education for Sustainable Development. Our opinion is that it is necessary to treat both initiatives as one. In other words, when discussing these concepts, it is necessary to address both environment and development issues as mutually inclusive. Therefore, while the processes and programs established by Environmental Education must be valued, the contributions of Education for Sustainable Development should also be considered. Execution is more important than nomenclature.

The fourth consideration refers to the possibility of physical education activities contributing to the Decade of Education for Sustainable Development. We presented some examples and ideas and believe that physical education must address both environmental and developmental issues. The success of these programs depends on teacher training, creativity and educational philosophy.

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*Correspondence address*

Renata Osborne  
Rua Jangadeiros 37 apto 701  
CEP 22420-010  
Ipanema, Rio de Janeiro, Brazil  
e-mail: [renataoc@oi.com.br](mailto:renataoc@oi.com.br)