



# Chapter 53

## Food and nutritional education proposal for sustainability

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### ABSTRACT

Historical events related to the Industrial Revolution gave rise to various questions about sustainability so the socio-environmental crisis we are currently facing indicates an urgent need to strategically position ourselves in the face of environmental and climate shocks developed from the development of human activities that, triggered in this process, directly and profoundly affect ecosystems. Such a context makes sustainability something to be taken as a priority in the development of society, moving away from a characterization of business profitability, to the point of referring to care for the planet, through isonomic attention to economic, social, and environmental aspects, whose awareness permeates the local and planetary socio-environmental scope, to mobilize governments, companies, and civil society because of

facing the climatic and ecological crises, which gains greater impetus from educational proposals that take the environment as the focus of their concerns. From then on, our goal is to raise some contributions from Food and Nutrition Education (EAN), as a resource conducive to approaching sustainability in the school environment, through interventions such as exploring preparations and experiences with natural foods, cultivation for consumption knowledge about sustainable food, etc., be included in the educational curriculum as a cross-cutting theme, understanding that, more than ever, an attitude is needed to minimize the impacts that negatively affect ecosystems. Thus, our study is carried out through a multidisciplinary integrative literature review, aimed at condensing a series of results offered by studies in different areas, such as Education, Nutrition, and Ecology, which allows articulating the theme of EAN as a means of contributing to students' awareness of issues related to sustainability and food aspects, and we can point out, as a result, several aspects concerning new considerations and behaviors regarding the planet itself.

**Keywords:** Food and Nutrition Education, Environmental education, Sustainability.

## 1 INTRODUCTION

Based on historical events related to the Industrial Revolution, there is an urgent need to strategically position ourselves in the face of environmental and climate shocks that affect ecosystems, making it possible to talk about sustainability as something more frequent in the face of the socio-environmental crisis we are currently facing. (FLANNERY, 2007; OPPENLANDER, 2013). Thus, nowadays, the development of economic activities, triggered in this process, directly and profoundly affect the ecosystems to which we belong, making sustainability, as a double capacity to satisfy current and future needs, something to be taken as a priority in the future the general context of human activities.

Thus, departing from a characterization of business profitability, sustainability refers to care for the Planet, through isonomic attention to economic, social and environmental aspects (BOFF, 2008, 2009, 2015; MERICO, 2014), whose awareness permeates the planetary socio-environmental scope, which must be counterbalanced with the local dimension, to mobilize governments, companies, and civil society because of facing the climatic and ecological crises, ascending from late periods of the construction of our modern society (CASCINO, 2000). From then on, we understand, more than ever, the necessary attitude in favor of minimizing the impacts that negatively affect ecosystems, enabling the continuity of the human community as we know it, which gains greater impetus from proposals for education that take the environment as the focus of their concerns.

In this way, we propose to raise some contributions from Food and Nutrition Education (known simply as EAN), as a resource conducive to the approach of sustainability in the school environment that, through, for example, certain interventions, such as exploration of preparations and experiences within natura foods, prioritization of the consumption of local crops and knowledge about sustainable food, etc., be inserted in the educational curriculum as a cross-cutting theme, taking as reference the fact that, if food is better conceived from the consideration of the development of the person, concerning the point of view of healthy eating habits, food can also be taken into account from the point of view of environmentally healthy habits, in the form of practices of environmental care and sustainability.

Keeping this in mind, we intend to carry out a multidisciplinary integrative literature review, aimed at condensing a series of results offered by studies and documents from different areas, such as Education, Nutrition, and Ecology, which allow articulating the theme of Food and Nutrition Education (EAN) as a means of contributing to the awareness of our students on issues that relate sustainability and food aspects.

## **2 METHODOLOGY**

The present study is characterized as an integrative literature review and, starting from the objective of pointing to some contributions of the EAN as a resource conducive to the approach of sustainability in the school environment inserted in the educational curriculum as a transversal theme (BRASIL, 1998; PERISSÉ, 2014), he refers to a multidisciplinary approach (CELANI, 2007; MOITA LOPES, 2011, 2007; PENNYCOOK, 2006; ROJO, 2013), which presents a synthetic and conjunctive result of several documents and research from different institutions and authors on the subject in question.

Among the documents and research, the (1) National Curriculum Parameters, the (2) Principles and Practices for Food and Nutrition Education, the (3) Food and Nutrition Education Reference Framework for Public Policies, the (4) Food Guide for the Brazilian Population, the (5) entry “Family Farming” from the Ministry of Agriculture, Livestock and Food Supply, as well as laws, ordinances and books on the subject.

In this sense, the elaboration process of our study followed, as its first stage of design, the construction of a guiding question, which is: how can Food and Nutrition Education contribute to the

awareness of students in favor of sustainability? The second stage involved defining the information that would be taken from the documents and research to support our guiding question, to serve as a criterion for the survey and selection of texts related to our proposal. From then on, the third stage allowed the evaluation of the documents and research included in this study, so that the results could be interpreted and the discussion carried out.

Finally, since this study did not develop an individual evaluation of each document or research, but a convergence of arguments between these different texts to point out how Food and Nutrition Education could contribute to sustainability, its final wording was structured into two sections. The first refers to the results, which were divided into two topics: (1) EAN as a transversal theme and (2) Approximation between EAN and sustainability. In the section referring to the discussion, there are proposals and aspirations for intervention in EAN.

### **3 RESULTS**

#### **EAN as a cross-cutting theme**

Before delving into the issues related to our proposal to present some aspirations for the convergence of Food and Nutrition Education with sustainability, we need to understand where, within the school curriculum, we place this theme. In this case, the essential concept of such contextualization is the transversality that points out how the EAN should develop within educational institutions, based on a critical, multidisciplinary and transversal action. As a result, presenting the concept of transversality is a great way to understand how these two themes, so important to relevant educational training, can work together so that Food and Nutrition Education will offer direct contributions to the construction of a society that seeks sustainability as a way of life and way of acting.

Thus, as we can see, the National Curricular Parameters, simply known as PCNs, represented an advance in terms of an important transformation in the Brazilian educational system, which, previously so withered, was considered non-existent, from theorists such as Dermeval Saviani (2008), regarding the need for effective training of individuals. These documents leverage the possibility of curriculum development, by inserting the teaching and learning process in the current context of contemporary society and also making it possible for education to play a fundamental role in social development.

From this perspective, one of the elements that emerge from the documents of the PCNs is the concept called the transversal theme, which was incorporated into the educational perspective focused on the construction of citizenship, with the school being responsible for its opening to the debate of issues related to ethics, to cultural plurality, the environment, health, sexual orientation and work and consumption (BRASIL, 1998), which support an approach to Food and Nutrition Education as an educational resource that, inserted across the school curriculum, can favor aspects related to sustainability, especially from axes such as the environment and health, whether individual or collective.

This possibility established by the EAN, as well as by the other cross-cutting themes, does not represent the creation of new areas or disciplines, as its objectives and contents are inserted in the already existing areas and within the current work of the school. As can be seen in the documents of the PCNs or certain authors such as Fabio Cascino (2000), one should avoid a conception in which themes that generate questions only serve to unite disparate contents of "close" disciplines, in terms of sharing methods, themes, etc. In addition, as Mucida et al (2012) also points out, "the Transversal Themes provide the insertion of social issues into the curriculum structure, implying an interdisciplinary teaching methodology and concerned with respecting the age range of each student" (p. 2).

The election and selection of contents, then, can assume for students the instrumentation of reflection and change in their own lives, as can happen with Food and Nutrition Education, in perspective with questions about sustainability. In this way, in the broader context of the democratic system, it is pertinent that citizenship is elected "as the backbone of school education imply[ing] to explicitly stand against [the] values and practices that disrespect those [democratic] principles" (BRASIL, 1998, p. 23).

Faced with this reality, it is emphasized by the PCNs that the same plurality of principles defended applies to the epistemological scope, in defense of the plurality of knowledge, making it possible to characterize the educator as a political actor in the possibility of social transformation, beyond its mere reproduction. Thus, the importance of social issues for the student's citizenship training is evident, which provides flexibility and openings to the curricula and which justifies the presentation of Food and Nutrition Education as a cross-cutting theme favorable to contributing to the development of society towards sustainability.

In this context, cross-cutting themes can be prioritized and contextualized from the consideration of different local and regional realities, in addition to new themes that can always be included, which represents the entry of Food and Nutrition Education in the list of cross-cutting issues in the school curriculum, which comes to consider aspects of a local nature, which are extremely relevant to tangent sustainability, which, through the motto "Think globally, act locally", seeks to convince individuals to be concerned with planetary health, based on practices located in their cities and communities.

In turn, all the criteria accepted for the choice of cross-cutting themes, such as social urgency, national scope, the possibility of their teaching and learning in basic education and the favoring provided by them to the understanding of reality and social participation on the part of the student, favor the proposition of Food and Nutrition Education as a transversal theme, especially if we consider its possibilities of approaching elements related to the search for a sustainable society, since there is no obstacle, in theoretical or methodological terms, to list EAN as a possibility to address sustainability.

It is also worth noting that the erasure of disciplinary boundaries brought to the fore assumes a distinction in terms of interdisciplinarity and transversality, since, despite its approximations, interdisciplinarity presents an understanding that is more focused on knowledge itself (CASCINO, 2000; CELANI, 2007; MOITA LOPES, 2011, 2007; PENNYCOOK, 2006; ROJO, 2013), while transversality is

characterized by a form of organization of didactic work that permeates the most diverse areas (BRASIL, 1988), given that, since "we adopt cross-cutting themes as unifying axes of educational action, around which all disciplines have something to say, comprehensive training is highlighted as a goal for all those involved" (PERISSÉ, 2014) (emphasis added).

### **Approximation between EAN and sustainability**

Around the same period in which Food and Nutrition Education came to the fore and asserted itself as necessary in the Brazilian context, sustainability also gained greater clamor, to the point that these two themes can walk side by side in pedagogical practices. In this sense, it is important to point out how sustainability concerns emerged, to then present some concepts linked to Food and Nutrition Education, articulating aspects of sustainable practices within its scope, from the aspirations of intervention inserted within the educational environment.

First, we have the initial emergence of the concept of sustainability around 500 years ago, in the region of Saxony, where some individuals were concerned with the thoughtful use of forest wood, to the point that its permanent regeneration and maintenance were possible (BOFF, 2015). However, it was only with the establishment of the field of Silviculture, at the beginning of the 18th century, around the concern with the possible scarcity of wood, that sustainability became a strategic concept so that it only gained definitive strength from 1972 onwards. , with the holding of the First World Conference on Man and the Environment <sup>1</sup> (NOGUEIRA; RUFINO, 2021; BOFF, 2015). Through this event, the United Nations Environment Program (UNEP) was created, which is considered positive, including because the activities aimed at environmental issues of the international community have intensified with it (VEIGA, 2013).

In its current version, the concept of sustainability offers two meanings: one passive and one active (BOFF, 2015), having as its etymological root the Latin term "sustainable", which is equivalent to sustaining, in Portuguese. In the passive sense, sustainability is characterized as a process inherent to ecosystems to manage their survival, through balance and self-preservation. On the other hand, for the passive sustainability of ecosystems to be possible in the face of the human element, it is necessary to assume the active meaning, whereby our actions will generate conditions for nature to maintain and regenerate itself:

The active sense emphasizes the action taken from the outside to conserve, maintain, protect, nourish, feed, prosper, subsist, and live. In the ecological dialect, this means: sustainability represents the procedures we take to allow the Earth and its biomes to remain alive, protected, fed with nutrients to the point of being always well preserved and up to the risks that may arise (BOFF, 2015, p . 32).

Thus, breeding in such conditions mainly requires postures that do not further aggravate the situation of ecosystems, giving them time and means for permanent regeneration and maintenance. With this,

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<sup>1</sup> Known worldwide as the Stockholm Conference.

sustainability emerges as a result of human actions that maintain ecosystems and communities of life, as well as the natural resources necessary for current and future social demands, as a

set of processes and actions aimed at maintaining the vitality and integrity of Mother Earth, the preservation of its ecosystems with all the physical, chemical and ecological elements that make the existence and reproduction of life possible, meeting the needs of the present and future generations, and the continuity, expansion and realization of the potentialities of human civilization in its various expressions. (BOFF, 2015, p. 14).

From then on, Food and Nutrition Education can also take ownership of the discussion on sustainability and, in the next section, we will raise some perspectives on how we can favor the maintenance of ecosystems through local practices related to our eating habits, presenting intervention proposals that serve to enhance the pedagogical practices interested in assuming a critical, participatory and transversal point of view, which requires us to know some definitions related to Food and Nutrition Education.

To define some criteria related to our understanding of Food and Nutrition Education, we start from the fact that this concept was developed to cover the entire historical evolution of the theme in Brazil, pointing out the different values that concern food and nutrition, so that scientific and popular knowledge is articulated, as the terms "Food Education" or "Nutritional Education" could, in isolation, limit or associate the theme only to scientific and biological knowledge of food. In this way, it is possible to outline actions that contemplate the production processes, supply and transformation of food in nutritional aspects (BRASIL, 2012).

Consequently, Food and Nutrition Education "is a field of knowledge and continuous and permanent practice, transdisciplinary, intersectoral and multidisciplinary, which aims to promote the autonomous and voluntary practice of healthy eating habits" (BRASIL, 2012, p. 23), being that, despite its scope, EAN was not taken seriously for some years, mainly because the food was reduced to its biological value. However, currently, after Food and Nutrition Education has embraced several concepts and expressive practices, it has been gaining a prominent place in terms of public policies in a scenario of promoting health and food safety.

In this context, EAN is a field of action with strategies that support the prevention and control of current complications arising from food, such as Chronic Noncommunicable Diseases (NCDs) and nutritional deficiencies, which may be in line with nutritional approaches that provide for the possibility of building a healthy and sustainable diet. In addition, Food and Nutrition Education also emerged to value food culture and regional habits and reduce the volume of wasted food, in a way that promotes responsible, conscious and sustainable consumption (BRASIL, 2012).

In turn, knowing that food preferences are motivated by individual and collective determinants, Food and Nutrition Education brings together a set of initiatives that promote reflection and practical guidance, leading to the contemplation of different sectors to achieve a better quality of life for the population. population, which offers us theoretical subsidies for the educational promotion of a healthy and

sustainable diet; and, intending to provide a safe environment for raising such discussions, there was a demand for such topics to be included in the school curriculum through Law No. , "in the teaching and learning process, which permeates the school curriculum, addressing the theme of food and nutrition and the development of healthy life practices, from the perspective of food and nutritional security" (BRASIL, 2009, s/p).

#### **4 DISCUSSION**

In this section, the focus is given to the aspirations of EAN interventions within the school and, to the proposal of some nutritional interventions that enhance the critical development of the student, in the perspective of community participation for sustainability, such as the production of vegetable gardens and living pharmacy, exploring preparations and experiences within natura foods, prioritizing the consumption of local crops and approaching knowledge about sustainable foods, it is also worth considering that Food and Nutrition Education is present in the texts that govern collective health in Brazil and, for example, the EAN focuses on promoting healthy eating practices and lifestyles, as one of the guidelines of the National Food and Nutrition Policy (PNAN).

Thus, in the National Food and Nutrition Security Policy (PNSAN), four of its six objectives have a direct relationship with Food and Nutrition Education, one of which is the promotion of food and nutrition education actions in the school environment, which is articulated with the National School Feeding Program (PNAE). In addition, the EAN is also present in the normative documents of the National Health Promotion Policy (PNPS), as part of the action plan to combat CNCDS, through Ordinance 1010/2006, in partnership with the Ministry of Education, to promote healthy eating in schools (BRASIL, 2006).

Therefore, Food and Nutrition Education, based on guiding principles of the most varied actions, including educational ones, demonstrates that there is a real demand when it comes to public actions that are effective and participatory (BRASIL, 2012), which leads us to to anchor our proposal in this conceptual safe harbor, based on the following intervention aspirations. However, it is worth mentioning that the nutritionist professional, as an active in the health area, contains among one of his private activities the actions of Food and Nutrition Education, as provided for in Law No. 8.234/1991, in its third article, which establishes, in item VII, assistance and nutritional education in groups or individuals, whether healthy or sick, located in public and private institutions or a nutrition and dietetics office, as exclusive activities of the nutritionist.

Thus, the nutritionist will structure methodologies and actions that aim to form the human being continuously and constantly, in a way that contemplates the various sectors of this individual's life (social, cultural and economic, etc.). This allows this professional to help or guide educational activities in the school environment, which make it possible to raise awareness about eating habits, to the point that these aspects favor the creation of healthy lifestyle habits and food choices, in an autonomous and emancipatory way and, possibly even from the biological level of the individual organism to ecological relationships.

Based on this understanding, one of these interventions and/or actions to be carried out by EAN within the school environment, to contribute to sustainability, **is the realization of vegetable gardens and living pharmacy within the students' living space**. Actions like these can lead to an appreciation of school structures, which could be of no use, in addition to providing students with greater exposure to in natura foods, allowing them to originate their food identity, to conceive the idea of home economics and the attribution of the value of making with one's own hands. All this comes with a proposal to modulate a possible aversion already innately conceived in these individuals, taking into account that the more the person is exposed to a certain food, the more accepted this food will be.

According to the Food Guide for the Brazilian Population (BRASIL, 2014), the lack of culinary skills can lead the individual to prioritize the consumption of ultra-processed products and, consequently, the lack of knowledge of the origin of their food can represent a possibility of damage in the form how we eat, so that, for this reason, **preparations and experiments with in natura foods** can be an effective measure to circumvent this obstacle. Culinary workshops with common preparations for family consumption provide opportunities for the subject to get involved in the food production process. It is attitudes like these that lead the individual to practice self-care and make him motivated enough to be the protagonist of his choices (BONOMO, 2018).

Another viable suggestion would be to encourage students to give **priority to the consumption of local** crops, that is, to buy from small producers who produce in shorter cycles and conditions free of pesticides (organic). These small producers are part of what we call Family Agriculture and are made up of rural producers, traditional communities, extractivist, fishermen, etc. In this concept, all administration is done by the family, and it is from this activity that they derive all their livelihood (BRASIL, 2019). For this reason, it is so necessary to encourage the acquisition of foods like these, in which the first principle of the EAN is articulated, guided by social, environmental and economic sustainability, in the "Food and Nutrition Education Reference Framework for Public Policies " (BONOMO, 2018).

In addition, we raise an equally important issue as those already mentioned, which is **knowledge about sustainable food**. Based on the context of sustainability, we can say that sustainable food is any food that throughout its production chain has had a low environmental impact, in addition to favoring food and nutritional security (TRICHES, 2020). Because of this, we can mention in natura foods, those sold without packaging or in ecologically correct packaging (biodegradable) and even seasonal foods, which are produced and sold at a specific time. Crop foods are fresher and naturally ripened foods, so this contributes to increasing the quality of the nutritional value of this food. They are produced by small producers, travel shorter distances to reach their consumers and are offered in larger quantities, to the point of being sold at more affordable prices, contributing to better access and acquisition of these foods by the population.

Thus, given the need for community involvement and mobilization, consideration for values related to sustainability and critical analysis of social structures, for an educational approach that engages with the theme (LOUREIRO, 2007 apud NIKOKAVORAS; MATOS, 2011), we consider that, in any case, our

aspirations for school intervention can be carried out based on all these aspects, there being nothing a priori to prevent the development of a Food and Nutrition Education that, aware of socio-environmental issues, mobilizes and involves the community in your projects, as well as consider sustainable values or critically address the social conditions experienced by students and their caregivers.

## 5 CONCLUSION

During this study, it is possible to perceive that the scarcity of resources and other aspects such as pollution and degradation are leading us to assume new considerations and behaviors, signaling that we are situated, as a society, in the face of profound changes that, to be corrected and cease to represent a harmful potential to our lives and those who share the Earth with us, effective measures are needed against the spread of socio-environmental ills and human aggression to ecosystems. Therefore, it is necessary to understand, as suggested in the present study, that education is extremely urgent, to be able to guide us towards a new form of social functioning, characterized as sustainable, making us aware with warnings and alerts that point to inaction as the worst alternative to follow.

From the result and discussion, it is seen that this education has a lot to gain through the contribution of Food and Nutrition Education, being able to converge discourses and attitudes that guarantee our future survival, in which ecological problems, in all their complexity, are just an evil memory of a bygone time. In addition, the data obtained also indicate that educational practices aimed at strengthening ecological awareness, through Food and Nutrition Education, as previously suggested, can be proposed to create possible strategies to mitigate the dangerous implications of unwanted intensification variations in the planet's temperature or the improper use of natural resources.

In this shift, the relevance of developing Food and Nutrition Education as a cross-cutting theme of the educational curriculum is understood, which can reinforce students' awareness of the need to reconcile healthy eating habits, situated from the biological level of the individual organism to the level of ecological relationships, working from the perspective of involving our young people in understanding our current socio-environmental situation, whether in their small actions as apprentices or in their future fields of activity and experiences, in the possibility of engaging in movements that offer answers effective solutions for contemporary or future dilemmas.

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