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Giseli Boiam Dall'Antonia
Angela Vacaro de Souza

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CHAPTER 5

Food and Nutrition Education: An Analysis of Consequences, Prevention Strategies, and School Development

*Giseli Boiam Dall'ANTONIA*¹
and *Angela Vacaro de SOUZA*²

¹ Graduate Program in Agribusiness and Development (PGAD), Faculty of Sciences and Engineering, São Paulo State University “Júlio de Mesquita Filho” (UNESP), Tupã, São Paulo, Brazil, e-mail: giseli.boiam@unesp.br.

² Department of Management, Development, and Technology, Faculty of Sciences and Engineering, São Paulo State University “Júlio de Mesquita Filho” (UNESP), Tupã, São Paulo, Brazil, e-mail: angela.souza@unesp.br.

INTRODUCTION

In contemporary society, marked by rapid changes in lifestyle and dietary patterns, the issue of food and nutrition stands out as a crucial component for overall health and well-being. Within this complex scenario, Food and Nutrition Education (FNE) emerges as an indispensable strategic approach, aiming not only at understanding the negative impacts of inadequate dietary habits but also at implementing effective preventive strategies.

This text proposes to conduct a comprehensive analysis of the consequences associated with unbalanced dietary practices, highlighting the urgent need for educational interventions. In this context, the role of FNE as an essential tool in the prevention of health problems related to diet is examined, contributing to the formation of healthy habits from childhood. Additionally, the text addresses the impact of this approach in the school context, investigating how the promotion of conscious eating can positively influence students' academic, cognitive, and social development within the school environment, integrating the theme into the school curriculum and pedagogical practices.

By exploring the links between food education, the consequences of inadequate eating habits, and school performance, this work seeks to provide valuable insights for the formulation of efficient preventive strategies. A deep understanding of these relationships is essential not only for the individual development of students but also for building a healthier and more resilient society.

THE GLOBAL SYNDemic BETWEEN HEALTH AND FOOD

Since the 1970s, the definition of hunger by the Food and Agriculture Organization of the United Nations (FAO) has become more

restrictive, linking it to chronic malnutrition. This condition not only implies the lack of food but is also associated with vitamin and mineral deficiencies, contributing to the occurrence of these deficiencies when chronic malnutrition is present (Ribeiro Junior, 2021).

On the other hand, the problem of malnutrition emerges as one of the main public health challenges in contemporary times. Both malnutrition and obesity, along with the ramifications of climate change and its impacts on human health and vital ecosystems for our survival, are now widely recognized as components of a global syndrome or syndemic that significantly affects the population worldwide. Food systems play a crucial role in this syndrome, encompassing three fundamental elements: the chain from food production to commercialization, the environment in which eating occurs, and the eating habits adopted by people (Swinburn, *et al.*, 2019).

It is important to emphasize that besides literal hunger and malnutrition, there is a “hunger” related to knowledge, characterized by misinformation about certain foods. Often, this lack of information results from family influences and resistance to seeking or trying new food options.

Given the challenges, it becomes essential to integrate FNE into the teaching and learning process, incorporating it comprehensively into the school curriculum. This implies addressing topics such as food, nutrition, and the adoption of healthy lifestyle practices, to promote food and nutritional security. This approach should be an integral part of the school routine, with clearly defined roles for various agents, including governments at different levels, society, family, school, teachers, and students. The goal is to reshape the concepts established in society regarding food and nutrition.

A concrete example of this approach was observed during an event in Tupã/São Paulo (SP), a Scientific Dissemination Fair. In this context, it became evident that food education is necessary from early childhood, providing students, within formal education, the opportunity to learn about the complete cycle of plant development, from planting and cultivation to harvesting and conscious, healthy, and sustainable consumption. The proposal for a pedagogical garden in the educational

environment stands out as a practical tool for this education, allowing for extensive dissemination within the family and community. The aim is to break down entrenched prejudices in families and promote a change in local culture.

This theme and an interesting initiative occurred in partnership with the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Ministry of Education (MEC) through the guiding document of the school curriculum called the National Common Curriculum Base (BNCC). This document, which incorporates skills to be taught in different subjects as Cross-Cutting Themes, addresses the Sustainable Development Goals (SDGs) (UNESCO, 2020), including topics such as environmental and food education, human rights, health, among others.

FOOD AND NUTRITIONAL SECURITY: WHERE WE COME FROM AND WHAT WE AIM FOR

About three million years ago, the basis of human nutrition consisted mainly of roots, seeds, and fruits rich in sugars. Over time, significant changes occurred, such as the introduction of a diet rich in proteins, demonstrating one of the ways to develop the species' brain. However, the global scenario has transformed with the advent of a faster-paced life, driven by increasing globalization, traffic, commuting, and the migration of families from rural to urban areas in search of employment.

In this context, industrialization played a crucial role, resulting in the increase of processed food production by industries, driven by technological advancement. This culminated in the large-scale proliferation of processed foods and beverages, leading to significantly negative consequences for human health, as highlighted by the Pan American Health Organization (PAHO) in 2018.

With the global concern over food security in the contemporary world, accompanied by rising obesity and malnutrition across all age

groups and social classes and other food-related diseases, new guidelines and documents are urgently being analyzed to promote changes in food systems. The main goal is to make them healthy, sustainable, and equitable, considering their interconnectedness with health, the environment, climate, and agriculture. In this context, the 2030 Agenda emerges, aiming to set goals to be met in agroecological food systems and promote health at local, regional, national, and global levels (Burigo, 2021).

The terms related to malnutrition: undernutrition and obesity, along with climate change, constitute a global syndemic that forms a guiding thread, i.e., the unsustainability of current food systems. In this context, national policies addressing issues related to food and nutrition emerge as important intersectoral tools to achieve sufficient, healthy food and, consequently, food and nutritional security. Besides the aspects previously mentioned, the Food Guide for the Brazilian Population, which presents information, analyses, preparation and consumption methods of foods, is used as a strategic support tool for FNE initiatives. Essentially, health, agriculture, and environmental policies need to be articulated to achieve sustainable development.

The World Health Organization (WHO) recognizes and prioritizes actions that focus on Food and Nutritional Security, nutrition improvement, and hunger eradication, including agricultural sustainability (Jones; Ejeta, 2016). Improving the global supply of vegetables remains key to reducing conditions of malnutrition and obesity. Within this theme, in September 2015, the SDGs of the 2030 Agenda were adopted by 193 countries in pursuit of a healthy future for the world, with aspects focused on food and health promotion having direct insertion and adherence in about four of these global goals of the United Nations (UN), 2023, namely:

- **Goal 1:** End poverty in all its forms everywhere.
- **Goal 2:** End hunger, achieve food security and improved nutrition, and promote sustainable agriculture, providing livelihoods for the current global population and improving the income of food producers.

- **Goal 3:** Ensure healthy lives and promote well-being for all at all ages. Notably, some efforts are being made by governments at different levels to meet the proposed goals, such as the National School Feeding Program (PNAE), a federal government program that aims to ensure adequate food for schoolchildren.
- **Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, with a sub-goal (4.7) aiming to ensure that learners acquire the knowledge, and skills needed to promote sustainable development, including sustainable lifestyles. With the qualification of teachers, guarantees of equity of access and permanence, and free provision in the public network that leads to satisfactory and relevant learning outcomes, FNE can have a substantial impact on the teaching-learning process and the promotion of health and well-being.
- **Goal 12:** Ensure sustainable consumption and production patterns, such as better planning of crops, thus reducing waste and improving the daily use of food (World, 2016).

In 1988, the Unified Health System (SUS) was established to promote the general health of the population throughout the country. In addition to actions such as disease prevention, vaccination, and infectious disease prevention campaigns, SUS has made continuous progress in recent years in providing universal and comprehensive health care to the Brazilian population, contributing to reducing inequalities in access to health care. SUS works in conjunction with other public policies, mainly through Primary Health Care (APS), to combat global epidemics, contribute to the control of obesity and malnutrition epidemics, and contribute to climate change mitigation and adaptation (Ebi *et al.*, 2017).

Regarding food, SUS plays an important role in food and nutrition care, promoting and protecting health, as well as preventing, diagnosing, and treating food-related diseases. Its actions are integrated into the current food system and have the potential to influence various areas of this system,

such as the agro-food production chain, the food environment, and food consumption, with impacts on health, the environment, and the economy.

Therefore, SUS is considered a crucial tool for sustainable development, and there is an urgent need for policy convergence, greater integration, and synergistic action between actions, as well as dialogue between actors from different sectors. Advances in the field of Earth Health, which involve the collective study of human behavior in the environment and its impact on the health and sustainability of the planet, play a fundamental role in promoting sustainability in public health policies.

Additionally, people with rights and duties related to education, health, and agency, can act as citizens in demanding the fulfillment of human rights to adequate food and a healthier food environment for all. Thus, SUS should act as a catalyst in the development of a safer, fairer, healthier, and more sustainable food system (Machado, 2021).

MALNUTRITION AND SCHOOL DEVELOPMENT

Over the years, education has emerged as a crucial partner in the fight against malnutrition, as it enables the establishment of a relationship between diet and health issues. In this context, it is essential to conduct popular education combined with nutritional education, enabling the comprehensive recognition of individuals and promoting good social relations (Quevedo Bolívar, 2019).

Concerning popular education, it is essential to promote critical awareness that allows the identification of problems associated with poor nutrition and alternatives to modify eating habits. It is essential to seek to overcome oppressive situations to make significant changes in this context (Lorenzo, 2008).

The reorientation of educational concepts with established models in the systematic process of cultural engagement suggests that education integrates two worldviews, recognizing that both do not hinder the formation of identity traits, but rather the emergence of new codes and

meanings. In this context, educating the population through schools offers an intercultural space where different worlds connect and influence each other (FAO, 2011).

Poor nutrition is one of the factors directly related to the learning process (Ferreira, 2019). It is known that every nutrient has its particularity, relevance, and importance for development, especially in childhood, a phase in which the entire organic and learning system is undergoing constant transformation, with some nutrients being indispensable for brain development, notably iron, iodine, zinc, B-complex vitamins, especially B12, and zinc (Macedo, 2019). A child who has learning difficulties has poor performance in daily activities, family, and social relationships (Cerqueira, 2022).

There must be actions related to FNE in schools, as it is one of the ways to influence students to adopt better eating habits with better quality of life, changing their culturally constructed habits (Magalhães; Cavalcante, 2019), with teachers being the promoters and facilitators of FNE actions, which should include pedagogical content related to healthy eating and health in their school planning (Silva *et al.*, 2018).

In this context, the school, as a learning environment, should promote and prevent diseases, to influence healthy eating habits. FNE actions should start from early childhood education to prevent future pathologies (Magalhães; Cavalcante, 2019).

It is important to highlight that the collaboration between the nutritionist, through the PNAE, together with the school, the community, and teachers, should promote access to healthy foods through public policies and effective actions (Vasconcelos, 2020). The educator plays a crucial role as an influencer and can use engaging learning approaches in their classes, using characters, cartoons, and a variety of playful materials related to food as pedagogical resources (Maito, 2018). Thus, the teacher should address nutrition and health topics at school in an interdisciplinary manner, not to prevent or treat diseases, but to teach students in a way that empowers them to make their own decisions (Silva *et al.*, 2017). Boff (2011), p. 143, states, “It is not about reflection on practice based solely on

experiential knowledge disconnected from theory. It is about a professional who reflects on their knowledge, obtained from practice and understood in light of a theory.”

As Vigotsky (2008) states, “the child thinks syncretically about subjects they have no knowledge or experience of but does not resort to syncretism concerning familiar or easily verifiable practical things” (p. 27). Therefore, it is essential that educational activities are interest-promoting, articulated, and in line with the school’s Political Pedagogical Project.

School-aged children can play a crucial role as change agents, as their tastes and preferences are being shaped. When allied with healthy eating habits, we can form a generation committed to proper nutrition. Therefore, transmitting information to different social groups can help increase collective awareness of health and nutrition (Quevedo Bolívar, 2019). It is also worth noting that students are important vectors in bringing school learning into their homes, positively influencing their families and surrounding communities.

In Brazil, the PNAE, administered by the federal government and maintained by the National Fund for the Development of Education (FNDE), ensures that school-aged students receive food during their school period. This program guarantees safe, diverse, and healthy food for students in early childhood, elementary, and high school education (Cesar *et al.*, 2018; Roque, 2017). The main objective of the PNAE is to eradicate hunger and malnutrition, contributing to increased school performance and learning by offering nutritious and quality food, aiding in growth, development, and promoting Food and Nutritional Security (SAN) for students (Gomes, 2020). The program’s objectives and benefits include educating students to eat in a way that promotes health through proper, healthy, and sustainable eating, prioritizing natural foods, respecting regionalism, and prioritizing foods from family farming.

Education is a right for all, but school success cannot be confined solely to the family and school sphere; public policies are also necessary. When education encompasses issues involving health promotion, focus and effort must be maximized so that, by fulfilling the roles of governments

at different levels, the school, the community, the teacher, and the family, the student can benefit in different aspects of their life, making it healthier and richer in knowledge.

ACTIONS OF PNAE AND FNDE FOR FOOD

According to Brasil (2020), the National School Feeding Program (PNAE) refers to the provision of school meals regulated by resolution CD/FNDE nº 06, of May 8, 2020, which presents guidelines for healthy school meals with safe and varied foods that support the comprehensive, biopsychosocial development and learning of students, using preferably natural or minimally processed foods, with care for those with dietary restrictions, allergies. Attention to food should be based on menus planned according to the current resolution, presented in its article 18:

I – at least 30% of the nutritional needs of energy, macronutrients, and priority micronutrients, distributed in at least two meals, for partial period daycare centers.

II – at least 70% of the nutritional needs of energy, macronutrients, and priority micronutrients, distributed in at least three meals, for full-period daycare centers, including those located in indigenous communities or quilombo areas.

IV – at least 20% of the daily nutritional needs of energy and macronutrients, when offering one meal, for other students enrolled in basic education, in a partial period.

V - at least 30% of the daily nutritional needs of energy and macronutrients, when offering two or more meals, for students enrolled in basic education, except partial period daycare centers.

§ 1º In schools that offer school meals in a partial period, menus must provide at least 280 g/students/week of fresh fruits, vegetables, and greens, distributed as follows:

I – fresh fruits, at least two days a week.

II – vegetables, at least three days a week.

§ 2º In schools that offer school meals for a full period, menus must provide at least 520 g/students/week of fresh fruits, vegetables, and greens, distributed as follows:

I – fresh fruits, at least four days a week.

II – vegetables, at least five days a week (Brasil, 2020, p. 7-8).

According to the same author, the program reinforces the need to include the topic of food and nutrition in school activities to encourage the teaching and learning process.

A significant milestone in the history of the municipality of Tupã is the partnership with the São Paulo State University “Júlio Mesquita Filho” (UNESP) in promoting courses inviting participation from municipal network teachers, directors, coordinators, and general staff. In 2022, the institution promoted a course called Scientific Literacy, which allowed public participation and served as a basis for expanding and disseminating courses, events, and sustainable development partnerships focused on healthy eating. This event resulted in the municipality's greater aspiration to fulfill the SDGs and seek strategies to achieve the green and blue municipality seal.

Based on the criteria outlined earlier, it is noteworthy that the municipality of Tupã is focused on meeting the SDG goals and aims to be one of the leading cities in healthy eating and health. This was confirmed by the first food and nutritional security conference in a proposal debate aimed at eradicating hunger and the possible actions of TUPÁ 2030, held on August 2, 2023. Coordinator Gislaíne Rodrigues Treviso reports that the event follows planning according to the National Food Security Council (CONSEA). She also states that this was the first stage of several debates, focusing on the state and federal levels. The event was attended by 110 people from various sectors, secretariats, and citizens and was coordinated by the Municipal Food and Nutritional Security Council (Comsea), in partnership with the management committee of the municipal TUPÁ 2030 Program. The event discussed strategies and public policies to

mitigate malnutrition, starting with the theme “Eradicating hunger and guaranteeing rights with real food, democracy, and equity” (Tupã, 2023).

The event’s themes followed these axes: 1st axis – structural determining factors and macro challenges for food and nutritional sovereignty and security; 2nd axis – Public policies that ensure the right to adequate food, the national food and nutritional security system; and 3rd axis – Participation and social democracy.

Coordinator Gislaïne highlights that: “Among 21 proposals listed in a pre-conference, participants elected 9 items from Axis 1, which were taken to the regional stage. In Axis 2, we had five, and we voted on three. From the last axis, we also elected three proposals.”

The TUPÁ 2030 Program is in its 3rd Forum. Additionally, Professor and Municipal Secretary of Education, Sports, and Culture Valdir Pedro Berti (2023) state that: “The project has an intersectoral perspective by nature. Today, the Health, Social Development, Environment, Agriculture, Planning, Education, Culture, and Sports secretariats presented effective work and concrete projects that will allow Tupã to become one of the ten municipalities in the state of São Paulo with the best nutritional index in childhood. An audacious goal, but one that is being put into practice daily.”

According to the historical note from the São Paulo State Government related to the Green Blue Municipality program, Tupã/SP presents the following scores: 2008 (79.96); 2009 (84.84); 2010 (87.29); 2011 (91.98); 2012 (79.65); 2013 (74.00); 2014 (12.28); 2015 (14.03); 2016 (10.22); 2017 (6.23); 2018 (24.72); 2019 (30.88); 2020 (40.23) (Secretariat of the Environment, 2023). Currently, in conversation with the Municipal Secretary of Tupã/SP, Marco, from the 2023 administration, the municipality has been losing the minimum score for maintaining the seal and is currently at an average of 4. In August this year, the municipality developed projects to regain the Green Blue Municipality Program (PMVA) seal. This program was launched by the São Paulo State Government in 2007, through the Secretariat of the Environment, to evaluate and support the effectiveness of environmental management,

promoting decentralization, and valuing the sustainable environmental agenda in municipalities (Secretariat of the Environment, 2014).

The Secretariat of the Environment, in 2014, through its program, established the implementation of proposed actions based on evidence, through guidelines to become a more sustainable municipality. This involves areas such as environmental education, biodiversity, water management, local sewage treatment, and other initiatives. The municipality of Tupã/SP, in collaboration with the Education and Environment secretariats, will incorporate evidence, and work done for sustainability, culture, and biodiversity into daily school activities (Tupã Municipality, 2023).

STRATEGIES FOR IMPROVING FOOD QUALITY AND SCHOOL DEVELOPMENT IN LINE WITH GOVERNMENT PROGRAMS

Non-Conventional Food Plants (PANC) to a certain extent offer the possibility of their use as food, among other qualities they can also be commercialized, contributing to the income of many family farmers. They also help to complement and enrich the diet. Their use can be in various gastronomic utilities, such as colorings, meat tenderizers, condiments, obtaining oils, where more than one part of the plants can be used (Kinupp; Lorenzi, 2014).

Tropical and subtropical countries, like Brazil, hold the greatest diversity of plant species; however, the number of native fruit and vegetable species proportionally used is minimal, showing the country's potential to explore various plants with food potential. For example, among the 10 most produced fruit species in Brazil, none are native (Kinupp, 2009, p. 1). As previously mentioned, Brazil is a country that stands out in food production, however, "food and nutritional insecurity is determined by economic, political, environmental, and educational factors" according to (Santos, 2022, p.11). Thus, the construction of society is shaped including its dietary patterns. However, it is possible to seek an accessible food alternative at low cost and favoring regionality.

Thinking about its versatility, the great biodiversity found in the national territory, its commercial and food potential, the importance of using these plants is sought to be highlighted to value, promote health, school development, and make PANC visible notably through the implementation of these foods in school gardens.

The school garden is a learning strategy about food and nutrition where children have various experiences and contact with vegetables, in the case of PANC making the learning more attractive and enjoyable, contributing to the interest in experimenting with them. Thus, the planning, execution, and maintenance of these teaching-learning spaces aim to promote good eating habits that will act in promoting health.

The school garden requires small areas for the cultivation of plants such as vegetables, spices, and medicinal herbs, which can be consumed complementarily to the school meals already offered, in cooking workshops, and in the development of various pedagogical activities (Santana, 2021).

Certain authors recognize that PANC have greater nutritional factors than conventional plants, thus being able to replace other vegetables, in addition to highlighting their versatility in urban spaces such as gardens and their commercial potential (Silva Liberato; Lima; Silva, 2019). Cultural patterns can be an aggravating factor in not recognizing the potential of PANC. Thus, the possibility of taking advantage of the biodiversity of plants we have will also depend on the dissemination, availability, and processing technologies to activate the valorization of this natural resource (Kinupp; Lorenzi, 2014).

Hunger is part of a social dynamic promoted by social inequalities. It is necessary to create public policies to solve this problem. Food sovereignty is also part of this process, and in this sense, an interesting solution would be to encourage the introduction of PANC in the diet, to mitigate the effects of food insecurity and improve the quality of life (Kinupp; Lorenzi, 2014).

The creation of school gardens offers various benefits from sparking students' curiosity, and a greater understanding of sustainability, stimulating collective work, encouraging contact with nature and its resources bringing positive impacts on teaching-learning, from practices

to stimulating students' awareness and making them more responsible about environmental and food issues promoting a balance between nature, education, and food besides instructing them to develop a critical vision and transform the environment they are inserted in.

Therefore, the design and assembly of gardens in the school environment should be considered as a living and constantly changing laboratory and with the stimulus to the planting and consumption of PANC, it will be possible to consume healthier foods, economically, contributing to nutritionally enrich the food already offered in the school, which should have a balanced composition of calories, proteins, fibers, carbohydrates, and other nutrients to ensure that the student has a strictly balanced meal and the knowledge of food plants not yet explored by this group, arousing interest and curiosity and together with the support and encouragement of governments and the community, the student can benefit from the production obtained throughout the process, from its design, implementation, care, and finally consumption.

FINAL CONSIDERATIONS

The text addresses various interconnected facets related to food, health, education, and sustainability. It highlights the crucial role of industrialization, which, driven by technological advancement, resulted in increased production of processed foods. However, this large-scale proliferation of industrialized foods brought with it negative consequences for human health, as warned by the Pan American Health Organization in 2018.

The creation of the Unified Health System (SUS) in 1988 represented a milestone in Brazil, aiming to promote the population's health through comprehensive actions, such as disease prevention, vaccination, and prevention campaigns. The Unified Health System has evolved over the years, playing an important role in reducing inequalities in access to health, working together with other public policies, especially in primary health care.

Education emerges as a crucial partner in the fight against malnutrition, enabling the establishment of a connection between food and health problems. The importance of popular education allied to nutritional education is highlighted, promoting the integral recognition of the person and the construction of good social relations.

The reorientation of educational concepts, based on systematic engagement in cultural practice, suggests that education integrates different worldviews. In the school context, it offers an intercultural space, connecting and influencing different realities.

The relationship between poor diet and the learning process is explored, highlighting the importance of nutrients such as iron, iodine, zinc, and B-complex vitamins in brain development, especially in childhood. Actions related to Food and Nutritional Education in schools are emphasized as an effective way to influence students to adopt healthy eating habits.

The collaboration between nutritionists, schools, and the community, through the National School Feeding Program, is highlighted as essential to promote access to healthy foods through effective public policies. The role of the pedagogue as an influencer, using playful approaches, is highlighted, and the need for interdisciplinary work on nutrition and health in schools is emphasized.

The importance of educational activities that promote interest and are aligned with the school's Political Pedagogical Project is emphasized, recognizing the potential of school-aged children as agents of change. The National School Feeding Program is cited as an initiative that aims to eradicate hunger, promoting growth, development, and food security for students.

The discussion expands to the sustainability sphere, with mention of municipal actions based on evidence to make cities more sustainable. The importance of Non-Conventional Food Plants is highlighted, not only as food options but also as a source of income for family farmers. The potential of these plants to enrich the diet and their versatility in urban spaces is highlighted.

The text concludes by emphasizing the need for public policies to tackle hunger, highlighting food sovereignty as part of this process. The introduction of Non-Conventional Food Plants in the diet is proposed as an interesting solution to mitigate food insecurity and improve the quality of life. In short, the text highlights the interconnection between different areas, emphasizing the importance of integrated approaches to promote a healthy and sustainable life.

The comprehensive analysis of the consequences associated with unbalanced eating practices highlights the urgency of educational interventions. The proposal to integrate food education into the school curriculum, with an emphasis on creating educational gardens, emerges as a practical and effective strategy to promote healthy habits from childhood.

The research also explores the interconnection between food education, the implications of inadequate eating habits, and school performance. Highlighting the global syndemic that combines malnutrition and obesity, the research suggests that food systems play a crucial role in this complex scenario.

It is relevant to note the emphasis given to the partnership with international organizations, such as UNESCO, and the alignment with the Sustainable Development Goals. This provides a solid basis for the proposals presented, highlighting the importance of food education in the broader context of sustainable development.

The inclusion of governmental actions, such as the National School Feeding Program, demonstrates a practical understanding of initiatives at the national level. Furthermore, local initiatives, such as the conference in Tupã/SP, illustrate the real implementation of the proposed strategies and active community participation.

Suggestions for improvement include a more detailed emphasis on Non-Conventional Food Plants, specific examples of these plants and their nutritional benefits. Additionally, a more in-depth approach to the impacts of food education on academic performance and social development of students, with specific data or studies, could further strengthen the research.

Overall, the research presents a holistic and practical approach to addressing contemporary food challenges, highlighting the importance of food education as a catalyst for a healthier and more sustainable society.

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