


AN INTERDISCIPLINARY PERSPECTIVE ON THE CHALLENGES AND POTENTIALS OF CURRICULAR IMPLEMENTATION IN BASIC EDUCATION

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ABSTRACT

This article brings together three reflections on cross-cutting themes in Brazilian education, based on the BNCC (National Common Core Curriculum) and state curriculum documents. The first text discusses how citizenship, ethics, and culture are addressed in the subjects of Sociology and Religious Education, highlighting the role of schools in critical thinking and respect for diversity. The second text analyzes the teaching of Natural Sciences with a focus on sustainability and environmental education, highlighting the convergence between federal and state guidelines and proposing active methodologies to promote student engagement. The third text deals with Food and Nutrition Education (FNE) as an essential pedagogical practice, articulated by programs such as PNAE and PSE, and emphasizes the importance of teacher training and interdisciplinarity to consolidate healthy habits. Together, the texts reinforce the need for a comprehensive, critical education that is connected to contemporary challenges.

Keywords: Comprehensive education; Interdisciplinarity; Cross-cutting themes.

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INTRODUCTION

The National Common Core Curriculum (BNCC) constitutes a fundamental regulatory framework for Brazilian education, establishing the essential learning outcomes that students must develop throughout Basic Education. Normative in nature, the BNCC guides curriculum development with the aim of promoting comprehensive human education and contributing to the construction of a just, democratic, and inclusive society. In this context, curricular implementation faces the challenge of integrating contemporary cross-cutting themes—such as citizenship, ethics, culture, sustainability, and nutrition—in a way that transcends mere content transmission and permeates the entire educational process. This article, which brings together three reflections on these cross-cutting themes, reinforces the need for an education that is critical and connected to contemporary challenges.

The cross-cutting nature of these themes demands an approach that articulates different areas of knowledge, fostering interdisciplinarity. However, this integration is not without obstacles, including the need for ongoing teacher training and the alignment between federal guidelines and regional realities. Given this complex scenario, the following research question arises: How are critical cross-cutting themes—specifically citizenship, ethics, and culture (in the areas of Sociology and Religious Education), sustainability and environmental education (in Natural Sciences), and Food and Nutrition Education (FNE)—articulated and implemented in Basic Education, and what are the main challenges and potentials observed from an inter- and transdisciplinary perspective?

Thus, the General Objective of this study is to analyze, from an inter- and transdisciplinary perspective, the challenges and potentials of curricular implementation of cross-cutting themes in Basic Education, as advocated by the BNCC and related documents. To achieve this purpose, the following Specific Objectives were outlined: 1) To analyze the manifestation of the themes of citizenship, ethics, and culture in the disciplines of Sociology and Religious Education, examining the general competencies of the BNCC and curricular guidelines; 2) To establish a parallel between national guidelines, such as the SAEB Matrix and federal documents, and the Curriculum of the State of Espírito Santo (ES) in addressing sustainability and environmental education in the teaching of Natural Sciences; 3) To discuss the role of Food and Nutrition Education (FNE) as an essential pedagogical and cross-cutting practice, and the implications of teacher training in this context.

The justification for this study lies in the urgency of understanding the realization of the pillars of comprehensive education and active citizenship within the school environment. A detailed analysis of the conceptual and thematic convergences between the BNCC and state curricula (such as that of Espírito Santo, in the case of sustainability), as well as the investigation into the need for a multiprofessional and contextualized approach in critical areas such as FNE, provide relevant support for the qualification of pedagogical practices and for overcoming structural and training limitations that permeate curricular



implementation. The integration of these themes is crucial for forming individuals capable of understanding and transforming reality, promoting social justice and well-being.

In a Brief Theoretical Review, it is emphasized that the BNCC establishes ten General Competencies that serve as the foundation for comprehensive education, where elements such as citizenship, ethics, and culture are intrinsic and cross-cutting. Interdisciplinarity is seen as a key factor, with Religious Education, for example, offering an opportune space for its exercise, and FNE requiring a transdisciplinary and multiprofessional character to encourage healthy habits. The BNCC conceives citizenship, ethics, and culture not as isolated themes, but as dimensions that prepare students to act consciously in society. Additionally, the legal framework for Food and Nutrition Education (Law No. 13.666/2018) consolidates FNE as an indispensable cross-cutting theme, reinforced by programs such as PNAE and PSE, requiring nutrition to be incorporated into various subjects for contextualized learning. Finally, sustainability and environmental education are recognized as structuring axes, whose cross-cutting nature is advocated by both federal and state documents.

METHODOLOGY

This study is characterized as a theoretical research of bibliographic and documentary nature, with a qualitative approach, essential for academic articles. Its objective was to analyze the curricular implementation of contemporary cross-cutting themes in Basic Education, as advocated by the National Common Core Curriculum (BNCC) and related documents.

The methodology was structured into three independent yet convergent analytical axes, reflecting the reflections gathered in the article:

1. Documentary Analysis on Citizenship, Ethics, and Culture.
 - This axis focused on analyzing the General Competencies of Basic Education present in the BNCC, aiming to identify intrinsic elements of citizenship, ethics, and culture.
 - It specifically examined the guidelines of the Human and Social Sciences area (Sociology) and the specificities of the Religious Education curricular component in Elementary Education, using the BNCC document (2017/2018) as the primary source to identify convergences in the promotion of these values and knowledge.
2. Comparative Study on Sustainability and Environmental Education.
 - This stage consisted of a comparative and parallel study between federal guidelines and the Curriculum of the State of Espírito Santo (ES) for High School.
 - Federal documentary sources included the “Environment” material from the Ministry of Education and the SAEB Reference Matrix for Natural Sciences.



- The analysis aimed to identify points of convergence, shared values, thematic structure, competencies and skills, and regional emphases in the treatment of sustainability and environmental education within the scope of Natural Sciences.
3. Investigation of the Cross-Cutting Nature of Food and Nutrition Education (FNE).
- The third axis addressed Food and Nutrition Education (FNE) as an essential pedagogical practice and cross-cutting theme, characterized as a set of continuous, permanent actions of a transdisciplinary and multiprofessional nature.
 - The legal framework of FNE (including Law No. 13.666/2018), the National Curriculum Parameters (PCNs), and relevant public policy documents such as the National School Feeding Program (PNAE), the Health in Schools Program (PSE), and the FNE Reference Framework for Public Policies were reviewed.
 - The research also drew on studies (Moura et al., 2020; Boff et al., 2021; Araújo and França, 2024) to discuss challenges related to initial teacher training and the approach to FNE in pedagogical materials, such as textbooks.

Overall, the adopted methodology enabled the articulation and discussion of the interdisciplinarity required by the BNCC for comprehensive education, based on national and regional documentary evidence and guidelines.

THE BNCC AND THE APPROACH TO CITIZENSHIP, ETHICS, AND CULTURE: A LOOK AT SOCIOLOGY AND RELIGIOUS EDUCATION

The National Common Core Curriculum (BNCC) represents a fundamental regulatory framework for Brazilian education, establishing the essential learning outcomes that all students must develop throughout Basic Education. This normative document guides the formulation of curricula and pedagogical proposals nationwide, aiming at comprehensive human education and the construction of a just, democratic, and inclusive society. In this context, the approach to themes such as citizenship, ethics, and culture assumes central relevance, as they are pillars for the development of conscious, critical, and socially engaged individuals.

This section aims to analyze how the BNCC addresses the themes of citizenship, ethics, and culture, with a specific focus on their manifestation and development in the disciplines of Sociology and Religious Education. To this end, the General Competencies of Basic Education, the guidelines for the area of Human and Social Sciences (with emphasis on Sociology), and the specificities of the Religious Education curricular component will be examined, seeking to identify convergences and particularities in the promotion of these values and knowledge.



The BNCC establishes ten General Competencies of Basic Education that must be developed in an integrated manner throughout the entire school trajectory. These competencies serve as the foundation for students' comprehensive education, permeating all areas of knowledge and curricular components. Citizenship, ethics, and culture are intrinsic elements of several of these competencies, reflecting the document's commitment to an education that transcends mere content transmission.

Dimensions and Development of General Competencies of the BNCC, p. 2 Original document Portuguese (pt-BR)



Diagram presenting the ten general competencies established by the Brazilian National Common Curricular Base (BNCC). Each competency is represented in a color-coded radial layout around the central term “Competências Gerais,” including areas such as Knowledge, Scientific and Creative Thinking, Cultural Repertoire, Communication, Digital Culture, Work and Life Project, Argumentation, Self-Knowledge and Self-Care, Empathy and Cooperation, and Responsibility and Citizenship. The diagram briefly defines what each competency entails and its intended purpose.

As the above picture shows, the ten General Competencies of Basic Education and the competencies that most explicitly address the themes discussed in this work include:

Competency 1: Knowledge – To value and utilize the knowledge historically constructed about the physical, social, cultural, and digital world to understand and explain reality, continue learning, and collaborate in building a just, democratic, and inclusive society. This competency highlights the

Education and Knowledge: Past, Present and Future



importance of cultural and social knowledge as a foundation for civic participation and the construction of a more equitable society.

Competency 3: Cultural Repertoire – To value and enjoy the various artistic and cultural manifestations, from local to global, and also participate in diverse practices of artistic-cultural production. This competency directly promotes the appreciation of culture in its multiple forms, encouraging respect and active participation in cultural life.

Competency 5: Digital Culture – To understand, use, and create digital information and communication technologies in a critical, meaningful, reflective, and ethical manner in various social practices (including school-related ones) to communicate, access and disseminate information, produce knowledge, solve problems, and exercise protagonism and authorship in personal and collective life. The ethical dimension and the exercise of citizenship in the digital environment are emphasized here.

Competency 6: Work and Life Project – To value the diversity of knowledge and cultural experiences and appropriate knowledge and experiences that enable understanding of the relationships inherent to the world of work and making choices aligned with the exercise of citizenship and one's life project, with freedom, autonomy, critical awareness, and responsibility. The appreciation of cultural diversity and the exercise of citizenship are connected to the construction of the student's life project.

Competency 7: Argumentation – To argue based on facts, data, and reliable information, to formulate, negotiate, and defend ideas, points of view, and common decisions that respect and promote human rights, socio-environmental awareness, and responsible consumption at local, regional, and global levels, with ethical positioning regarding care for oneself, others, and the planet. This competency is a pillar for ethical and civic formation, as it promotes dialogue, respect for human rights, and socio-environmental responsibility.

Competency 9: Empathy and Cooperation – To exercise empathy, dialogue, conflict resolution, and cooperation, asserting oneself and promoting respect for others and human rights, with acceptance and appreciation of the diversity of individuals and social groups, their knowledge, identities, cultures, and potentialities, without prejudice of any kind. This competency is crucial for building a culture of peace and respect for cultural and identity diversity—essential elements of citizenship and ethics.

Competency 10: Responsibility and Citizenship – To act personally and collectively with autonomy, responsibility, flexibility, resilience, and determination, making decisions based on ethical, democratic, inclusive, sustainable, and solidarity principles. This competency synthesizes the formation for active citizenship, guided by ethical and democratic principles.

These competencies demonstrate that the BNCC conceives citizenship, ethics, and culture not as isolated themes, but as cross-cutting dimensions that must permeate the entire educational process, preparing students to act consciously and responsibly in society. The interrelationship among them is

Education and Knowledge: Past, Present and Future



fundamental for the formation of individuals capable of understanding and transforming reality, respecting diversity, and promoting social justice.

Sociology, as a curricular component of High School, is part of the Human and Social Sciences area, which, according to the BNCC, aims to deepen the essential learning developed in Elementary Education, always guided by an “ethical formation.” This area is designed to promote “justice, solidarity, autonomy, freedom of thought and choice, recognition of differences, respect for human rights and interculturality, and the fight against all forms of prejudice.” (MEC, 2018)

Sociology, by analyzing social structures and dynamics, offers fertile ground for the development of citizenship and ethics. The BNCC proposes that students develop the ability to “establish dialogues—between individuals, social groups, and citizens of different nationalities, knowledge, and distinct cultures—an essential element for the acceptance of otherness and the adoption of ethical conduct in society.” (MEC, 2018) This implies:

Critical Analysis of Social Relations: The discipline enables students to investigate and question social norms, values, and institutions, understanding how they influence individual and collective life. This critical analysis is fundamental for the exercise of active and conscious citizenship, which seeks social transformation and the promotion of justice.

Promotion of Human Rights: Sociology addresses social inequalities, conflicts, and forms of exclusion, encouraging reflection on the importance of human rights as the foundation for a fairer and more equitable society. The study of social movements and struggles for rights contributes to the formation of citizens engaged in defending these principles.

Social Responsibility and Protagonism: The BNCC emphasizes the need for students to “mobilize different languages... and engage in cooperative practices to formulate and solve problems.” Sociology, by exploring themes such as political participation, social movements, and community organization, stimulates youth protagonism and collective responsibility in constructing solutions to social challenges.

Culture is a central concept in Sociology, and the BNCC recognizes its importance by including the category “Individual, Nature, Society, Culture, and Ethics” as one of the thematic axes of the Human and Social Sciences area. The discipline allows for:

Understanding Cultural Diversity: Sociology explores the plurality of cultural manifestations, beliefs, values, and ways of life present in Brazilian and global society. By studying the “reasons and motives (material and immaterial) responsible for the formation of a society, its language, customs,” and the “logic that produces diversity,” students develop a broader and more respectful view of different cultures.

Combating Prejudice and Intolerance: The sociological analysis of identities and otherness, as well as the processes of social construction of prejudice and discrimination, is crucial for developing a

Education and Knowledge: Past, Present and Future



culture of respect and inclusion. The discipline contributes to deconstructing stereotypes and promoting the appreciation of diversity in all its dimensions.

Interculturality: The BNCC promotes the ability to “establish dialogues... between different knowledge and cultures,” and Sociology, by studying interactions among different cultural groups, fosters interculturality as a principle for peaceful coexistence and mutual enrichment.

In summary, Sociology, within the scope of Human and Social Sciences, plays a crucial role in the formation of critical, ethical, and culturally sensitive citizens, capable of understanding the complexity of the social world and acting to build a more just and inclusive society.

Religious Education, as a knowledge area in Elementary Education, has a specific educational function: “to ensure respect for cultural religious diversity, without proselytism,” and is an integral part of the citizen’s basic education. The BNCC establishes clear objectives for this discipline, which align directly with the promotion of citizenship, ethics, and culture. This approach is reinforced by the understanding that Religious Education, by working transversally with the contemporary themes proposed by the BNCC itself, contributes to the integral and civic formation of the human being, as established by Souza et al.

Religious Education, by addressing contemporary themes in a transversal manner, supports the integral formation of the human being. Furthermore, Religious Education presents itself as an opportune space within the educational process to exercise and experience interdisciplinarity in the school context. (SOUZA, SCHMITT, & KLEMZ, 2023).

The objectives of Religious Education in the BNCC demonstrate a strong commitment to the ethical and civic formation of students:

Promotion of Human Rights and Freedom of Conscience: One of the objectives is “to provide knowledge about the right to freedom of conscience and belief, with the constant aim of promoting human rights.” This is fundamental for building citizenship that respects individual and collective freedoms, especially regarding the religious dimension.

Dialogue and Pluralism of Ideas: The discipline seeks to “develop competencies and skills that contribute to dialogue between religious and secular life perspectives, exercising respect for freedom of beliefs and the pluralism of ideas, in accordance with the Federal Constitution.” This aspect is crucial for forming citizens capable of living in a pluralistic society, respecting different worldviews.

Construction of Personal Meaning and Ethical Principles: Religious Education should “contribute to students constructing their personal life meanings based on values, ethical principles, and citizenship.” This highlights the concern with forming individuals who base their actions on solid ethical values, essential for the exercise of responsible citizenship.



Combating Intolerance and Discrimination: The discipline adopts research and dialogue to “problematize prejudiced social representations of others, with the aim of combating intolerance, discrimination, and exclusion.” Specific Competency 6 of Religious Education reinforces the need to “debate, problematize, and take a stand against religious intolerance, discrimination, and violence, in order to ensure human rights in the constant exercise of citizenship and a culture of peace.” (MEC, 2018)

The cultural and diversity approach is intrinsic to Religious Education, which proposes to study religious phenomena as part of the “cultural substrate of humanity.”

Knowledge and Appreciation of Religious Manifestations: Religious Education aims to “promote the learning of religious, cultural, and aesthetic knowledge based on religious manifestations observed in students’ realities.” This includes the study of “worldviews, languages, knowledge, beliefs, mythologies, narratives, texts, symbols, rites, doctrines, traditions, movements, practices, and ethical and moral principles.”

Interculturality and Ethics of Otherness: The BNCC emphasizes that “interculturality and the ethics of otherness constitute theoretical and pedagogical foundations of Religious Education, as they foster recognition and respect for the histories, memories, beliefs, convictions, and values of different cultures, religious traditions, and life philosophies.” The discipline seeks “the welcoming of cultural identities, whether religious or not, from the perspective of interculturality, human rights, and a culture of peace.”

Recognition and Respect for Otherness: The thematic units of Religious Education, such as “Identities and Otherness,” aim for students to “recognize, value, and embrace the singular and diverse nature of the human being, through identifying and respecting similarities and differences between the self (subjectivity) and others (otherness).” Specific Competency 4 emphasizes “living with the diversity of beliefs, thoughts, convictions, ways of being and living.”

In summary, Religious Education, as defined by the BNCC, transcends a confessional approach to become a space for dialogue, respect for cultural and religious diversity, and ethical and civic formation, contributing to students’ understanding of the complexity of religious phenomena and their influence on the construction of societies and cultures.

The analysis of the National Common Core Curriculum (BNCC) reveals an explicit and comprehensive commitment to the promotion of citizenship, ethics, and culture at all stages of Basic Education. These themes are not treated as curricular appendices but as structuring axes that permeate the General Competencies and unfold across different areas of knowledge and curricular components.

The General Competencies of Basic Education establish a fundamental framework, encouraging the development of critical thinking, respect for diversity, empathy, dialogue, socio-environmental responsibility, and autonomous and solidarity-based action. The appreciation of historically constructed

Education and Knowledge: Past, Present and Future



knowledge, cultural manifestations, and the ethical use of digital technologies are elements that, together, aim to form engaged citizens who are aware of their role in building a more just and inclusive society.

Regarding specific disciplines, Sociology, within the Human and Social Sciences area of High School, plays a crucial role. It offers conceptual and methodological tools for students to critically analyze social structures, understand power dynamics, inequalities, and diverse cultural manifestations. The discipline fosters dialogue, respect for human rights, and the fight against prejudice, enabling students to exercise active citizenship and adopt ethical conduct in their social interactions. Sociology, therefore, is a privileged space for deepening the understanding of cultural complexity and the importance of otherness.

Religious Education, in turn, in Elementary Education, transcends a confessional perspective to establish itself as a curricular component that promotes respect for cultural religious diversity and freedom of conscience. Its objectives and specific competencies emphasize dialogue between different life perspectives, the construction of ethical values, and the promotion of human rights. By studying religious phenomena as an integral part of humanity's cultural heritage, the discipline contributes to combating intolerance, discrimination, and exclusion, cultivating interculturality and the ethics of otherness as pillars for democratic coexistence and a culture of peace.

By integrating citizenship, ethics, and culture both transversally and specifically in the disciplines of Sociology and Religious Education, the BNCC seeks to form individuals capable of understanding and acting in a complex and plural world. The interconnection of these themes in these disciplines is essential for developing critical awareness, respect for differences, and engagement in practices aimed at the common good, consolidating the principles of a truly comprehensive and transformative education.

SCIENCE AND ENVIRONMENT, SUSTAINABILITY AND NATURAL SCIENCES: WHERE THE FEDERAL AND STATE CURRICULA OF ESPÍRITO SANTO MEET

The promotion of sustainability and environmental education currently appears as one of the structuring axes of Brazilian education. Both federal documents and state curricula recognize the relevance of preparing students to understand, analyze, and critically intervene in socio-environmental issues.

This study establishes a parallel between national guidelines, present in documents such as the “Environment” material from the Ministry of Education and the SAEB Reference Matrix for Natural Sciences, and the Curriculum of the State of Espírito Santo for High School. The aim is to identify points of convergence, regional emphases, and implications for pedagogical practice within the scope of Natural Sciences.



Both federal documents and the state curriculum recognize environmental education as a constitutional obligation and an educational priority, linked to the formation of critical citizens. The national document highlights the importance of the 1988 Federal Constitution and the Rio-92 Conference, while the Espírito Santo Curriculum reinforces the integration of the BNCC and presents specific competencies focused on sustainability.

The axes of the SAEB Matrix, organized into “Matter and Energy,” “Life and Evolution,” and “Earth and Universe,” find correspondence in the Espírito Santo Curriculum. This alignment ensures conceptual coherence and facilitates articulation between national assessments and local practices.

Both documents value the overcoming of mere memorization, emphasizing critical analysis, ethical judgment, and the proposition of solutions. The SAEB Matrix describes cognitive levels of increasing complexity. The Espírito Santo curriculum, through codified competencies (CE01 to CE03), expands this logic and incorporates the analysis of local and global environmental issues.

The “Environment” document advocates for the cross-cutting nature of environmental themes and the adoption of participatory methodologies. The state curriculum also guides learning through investigation, projects, and the use of digital technologies. This convergence strengthens the integration of theory and practice and the connection between school and regional reality.

While federal texts present general guidelines, the Espírito Santo curriculum translates global concerns into regional priorities, such as the analysis of energy matrices, the impacts of monocultures, and problems arising from local productive arrangements. These specificities reinforce the connection between teaching and the socioeconomic reality of Espírito Santo.

The SAEB Matrix guides evaluative processes graduated into three cognitive levels, from recognition to the proposition of solutions. The Espírito Santo curriculum, by organizing codified skills and competencies, dialogues with this typology, favoring evaluative practices that value the application of knowledge in real situations.

Practical recommendations for teachers

- Use local environmental problems as a starting point for interdisciplinary projects.
- Integrate competencies from the Espírito Santo curriculum with the axes of the SAEB Matrix.
- Prioritize assessments that require data interpretation, hypothesis development, and solution proposals.
- Relate school content to local public policies, strengthening active citizenship.

LIMITATIONS AND CHALLENGES

The documents offer consistent theoretical and operational foundations, but challenges include ongoing teacher training, resource availability, and intersectoral coordination. It is recommended that

Education and Knowledge: Past, Present and Future



schools in Espírito Santo use the codified skills of the state curriculum as a guide for local projects, articulating them with the principles of the BNCC and the SAEB Matrix.

The analysis shows that there is broad convergence between national guidelines and the Espírito Santo Curriculum in addressing environmental education and sustainability in the teaching of Natural Sciences. The state curriculum, however, adds regional emphases that bring global guidelines closer to the local reality of Espírito Santo.

This integration strengthens the formation of students capable of understanding natural and social phenomena, assessing risks, and proposing contextualized solutions. The consolidation of this process depends on the effective implementation of innovative pedagogical practices and support for schools and teachers.

SCHOOL FOOD AND NUTRITION EDUCATION: NUTRITION AS A CROSS-CUTTING THEME IN THE CURRICULUM

Food is a fundamental aspect of human physical, cognitive, and emotional development. To establish healthy eating habits, it is essential that proper nutrition be practiced from early childhood. For this reason, the school plays a prominent role in implementing Food and Nutrition Education (FNE).

FNE is defined as a set of continuous and permanent actions, with a transdisciplinary and multiprofessional character, aimed at encouraging healthy and appropriate eating practices within the school environment (BRASIL, 2020). Its inclusion as a cross-cutting theme in Basic Education was consolidated by Law No. 13.666/2018, which amended the National Education Guidelines and Framework Law, highlighting the importance of integrating the theme into student education from the early grades (BRASIL, 2018).

When incorporated into the school environment, FNE can improve the quality of life of a community by promoting the formation of healthy eating habits, encouraging conscious choices, and fostering care for health. In this context, nutrition should not be understood merely as an isolated topic within biological sciences or physical education, but as a cross-cutting theme to be integrated across various school subjects. Transversality allows for a broad and integrated approach, essential for forming conscious, critical, and healthy citizens.

With the publication of the National Curriculum Parameters (PCNs), themes such as health, environment, cultural plurality, and ethics came to be considered **cross-cutting themes** and, therefore, should be addressed in all areas of knowledge, as they pertain to students' social lives and civic formation (BRASIL, 1998). Once integrated into traditional subjects, food—initially approached from a health perspective—began to be recognized as a multidimensional theme, encompassing nutritional, cultural, and socioeconomic aspects.



Among the strategies aimed at ensuring the human right to adequate food and promoting food and nutritional security for the population are the National School Feeding Program (PNAE), the Health in Schools Program (PSE), and important publications such as Interministerial Ordinance No. 1.010 of May 8, 2006, Law No. 11.947/2009/FNDE, and more recently, Resolution No. 26/2013/FNDE and Law No. 13.666/2018.

PNAE is one of Brazil's main strategies for promoting healthy eating, through the use of varied, safe, and culturally appropriate foods that foster healthy habits, contributing to students' growth, development, and academic performance—all associated with the implementation of FNE activities in daily school life (BRASIL, 2009).

According to FNDE Resolution No. 6/2020, which regulates school meal provision to Basic Education students under PNAE, school meals must also have a pedagogical character, encouraging the integration of FNE into the curriculum in a transversal manner (BRASIL, 2020).

Decree No. 6.286/2007, which established the Health in Schools Program (PSE), aims to promote the health and comprehensive education of public school students through coordination between the health and education sectors (BRASIL, 2007). By integrating actions focused on prevention, promotion, and health care, the program contributes to improving students' quality of life. Moreover, PSE fosters continuous and collaborative work between these sectors, expanding the possibilities for FNE implementation.

A significant advancement for FNE actions was the creation of the FNE Reference Framework for Public Policies, developed in 2012. This framework establishes principles to guide the implementation of educational practices across various sectors, requiring professionals to connect theory with reality in order to enhance FNE training processes.

To reinforce this approach, the publication of the National Common Core Curriculum (BNCC) in 2017 consolidated FNE as a cross-cutting theme in the Brazilian curriculum by including competencies that emphasize health promotion, conscious consumption, and sustainability. It encourages teachers to develop interdisciplinary projects that incorporate FNE.

The PCNs introduced the approach of interdisciplinary themes that link various areas of knowledge, aiming to form citizens who are aware of health, social, environmental, and ethical issues. The transversal nature of nutrition seeks not only to transmit scientific knowledge about food but also to foster the construction of healthy habits.

By integrating nutrition and food content into different subjects, contextualized and meaningful learning is promoted. For example: In Science classes, students study the digestive system, nutrients, metabolism, and food-related diseases. In Mathematics, they work on reading and interpreting nutritional labels, calculating portions, and analyzing statistical data on eating habits. In Portuguese, students

Education and Knowledge: Past, Present and Future



produce texts about food and critically read advertisements for ultra-processed foods. In History and Geography, they investigate the evolution of eating habits, food culture, and the socio-environmental impacts of food production. In Physical Education, the relationship between nutrition, physical performance, and well-being is explored. In Arts, students create visual campaigns and projects that encourage healthy eating practices.

It is essential that teacher education includes content that enables educators to address this theme confidently. However, studies indicate that initial teacher training still lacks structured content on FNE. Moura et al. (2020) found that undergraduate Pedagogy programs rarely systematically address this topic, hindering its effective inclusion in the school curriculum. Boff et al. (2021) observed that in elementary school textbooks, FNE is addressed in a limited way and often focuses solely on biomedical aspects, neglecting the cultural and social dimensions of food.

According to Araújo and França (2024), topics related to Food and Nutrition have only recently begun to be included in the school context. Many teachers reported having had no contact with these subjects during their academic training, resulting in limited and superficial knowledge about healthy eating.

The Food Guide for the Brazilian Population is an essential tool for FNE actions, as it provides clear, updated, and culturally appropriate guidelines on healthy eating. Aimed at the general population, it can be used by teachers to promote healthy eating habits. According to Araújo and França (2024), the Guide is an effective pedagogical and political instrument for FNE actions, especially when combined with active methodologies, enhancing teachers' confidence in addressing the topic in an interdisciplinary and participatory manner.

The inclusion of Food and Nutrition Education (FNE) in educational institutions encourages student protagonism in building a more balanced food culture and reinforces the school's role in promoting health and preventing diseases associated with poor nutrition (SANTOS and COUTINHO, 2025).

FNE, as a cross-cutting theme, enhances health promotion and meaningful student learning. Its effectiveness depends on robust public policies, qualified teacher training, and contextualized pedagogical materials. The integration between the health and education sectors, combined with the use of participatory methodologies, constitutes a fundamental strategy for transforming the school environment into a space for promoting healthy eating habits.

CONCLUSION

The analysis of the curricular implementation of cross-cutting themes demonstrated the explicit commitment of the National Common Core Curriculum (BNCC) to comprehensive human education.



This article, by bringing together three independent yet convergent reflections, reinforces the need for a critical education that is connected to contemporary challenges. It was found that themes such as citizenship, ethics, culture, sustainability, and nutrition are not curricular appendices, but rather dimensions that must permeate the entire educational process, requiring both interdisciplinary and transdisciplinary approaches that go beyond mere content transmission. This interconnection is crucial for forming individuals capable of understanding and transforming reality, promoting social justice and collective well-being.

Specifically, the disciplines of Sociology and Religious Education prove to be privileged spaces for deepening citizenship, ethics, and culture. Sociology, situated within the Human and Social Sciences area, equips students to critically analyze social structures and to promote human rights, fostering dialogue and combating prejudice. Religious Education, as a curricular component in Elementary Education, is established as an essential subject for ensuring respect for cultural religious diversity and freedom of conscience, promoting the ethics of otherness and dialogue among different perspectives. In both cases, the focus is on forming critical, ethical, and culturally sensitive individuals, capable of acting consciously in society.

Regarding sustainability and environmental education, the research established broad convergence between federal guidelines (such as the SAEB Matrix and documents from the Ministry of Education) and the Curriculum of the State of Espírito Santo. This methodological and conceptual convergence emphasizes the overcoming of memorization in favor of critical analysis, ethical judgment, and the proposition of contextualized solutions, although the Espírito Santo curriculum adds regional emphases. In parallel, Food and Nutrition Education (FNE) has been consolidated as an essential pedagogical practice and cross-cutting theme through the legal framework (Law No. 13.666/2018) and programs such as PNAE and PSE. FNE requires a transdisciplinary and multiprofessional character, integrating various areas of knowledge to promote health and the development of healthy and conscious eating habits.

Despite the consistency of the theoretical and documentary foundations of the BNCC and state curricula, the implementation of these cross-cutting themes faces significant challenges. The most pressing obstacle is the need for ongoing and qualified teacher training, as studies point to deficiencies in initial teacher education, hindering the effective and contextualized inclusion of themes such as FNE. Therefore, the consolidation of a truly transformative and comprehensive education requires not only robust public policies and coordination between sectors (health and education), but also continuous investment in educators and the adoption of active and participatory methodologies, ensuring that global guidelines are realized in the local reality of schools.



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