

## PROMOTING COMPETENCIES OF THE BRAZILIAN COMMON NATIONAL CURRICULUM WITH CHESS<sup>§§§§</sup>

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### Abstract

This article explores the potential of chess as a pedagogical tool to enhance competencies outlined in the Brazilian National Curriculum (BNCC). With an increasing focus on comprehensive education, schools are seeking innovative strategies to promote student development. Drawing on the BNCC's ten general competencies, this study investigates the relationship between chess practice in schools and the cultivation of these competencies. We demonstrate how chess can contribute to students' cognitive, social, and emotional growth through a comprehensive literature and educational theory analysis. From fostering critical thinking and problem-solving skills to promoting empathy and cooperation, chess offers a holistic approach to education. By aligning with the principles of the BNCC, incorporating chess into school curricula can enrich the learning experience and prepare students for active citizenship in a complex world. This study underscores the importance of integrating playful and engaging activities like chess into educational practices to support students' holistic development.

**Keywords:** chess in schools, Brazilian chess, pedagogic tool, cognitive development, comprehensive education, general competencies, critical thinking, problem-solving skills, educational strategies, holistic student development.

## INTRODUCTION

### 1.1 PROBLEM STATEMENT

Can chess in schools contribute to the integral development of primary school students?

### 1.2 HISTORICAL BACKGROUND OF THE PROBLEM

The states and municipalities in Brazil have been mobilizing to create programs and projects

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to promote comprehensive education and the right to quality public education. To do so, they seek to base their actions on the Brazilian Common National Curriculum (BNCC), a guiding document that sets out the essential learnings for the education of Brazilian primary education students to meet the needs of Brazilian children and adolescents.

The scientific literature on the benefits of school chess is extensive, but studies need to investigate its contributions to the Brazilian curricular base.

Such an investigation helps support chess activities and projects in schools, as it can justify the systematic practice of this game as a playful strategy that helps students achieve effective learning.

## **METHODS AND METHODOLOGY**

This study aims to investigate whether the systematic practice of chess in schools can help to develop the various competencies outlined in the Brazilian Common National Curriculum (BNCC).

The first step was to identify in the BNCC the general competencies that function as a common thread and materialize at the national level the construction of knowledge and the development of skills aimed at the comprehensive training of students in Basic Education. At this stage, the ten general skills described in the BNCC for dialogue with school chess were defined as the focus of this research.

The second step was to investigate scientific literature (articles, classic works, theses, and dissertations) on school chess to support research in the scientific field and obtain evidence regarding its contribution to the objectives of the general skills listed in BNCC.

## **RESULTS**

### **3.1 THE BRAZILIAN COMMON NATIONAL CURRICULUM BASE (BNCC)**

The Brazilian Common National Curriculum Base (BNCC) is an essential national reference regulatory document established by Resolution CNE/CP No. 2 of December 22, 2017, which integrates the national policy of Basic Education for the formulation of curricula in the various Brazilian territories, in a collaborative regime between the federal government, the National Union of Municipal Education Directors (Undime), and the National Council of Education Secretaries (Consed).

Although implemented in 2017, its conception was already foreseen in the 1988 Constitution

and the Law of Guidelines and Bases of National Education (LDB) of 1996. Other documents, such as the National Education Plan (PNE) of 2014, also mention the BNCC, pointing out the Brazilian State's commitment to promoting integral student education (Brazil, 2018).

It is a document guided by ethical, political, and aesthetic principles aimed at integral human formation and constructing a just, democratic, and inclusive society. It defines an organic and progressive set of essential learning that students must develop throughout Basic Education. Its objective is to ensure the rights of learning and development by the National Education Plan.

For the Common National Curricular Base (BNCC), the concept of integral education concerns the intentional construction of educational processes that promote learning aligned with the needs, possibilities, and interests of students, combined with the challenges of contemporary society, overcoming the disciplinary fragmentation of knowledge, and favouring the student's protagonism in their learning, considering them as subjects of education, in the construction of their life project (Brazil, 2018, p. 15).

### 3.2 THE TEN GENERAL COMPETENCIES OF THE BNCC

The BNCC presents ten general competencies, which serve as a guiding thread and materialize, in the pedagogical sphere, the learning rights that articulate in the construction of knowledge, as well as in the development of skills and the formation of attitudes and values, throughout Basic Education:

1. Value and use historically constructed knowledge about the world, the country, and society to understand and explain reality, continue learning, and collaborate in building a just, democratic, and inclusive society.

2. Exercise intellectual curiosity and resort to the approach of the sciences, including investigation, reflection, critical analysis, imagination, and creativity, to investigate causes, elaborate and test hypotheses, formulate and solve problems, and create solutions (including technological ones) based on knowledge from different areas.

3. Value and enjoy diverse artistic and cultural expressions, from local to global, and participate in diversified artistic-cultural production practices.

4. Use different languages - verbal (oral or visual-motor, such as Libras, and written), bodily, visual, sound, and digital - as well as knowledge of artistic, mathematical, and scientific languages to express oneself and share information, experiences, ideas, and feelings in different contexts and

produce meanings that lead to mutual understanding.

5. Understand, use, and create digital information and communication technologies critically, meaningfully, reflectively, and ethically in various social practices (including school ones) to communicate, access, and disseminate information, produce knowledge, solve problems, and exercise protagonism and authorship in personal and collective life.

6. Value the diversity of knowledge and cultural experiences and appropriate knowledge and experiences that allow understanding of the relationships inherent in the world of work and make choices aligned with the exercise of citizenship and their life project, with freedom, autonomy, critical awareness, and responsibility.

7. Argue based on facts, data, and reliable information to formulate, negotiate, and defend ideas, viewpoints, and everyday decisions that respect and promote human rights, socio-environmental awareness, and responsible consumption at the local, regional, and global levels, with ethical positioning regarding self-care, others, and the planet.

8. Know, appreciate, and take care of one's physical and emotional health, understanding oneself in human diversity, and recognizing one's emotions and those of others, with self-criticism and the ability to deal with them.

9. Exercise empathy, dialogue, conflict resolution, and cooperation, respecting oneself and promoting respect for others, with acceptance and valuing the diversity of individuals and social groups, their knowledge, identities, cultures, and potentialities, without prejudices of any kind.

10. Action personally and collectively with autonomy, responsibility, flexibility, resilience, and determination, making decisions based on ethical, democratic, inclusive, sustainable, and solidarity principles.

### **3.3 CHESS IN SCHOOLS AND ITS RELATION TO THE GENERAL COMPETENCIES OF THE BNCC: SCIENTIFIC EVIDENCE**

Based on the general competencies outlined in the BNCC, which presuppose the construction of knowledge, the development of skills, and the formation of attitudes and values throughout Basic Education, this research sought to relate the possible connections between the practice of chess in the school context and the development of these competencies.

#### **Competence 1: Knowledge**

According to the BNCC, the first general competency relates to knowledge, which aims to

value and use historically constructed knowledge about the physical, social, cultural, and digital world to understand and explain reality (facts, information, linguistic, cultural, social, economic, scientific, technological, and natural phenomena and processes), continue learning, and collaborate to build a just, democratic, and inclusive society. From this perspective, the focus is no longer on what the student knows but on how they use this developed knowledge for their daily demands.

By using chess as a dialogical process in knowledge construction, the school promotes "[...] conditions for maximizing knowledge construction in the teaching-learning field, introducing the properties of playfulness, pleasure, initiation capacity, and active and motivating action" (Kishimoto, 2002, p. 37).

### **Competence 2: Scientific, Critical, and Creative Thinking**

The second overarching goal of the BNCC focuses on fostering intellectual curiosity and employing scientific thinking, which involves investigating causes, formulating and verifying hypotheses, engaging in critical analysis, and using creativity to develop strategies for problem-solving.

According to Grillo (2012, p.62), chess can be regarded as a dynamic problem. The logic of the game revolves around devising varied strategies by hypothesizing, analyzing, and constructing differentiated strategies based on them. This provides students with the opportunity to solve problems.

Chess catalyzes problem situations, fostering conditions that continually engage students in active, critical, and reflective thinking. This aligns perfectly with the intended objectives of the second general competency outlined in the BNCC.

### **Competence 3: Cultural Repertoire**

According to the third general competency of the BNCC, students must know, understand, and value the various artistic and cultural expressions, from local to global, so that they can engage in diverse art practices, express themselves through them, and develop awareness and respect for multiculturalism.

Chess has had a relationship with various cultures for more than 1500 years. This makes the game a powerful tool for developing a broad cultural repertoire due to its dissemination across various cultures and civilizations, intertwining with various disciplines that can expand students' cultural repertoire.

Silva (2021, p.25) points out that the historical aspects of chess can be related to the historical

construction that occurs in various segments of human history, connecting with philosophical, sociological, and geographical knowledge.

#### **Competence 4: Communication**

The BNCC (2018) mentions that the fourth general competency aims to appropriate and use different languages, whether verbal (oral, visual-motor, and written), bodily, visual, sound, and digital, and knowledge of artistic, mathematical, and scientific languages.

Garcia (as cited in Silva, 2021, p. 26) states that considering the technical vocabulary used in chess matches, this game:

"[...] can be a source of written production and broadening of the repertoire of words that materialize, in addition, to move annotations, match reports, appropriation of new words, motivating reading out of curiosity about the chess vocabulary and its mysterious history."

Os enxadristas utilizam uma notação padrão para o compartilhamento de suas partidas. Com isso elas podem ser analisadas, transmitidas e armazenadas em bancos de dados. Esse registro possibilita uma eficaz comunicação dos jogos para pessoas de diferentes idiomas, nacionalidades e culturas. As partidas são armazenadas em bases de dados que os jogadores consultam para estudar os jogos uns dos outros e preparar novidades.

This practice can stimulate students to become familiar with various languages: mathematical, scientific, visual, and digital, as players start experiencing readings and annotations of spreadsheets, charts, comparative data, and other languages.

#### **Competence 5: Digital Culture**

The fifth general competency of the BNCC deals with the critical use of digital technologies, aiming to communicate, access, and disseminate information and produce knowledge in one's personal and collective life.

According to Tirado and Brusamolin (2018), the technical development of chess has been favoured by including new technologies for teaching and training chess practice, leading to social changes capable of reorganizing the physical structure and ways of practising the game. Among the new components introduced in the way of relating to chess are currently videos, portable document format, instant messaging, social networks, altering the network's complexity, and reducing the distance between players. According to the authors, new materials on the teaching and training of chess are constantly being produced in various formats and made available to the chess community.

One can play chess online on several websites, including Lichess.org and Chess.com.

Additionally, sites like Youtube.com and Twitch.tv disseminate chess-related content.

On the Chess.com website and Lichess.org, participants can create chess problems and challenge other users to solve them (puzzles). It is also possible to discuss games already played, discuss chess theory, create studies, etc.

Including new technologies in chess can facilitate students' use of various digital technologies, whether through acquiring knowledge about game techniques, exchanging technical information among players, or participating in championships, which can currently be conducted virtually.

### **Competence 6: Work and Life Project**

The sixth general competency aims to enable one to manage one's life through reflection on desires and goals, learning to organize oneself, establishing personal and learning goals, and planning and pursuing present and future projects with determination, effort, and confidence.

Chess is classified as a game of rules. Therefore, it requires knowledge of game techniques and individual effort to organize oneself and establish goals for learning these techniques, which provides practice in study strategies.

### **Competence 7: Argumentation**

The seventh general competency envisages the ability to construct qualified arguments based on facts, data, and reliable information to defend ideas, opinions, and everyday decisions that respect and promote human rights.

### **Competence 8: Self-awareness and Self-care**

The eighth general competency of the BNCC addresses the learning that students should acquire throughout Basic Education regarding self-awareness, understanding oneself in human diversity, recognizing their own emotions and those of others, promoting the ability to deal with them, being able to identify their strengths and weaknesses, and maintaining physical and emotional health.

According to Oliveira, Chaida, and Pinto (2017, p. 2), chess is an activity that also benefits the health of those who practice it regularly. Although this benefit is not so explicit in the physical aspect, the organ most affected in health is the brain, which plays a vital role in mental health and is an essential ally of physical health. In this aspect, the authors highlight studies indicating some improvements that chess brings to the practitioner's life.

Another aspect related to chess's health benefits is the increase in the ability to make good



planning and decision-making, thus stimulating the prefrontal cortex (the brain area responsible for planning and decision-making). With chess practice, the player needs to make decisions and plan, which helps their cortex develop better. This assists the individual in planning and deciding more successfully, not only on game-related issues but also on life issues, always seeking the best paths.

### **Competence 9: Empathy and Cooperation**

According to the BNCC, the ninth general competency aims to exercise empathy, dialogue, cooperation, and conflict resolution, thus promoting respect for others and appreciation of the diversity of individuals and social groups. This competency addresses students' social development.

Silva and Romao (2018, p. 74) emphasize that in a society where fundamental interactions are happening less and less due to the expansion of other forms of interactions, such as virtual ones, for example, due to technological development, schools gain a significant role because they still provide these personal interactions so essential for human development. From this perspective, the authors argue that including chess in schools acts broadly, assisting in the teaching-learning process and favouring the development of essential skills for the student's development and the socialization it provides.

Silva (2014, p.65) argues that school chess can help develop self-control, empathy, and socialization of students because, regarding self-control, in a chess game, to achieve victory, it is necessary to learn to restrain impatience and impulsiveness, not to respond too quickly. As for empathy, during chess practice, the author emphasizes that it is necessary to evaluate, at every moment, the opponent's moves and possibilities for action, along with their physical reactions. It is also pointed out that through chess, they can learn to respect and feel compassion for the opponent when defeated, primarily if they are known or show signs of sadness. In terms of socialization, practitioners learn to maintain cordiality among themselves, greeting each other at the beginning and end of games, and must bear in mind that the game is not played alone; it is necessary to respect silence and one's turn to play, as well as to understand that the rules of the game are unchangeable for everyone. It is not possible to impose conditions different from these.

### **Competence 10 - Responsibility and Citizenship:**

The BNCC, in its tenth overarching goal, fosters personal and collective action with autonomy, responsibility, flexibility, resilience, and determination. It makes decisions based on knowledge built in school according to democratic, inclusive, sustainable, and supportive ethical principles (BRASIL, 2018, p. 10).



Oliveira (2007) points out that regulated games can effectively contribute to forming a more confident and autonomous personality because the game's dynamics provide experience with tension, frustration, and anxiety, emotionally training the player for life's adversities.

Varon (as cited by Tasca, 2022, p. 13) relates chess to students' school and personal lives, presenting chess as a game that intensifies students' skills and aids decision-making processes. Educators can use it to cultivate and develop the art of thinking and teach complex manoeuvres [...] to complete students, especially concerning learning, self-awareness, and social skills. These include independence, self-assurance, analytical skills, critical thinking, learning from mistakes, memorization, self-modification and reaffirmation of one's thoughts, encoding, and decoding (initially in chess). To complement, it assigns specific values that are also very important for the student's school development as well as throughout their life, which are respect, responsibility for their actions, adherence to rules, courtesy, successful dealing with failure, knowing how to win and lose, humility, preserving discipline, self-esteem, patience, self-control, strengthening friendships, and strengthening family ties.

## CONCLUSIONS AND FINDINGS

This research investigated whether chess in schools can help to develop the various competencies outlined in the Brazilian Common National Curriculum (BNCC).

The BNCC addresses integral education: the intentional construction of educational processes that promote learning that is aligned with students' needs, possibilities, and interests, combined with the challenges of contemporary society, overcoming the disciplinary fragmentation of knowledge.

Evidence was identified in the scientific literature that all the ten skills listed in the BNCC can benefit from the practice of chess.

It is suggested that future research describe the experiences and observations of teachers involved in teaching chess in primary schools concerning the contributions of the game of chess to the development of BNCC skills.

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