

**ACTIVE METHODOLOGIES IN BASIC EDUCATION: THE ECOLOGICAL TRAIL  
AS A STRATEGY FOR MEDIATING LEARNING IN ENVIRONMENTAL  
EDUCATION**

**METODOLOGIAS ATIVAS NA EDUCAÇÃO BÁSICA: A TRILHA ECOLÓGICA  
COMO ESTRATÉGIA DE MEDIAÇÃO DA APRENDIZAGEM EM EDUCAÇÃO  
AMBIENTAL**

**METODOLOGÍAS ACTIVAS EN LA EDUCACIÓN BÁSICA: LA RUTA  
ECOLÓGICA COMO ESTRATEGIA DE MEDIACIÓN DEL APRENDIZAJE EN  
EDUCACIÓN AMBIENTAL**



<https://doi.org/10.56238/sevened2026.022-013>

**Zelinda Duarte Rodrigues<sup>1</sup>, Nina Rodrigues Brabo<sup>2</sup>, Patrícia Alves Tavares<sup>3</sup>,  
Auricilene Gomes Moreira<sup>4</sup>, Rosária Duarte Rodrigues<sup>5</sup>, Nancy Santos Fernandes<sup>6</sup>,  
Ló Martins de Andrade<sup>7</sup>, Karla Tereza Silva Ribeiro<sup>8</sup>**

**ABSTRACT**

Active methodologies have stood out in Basic Education for promoting student protagonism and the meaningful construction of knowledge. This article, derived from a master's dissertation, analyzes the application of an ecological trail game as a tool for mediating learning in fifth-grade classes of Elementary Education in three public schools in the municipality of São Sebastião da Boa Vista (PA), involving 205 students. The research, with a qualitative approach and a descriptive and exploratory nature, used participant observation,

<sup>1</sup> Master's degree in Environmental Science Education. Universidade Federal do Pará (UFPA).  
E-mail: zelinda.rodrigues@ig.ufpa.br Orcid: <https://orcid.org/0009-0009-8420-525X>  
Lattes: <https://lattes.cnpq.br/8470176732265749>

<sup>2</sup> Undergraduate student in Law. Universidade da Amazônia (UNAMA). E-mail: ninabraborod@gmail.com  
Orcid: <https://orcid.org/0009-0008-9944-3675> Lattes: <https://lattes.cnpq.br/9800436383289285>

<sup>3</sup> Master's degree in Environmental Science Education. Universidade Federal do Pará (UFPA).  
E-mail: patriciaalvest7777@gmail.com Orcid: <https://orcid.org/0009-0003-2887-747X>  
Lattes: <http://lattes.cnpq.br/2528363946111373>

<sup>4</sup> Master's degree in Environmental Science Education. Universidade Federal do Pará (UFPA).  
E-mail: auricilene.moreira@ufpa.edu.br Orcid: <https://orcid.org/0009-0001-3327-2075>  
Lattes: <http://lattes.cnpq.br/0444388765465761>

<sup>5</sup> Master's student in Teaching in Science and Mathematics Education. Universidade Federal do Pará (UFPA).  
E-mail: rosariarodrigues43@gmail.com Orcid: <https://orcid.org/0009-0006-8195-8027>  
Lattes: <http://lattes.cnpq.br/0128071496285757>

<sup>6</sup> Master's degree in Environmental Science Education. Universidade Federal do Pará (UFPA).  
E-mail: nancyfernandes1@hotmail.com Orcid: <https://orcid.org/0009-0008-5626-2209>  
Lattes: <http://lattes.cnpq.br/7807562683276188>

<sup>7</sup> Master's degree in Environmental Science Education. Universidade Federal do Pará (UFPA).  
E-mail: lo.andrade@ig.ufpa.br Orcid: <https://orcid.org/0009-0007-4809-4527>  
Lattes: <http://lattes.cnpq.br/9224496800561147>

<sup>8</sup> Dr. in Environment and Sustainable Development of the Humid Tropics. Universidade Federal do Pará (UFPA). E-mail: karlarib@ufpa.br Orcid: <https://orcid.org/0000-0001-6553-5215>  
Lattes: <http://lattes.cnpq.br/2654817572738748>

recorded through a systematic monitoring checklist of students' interactions during the activity. Structured based on the municipality's map, the game problematizes local socio-environmental challenges, with an emphasis on water conservation for human consumption, articulating skills outlined in the Brazilian National Common Curricular Base (BNCC). The results show high student engagement, expansion of critical reflection, and strengthening of environmental awareness, as well as interdisciplinary integration among different curricular components. It is concluded that the ecological trail constitutes an effective teaching resource in mediating the teaching-learning process, contributing to the development of critical individuals and to the strengthening of contextualized practices in Science Education.

**Keywords:** Active Methodologies. Ecological Trail. Environmental Education.

## RESUMO

As metodologias ativas têm se destacado na Educação Básica por promoverem o protagonismo discente e a construção significativa do conhecimento. Este artigo, recorte de uma dissertação de mestrado, analisa a aplicação de um jogo de trilha ecológica como instrumento de mediação da aprendizagem em turmas de quinto ano do Ensino Fundamental de três escolas públicas do município de São Sebastião da Boa Vista (PA), envolvendo 205 estudantes. A pesquisa, de abordagem qualitativa, caráter descritivo e exploratório, utilizou a observação participante, registrada em lista de acompanhamento de registro sistemático das interações dos alunos durante a aplicação da atividade. Estruturado a partir do mapa do município, o jogo problematiza desafios socioambientais locais, com ênfase na conservação da água para consumo humano, articulando habilidades previstas na Base Nacional Comum Curricular (BNCC). Os resultados evidenciam elevado engajamento discente, ampliação da reflexão crítica e fortalecimento da consciência ambiental, além da integração interdisciplinar entre diferentes componentes curriculares. Conclui-se que a trilha ecológica constitui recurso didático eficaz na mediação do processo de ensino-aprendizagem, contribuindo para a formação de sujeitos críticos e para o fortalecimento de práticas contextualizadas na Educação em Ciências.

**Palavras-chave:** Metodologias Ativas. Trilha Ecológica. Educação Ambiental.

## RESUMEN

Las metodologías activas se han destacado en la Educación Básica por promover el protagonismo estudiantil y la construcción significativa del conocimiento. Este artículo, recorte de una disertación de maestría, analiza la aplicación de un juego de ruta ecológica como instrumento de mediación del aprendizaje en clases de quinto grado de la Educación Primaria de tres escuelas públicas del municipio de São Sebastião da Boa Vista (PA), involucrando a 205 estudiantes. La investigación, de enfoque cualitativo y de carácter descriptivo y exploratorio, utilizó la observación participante, registrada mediante una lista de seguimiento sistemático de las interacciones de los estudiantes durante la aplicación de la actividad. Estructurado a partir del mapa del municipio, el juego problematiza desafíos socioambientales locales, con énfasis en la conservación del agua para el consumo humano, articulando habilidades previstas en la Base Nacional Común Curricular (BNCC). Los resultados evidencian un alto nivel de participación estudiantil, ampliación de la reflexión crítica y fortalecimiento de la conciencia ambiental, además de la integración interdisciplinaria entre diferentes componentes curriculares. Se concluye que la ruta ecológica constituye un recurso didático eficaz en la mediación del proceso de enseñanza-aprendizaje, contribuyendo a la formación de sujetos críticos y al fortalecimiento de prácticas contextualizadas en la Educación en Ciencias.



**Palabras clave:** Metodologías Activas. Ruta Ecológica. Educación Ambiental.

## 1 INTRODUCTION

Contemporary education faces the challenge of overcoming practices centered on the transmission of content, seeking strategies that promote the active participation of students and the meaningful construction of knowledge. In this context, active methodologies are consolidated as pedagogical approaches that value student protagonism, problem solving, and the articulation between theory and practice, favoring contextualized learning in Basic Education (Lafuente; Barbosa, 2017).

Among the possibilities of operationalization of these methodologies, pedagogical games stand out, which, by integrating playfulness and educational intentionality, expand the forms of learning mediation (Silva; Costa, 2023). When planned in a structured way, such resources contribute not only to cognitive development, but also to socio-emotional dimensions, such as cooperation, argumentation, respect for rules and critical thinking, fundamental aspects for the integral formation of the student.

In the context of Environmental Education and Science Teaching, the adoption of contextualized pedagogical practices is even more necessary, especially in territories that experience daily socio-environmental challenges. Problems related to the inadequate disposal of solid waste and the quality of water for human consumption require educational approaches that stimulate reflection and enable the student to have a more comprehensive and critical understanding of his or her role in the world (Freire, 2000), awakening values focused on sustainability and socio-environmental responsibility. In view of this scenario, the following question arises: how can the application of an ecological trail, based on active methodologies, contribute to the mediation of learning and to the formation of critical subjects in the context of Basic Education?

To answer this problem, this article, excerpted from a master's thesis, analyzes the application of an ecological trail developed from the map of the municipality of São Sebastião da Boa Vista, in the state of Pará. The course of the game includes the three schools participating in the research and ends at the municipal dump, proposing the problematization of local environmental issues. The proposal, of an interdisciplinary nature and aligned with the skills of the National Common Curricular Base (BNCC), seeks to highlight the potential of the game as an instrument of mediation of learning and as a formative strategy capable of contributing to the construction of critical and active subjects in the environment in which they live.

With everything, this work aimed to analyze the application of the ecological trail game, based on active methodologies, as an instrument of learning mediation in fifth grade classes of

Elementary School in schools in the municipality of São Sebastião da Boa Vista (PA), with emphasis on Environmental Education and awareness for the conservation of water intended for human consumption.

## 2 THEORETICAL FRAMEWORK

The theoretical framework of this study articulates active methodologies, playfulness and Environmental Education as foundations for a pedagogical practice centered on student protagonism. It is based on the understanding that the student is an active subject in the construction of knowledge, mediated by interactive and contextualized strategies. In this sense, pedagogical games emerge as mediation instruments that favor meaningful learning. In addition, Environmental Education, integrated with these approaches, contributes to the formation of values and to the construction of a critical and contextualized socio-environmental awareness.

### 2.1 ACTIVE METHODOLOGIES IN BASIC EDUCATION AND THE CENTRALITY OF THE STUDENT

Active methodologies are configured as pedagogical approaches that shift the focus from teaching centered on the teacher's exposure to practices that promote the effective participation of the student in the construction of knowledge. These methodologies stimulate research, the problematization of reality, collaboration and the development of autonomy, favoring more meaningful, critical and lasting learning (Lafuente; Barbosa, 2017).

In Basic Education, its adoption contributes to the strengthening of cognitive, social and emotional skills, since the student ceases to assume a passive role and starts to act as a subject of the educational process. From this perspective, the teacher assumes the role of mediator and problematizer of learning (Freire, 1996). By engaging in contextualized problem situations, students develop argumentation, decision-making, cooperation, and critical thinking skills, which are fundamental aspects for their comprehensive education (Silva *et al.*, 2025).

The National Common Curriculum Base (BNCC) reinforces this perspective by emphasizing the development of general competencies that articulate knowledge, skills, attitudes, and values (Brasil, 2018). In this sense, practices based on active methodologies dialogue directly with the national curriculum guidelines by promoting student protagonism, interdisciplinarity and contextualized learning.

## 2.2 PEDAGOGICAL GAMES, PLAYFULNESS AND MEDIATION OF LEARNING

Pedagogical games are didactic resources that articulate playfulness and educational intentionality, enabling the teaching-learning process to occur in a dynamic and interactive way. When planned with clear objectives and aligned with the curriculum, games go beyond the merely recreational character and assume a mediating function in the construction of knowledge.

For Vygotsky (2010), the game plays a central role in child development, as it contributes to behavioral self-control, expands social interactions and favors the internalization of norms and meanings, exerting a significant influence on the formation of the child's personality.

Playfulness favors student engagement, motivation and active participation, creating an environment conducive to learning. In addition, the games stimulate the development of socio-emotional skills, such as cooperation, respect for rules, conflict resolution and healthy competitiveness, articulating cognitive and affective dimensions (Barbalho; Soares; Gomes, 2023).

In the context of Elementary School, the trail game is presented as a didactic strategy capable of organizing content in a sequential path, integrating challenges, questions and problem situations. Its structure allows working on different curricular components in an interdisciplinary way, promoting the simultaneous mobilization of skills provided for in the BNCC, such as reading and textual interpretation, logical reasoning, data analysis, understanding of natural phenomena and cooperative participation.

In this way, the game is configured as an instrument of mediation of learning, in which the teacher assumes the role of guiding the process, stimulating reflections and deepening discussions that emerge from the ludic dynamics (Cândido; Pereira, 2026).

## 2.3 ENVIRONMENTAL EDUCATION, CONTEXTUALIZATION AND FORMATION OF VALUES

Environmental Education, as a transversal formative dimension, aims to promote the construction of knowledge, values and attitudes aimed at sustainability and socio-environmental responsibility. In Basic Education, its effectiveness is directly related to the contextualization of pedagogical practices, especially when they dialogue with the reality experienced by students, enabling them to rethink their relationship with nature and the territory in which they live. This process involves the dialogue of knowledge and the valorization of local knowledge, guiding the construction of perspectives aimed at a sustainable future (Leff, 2012).

In Amazonian contexts, marked by intense relations between society and nature, the problematization of issues such as the inadequate disposal of solid waste and the quality of

water for human consumption becomes essential for the formation of critical and conscious subjects. According to Freire (1996), the human being is an unfinished subject, in a constant process of formation, capable of transforming reality through reflective action.

The approach to these themes through active methodologies favors awareness and broadens the understanding of the interdependencies between human actions and environmental balance. The integration between Environmental Education and pedagogical games enhances the educational process by allowing students to experience, in a symbolic and reflective way, situations that represent real challenges in the territory.

By walking an ecological trail built from the map of the municipality, students recognize their geographical space as a field of collective responsibility, strengthening values such as care, respect for the environment and social commitment. In this sense, Campos, Severino-Filho and Araujo (2025, p. 218), when dialoguing with the knowledge of native peoples, highlight the need to "[...] to rebuild another future, where education is not just instruction, but listening, bonding and transformation".

Thus, the articulation between active methodologies, playfulness and Environmental Education contributes to an education that goes beyond the content dimension, promoting meaningful learning, interdisciplinarity and ethical, social and environmental development of students.

### **3 METHODOLOGY**

The present study derives from an excerpt from the master's dissertation developed within the scope of the Graduate Program in the National Network for the Teaching of Environmental Sciences (PROFCIAMB-UFGA), class 2022. The research was submitted to the Research Ethics Committee, and was approved according to Opinion No. 6,161,356.

The research is characterized as a study with a qualitative approach, as it seeks to understand the contributions of the ecological trail game as an instrument of mediation of learning from the actions and relationships of students (Minayo, 2002), considering their interactions, perceptions and experiences in the school context. As for the objectives, it is a descriptive and exploratory investigation, since it analyzes a pedagogical practice applied in a real teaching situation (Minayo, 2002).

The study was developed in three public schools in the municipality of São Sebastião da Boa Vista, in the state of Pará, involving 11 classes of the fifth year of Elementary School, in the morning and afternoon shifts, totaling 205 students. The choice of institutions was justified by

their insertion in the urban context of the municipality and by the relevance of local socio-environmental problems for the development of the pedagogical proposal.

As a methodological procedure, a pedagogical game of the ecological trail type was elaborated and applied, structured from the map of the municipality. The course of the game includes the three participating schools and presents, along the trail, problem situations related to the socio-environmental challenges experienced daily by the population, symbolically ending in the municipal dump. This configuration was constituted as a didactic strategy to promote the critical problematization of local environmental issues.

It is also noteworthy that the trail game is part of the "Ecological Chest", an educational product from the dissertation. The resource was personalized with the "Turminha Cristal", an authorial creation of the researcher. In addition, the narratives and statements were elaborated with vocabulary characteristic of the Pará region, valuing the local culture and promoting the sociocultural contextualization of the educational process. The game was planned with rules, challenges and interdisciplinary activities, aligned with the skills of the National Common Curricular Base (BNCC), with an emphasis on environmental conservation and the quality of water intended for human consumption.

The application took place in previously planned pedagogical moments, under the mediation of the teacher-researcher, favoring the active participation of the students. For data collection, participant observation was used, recorded in a previously prepared follow-up list (Kauark; Mornings; Medeiros, 2010), and the systematic recording of students' interactions, speeches and behaviors during the development of playful activity (Minayo, 2002). As a complementary instrument, photographic records were made, adopting due ethical care regarding anonymity and preservation of the identity of the participants. These procedures allowed us to gather evidence about student engagement, active participation and manifestations related to learning and environmental awareness.

The data were analyzed qualitatively, through the identification of recurrences, evidences and meanings present in the interactions observed and in the records produced. The interpretation was carried out in the light of the theoretical framework that underlies the active methodologies, the pedagogical games and the Environmental Education, seeking to understand the potential of the trail game as a didactic resource and its viability as a learning mediation strategy in the context of Basic Education.

## 4 RESULTS AND DISCUSSIONS

The application of the ecological trail game in the fifth grade classes of Elementary School showed significant results in terms of student involvement and the consolidation of learning. Structured from the map of the municipality of São Sebastião da Boa Vista (Figure 1), the game led the students through a route that portrays environmental problems faced daily by the local community, culminating in the city's garbage dump. This territorial organization of the activity favored the contextualization of the contents and enabled the students to recognize their own geographical space as a scenario for reflection and critical analysis, projecting possibilities for building a more sustainable future (Silva; Raggi, 2019).

**Figure 1**

*Ecological Trail Game*



Source: Zelinda Rodrigues (2024).

During the development of the activity, there was wide acceptance by the students. The students demonstrated concentration, enthusiasm and active participation, getting involved in the proposed discussions and relating the situations presented in the game to experiences lived in their daily lives (Figure 2). The playful dynamics favored interaction among the participants, the control of emotions and the strengthening of dialogue and argumentation, stimulating collaborative work (Silva; Costa, 2023). Such aspects evidence the contribution of the game to meaningful learning, by articulating experience, reflection and collective construction of knowledge.

**Figure 2***Application of the Game in the three schools*

Source: Zelinda Rodrigues (2024).

With regard to interdisciplinarity, the ecological track demonstrated alignment with skills provided for in the National Common Curricular Base (BNCC). The activity contemplated the ability EF35EF03, by promoting participation in games that involve strategies, rules and cooperation; the ability EF05LP09, by stimulating the reading, interpretation and discussion of problem situations; the ability EF05MA09, by mobilizing logical reasoning in the resolution of challenges; and EF05CI04 and EF05CI05 skills, when addressing content related to environmental conservation, the water cycle, and the impacts of human actions on natural resources (Brasil, 2018). This articulation shows that the game goes beyond the recreational character, configuring itself as a pedagogical instrument capable of integrating different areas of knowledge in a contextualized way.

Another relevant aspect refers to the emotional and social dimensions observed during the application. The learning took place in a playful, relaxed and pleasant way, marked by positive emotions, cooperative spirit and healthy competitiveness. These characteristics contributed to the creation of a favorable environment for learning, in which students felt motivated to participate and express their opinions. According to Vygotsky (2010), the game constitutes a privileged space for the development of higher psychological functions, by articulating learning and development through social interaction.

The ecological trail also proved to be a significant instrument in the formation of values and in the construction of critical consciousness. When faced with local environmental problems, students began to reflect on their own attitudes and on the collective responsibility in preserving water and the environment, expanding their understanding of the interrelations between society and nature (Leff, 2012). The discussions showed a deeper understanding of

the consequences of inadequate waste disposal and water waste, as well as its direct relationship with the quality of water intended for human consumption.

Thus, the results indicate that the game constitutes an effective didactic resource in the mediation of the teaching and learning process, contributing both to the cognitive development and to the ethical and socio-environmental formation of the students. In addition to favoring the teacher's pedagogical practice, the ecological trail demonstrated potential as an interdisciplinary strategy capable of promoting curricular integration and strengthening the formation of critical and active subjects in the environment in which they live.

## 5 CONCLUSION

The present study analyzed the application of the ecological trail as an instrument of learning mediation in the context of active methodologies, involving classes of the fifth year of Elementary School of three schools in the municipality of São Sebastião da Boa Vista, in the state of Pará. By returning to the question that guided this investigation, about the potential of the trail game as a strategy for mediating learning in Environmental Education, the results indicate that the proposal proved to be pertinent and effective in the context investigated.

The implementation of the game showed that playful and territorially contextualized pedagogical resources favor student engagement, active participation and the construction of meaningful learning. By going through the map of the municipality and problematizing local environmental situations, especially related to the improper disposal of solid waste and the quality of water for human consumption, the ecological trail contributed to the expansion of the students' environmental awareness. Contextualization proved to be a central element for sensitization, allowing students to recognize their own reality as a space of collective responsibility and the possibility of social transformation.

The proposal also demonstrated consistent interdisciplinary potential by articulating skills provided for in the National Common Curriculum Base (BNCC), integrating components of Physical Education, Portuguese Language, Mathematics and Natural Sciences. Such integration reinforces the viability of the game as a pedagogical strategy aligned with the national curriculum guidelines and the contemporary demands of Environmental Education, which defend contextualized, investigative and socially referenced approaches.

In addition to the cognitive dimensions, the strengthening of socio-emotional aspects was observed, such as cooperation, respect for rules, argumentation and critical thinking. The playful environment, marked by positive emotions and constant interaction, favored the construction of

values and the development of more conscious attitudes towards the environmental problems discussed.

It is concluded, therefore, that the ecological trail is configured as an effective and viable didactic resource in Basic Education, constituting itself as an instrument of pedagogical mediation capable of articulating playfulness, interdisciplinarity and problematization of the local reality. By integrating active methodologies and Environmental Education, the proposal contributes to the formation of critical, reflective students committed to sustainability.

As an implication for the area of Environmental Education, the relevance of investing in pedagogical practices that value the territory, the sociocultural reality of the students and curricular integration is highlighted. It is also recommended the expansion of research that investigates contextualized methodologies in the Amazon region, considering its socio-environmental specificities, to strengthen educational proposals that dialogue with local realities and promote a socially committed scientific education.

## REFERENCES

- Barbalho, D. de C., Soares, F. P. de A., & Gomes, B. S. (2023). Quiz da Trilha Ambiental: O jogo como metodologia ativa ensino e aprendizagem em Educação Ambiental. *Rev. C&Trópico*, 47(2), 83-100. [https://doi.org/10.33148/CETRO-Pv47n2\(2023\)art6](https://doi.org/10.33148/CETRO-Pv47n2(2023)art6)
- Brasil. Ministério da Educação. (2018). Base Nacional Comum Curricular: ensino fundamental (2. ed.). Fundação Carlos Alberto Vanzolini. [https://www.gov.br/mec/pt-br/escola-em-tempo-integral/BNCC\\_EI\\_EF\\_110518\\_versaofinal.pdf](https://www.gov.br/mec/pt-br/escola-em-tempo-integral/BNCC_EI_EF_110518_versaofinal.pdf)
- Cândido, V. L. E., & Pereira, T. E. M. (2026). Ludicidade e Aprendizagem Matemática: jogos como ferramentas pedagógicas. *Revista ReGeo*, 17(1), 1-13. <https://doi.org/10.56238/revgeov17n1-091>
- Campos, L. V., Severino-Filho, J., & Araujo, E. da S. (2025). Educação Ambiental e saberes indígenas: o que podemos aprender com eles? *Amazônia Revista de Educação em Ciências e Matemática*, 21(47), 205-219.
- Deslandes, S. F. (2002). In M. C. de S. Minayo (Org.), *Pesquisa social: teoria, método e criatividade* (21. ed.). Vozes. <https://wp.ufpel.edu.br/franciscovargas/files/2012/11/pesquisa-social.pdf>
- Freire, P. (1996). *Pedagogia da autonomia: saberes necessários à prática educativa* (25. ed.). Paz e Terra.
- Freire, P. (2000). *Pedagogia da indignação: cartas pedagógicas e outros escritos*. UNESP.
- Kauark, F. da S., Manhães, F. C., & Medeiros, C. H. (2010). *Metodologia da pesquisa: um guia prático*. Via Litterarum.
- Lafuente, L., & Barbosa, J. B. (2017). Uma contribuição ao ensino de ecologia através da metodologia ativa. *South American Journal of Basic Education, Technical and Technological*, 4(2).

- Leff, H. (2012). *Aventuras da epistemologia ambiental: da articulação das ciências ao diálogo de saberes*. Cortez.
- Silva, A. da, & Costa, A. L. da. (2023). O jogo lúdico como estratégia didática para o cálculo mental da multiplicação para alunos do 6º ano. *RECIMA21 - Revista Científica Multidisciplinar*, 4(3). <https://doi.org/10.47820/recima21.v4i3.2961>
- Silva, V. C. M., & Roggi, D. G. (2029). Educação ambiental com atividades lúdicas no ensino infantil. *Revista Eletrônica Acervo Saúde*, 25(25). <https://doi.org/10.25248/reas.e633.2019>
- Silva, A. A., Mateus, A. S., Peres, C. C. L. R., Queiroz, E. B., Nery, J. P., Santos, R. C., Lima, V. D. G., & Carvalho, Y. G. S. (2025). Metodologias Ativas na Educação: Desafios e Possibilidades para uma Aprendizagem Significativa no Ensino Médio. *Revista ReGeo*, 16(5), 1-14. <https://doi.org/10.56238/revgeov16n5-005>
- Vigotsky, L. S., Luria, A. R., & Leontiev, A. N. (2010). *Linguagem, desenvolvimento e aprendizagem* (11. ed.). Ícone.