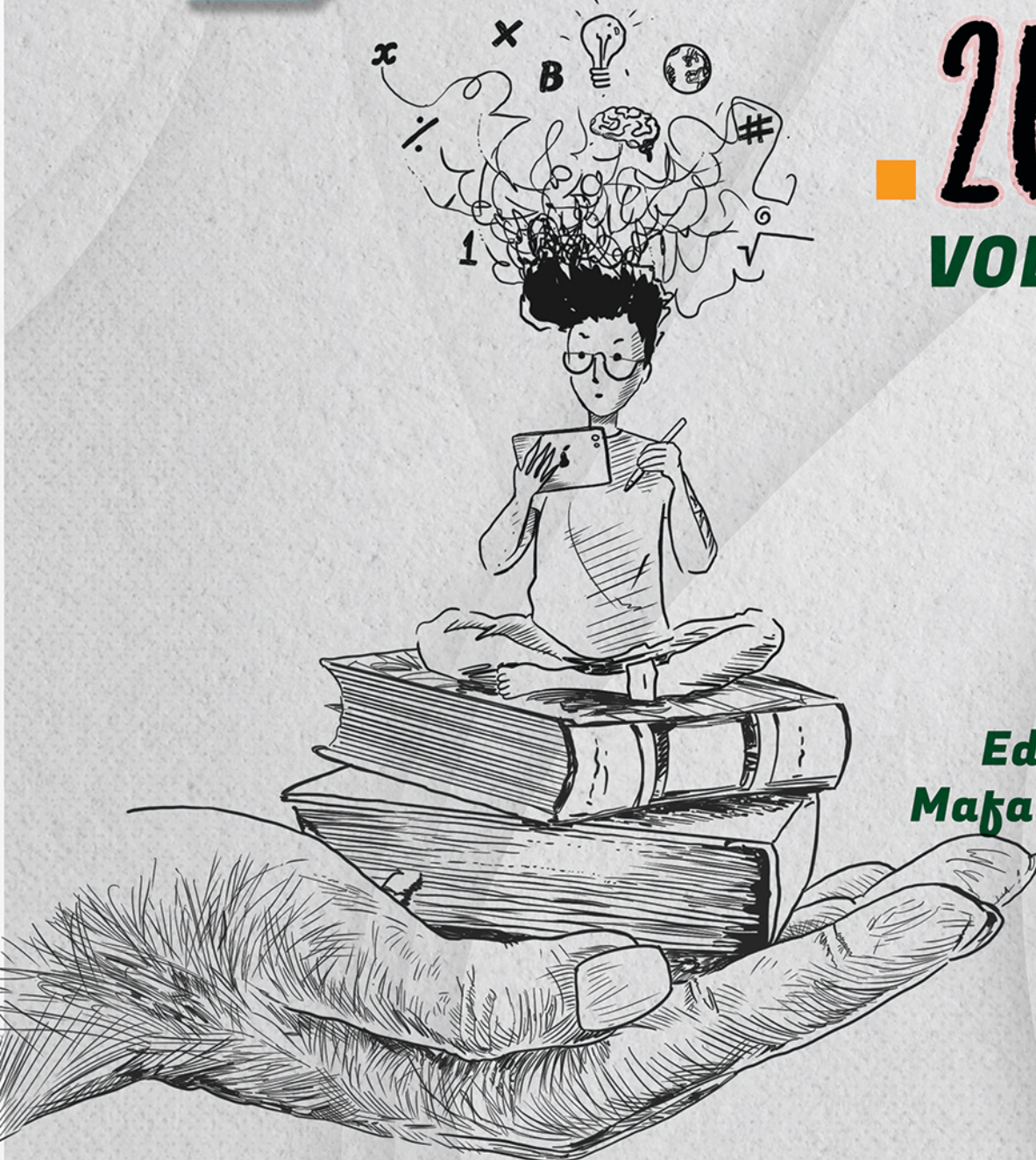


EDUCATION and NEW DEVELOPMENTS

2026
VOLUME 1



Edited by
Mafalda Carmo

Education and New Developments 2026

Volume 1

**Edited by
Mafalda Carmo**

Edited by Mafalda Carmo, World Institute for Advanced Research and Science (WIARS), Portugal

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FOREWORD

Dear Colleagues,

This book contains the full text of papers and posters presented at the International Conference on Education and New Developments (END 2026), organized by the World Institute for Advanced Research and Science (WIARS).

Education is a fundamental right that accompanies us from the very beginning of our lives. It encompasses every experience we encounter, influencing and shaping our thoughts, emotions, and actions. Whether we engage in formal education within classrooms or learn from the world around us, the process of acquiring knowledge plays a vital role in our personal growth and development. It equips us with the tools to navigate the complexities of life, broadens our perspectives, and empowers us to make informed decisions. This International Conference seeks to provide some answers and explore the processes, actions, challenges and outcomes of learning, teaching and human development. Our goal is to offer a worldwide connection between teachers, students, researchers and lecturers, from a wide range of academic fields, interested in exploring and giving their contribution in educational issues.

We are delighted to have successfully facilitated connections among academics, scholars, practitioners, and individuals who share a common interest in a field abundant with fresh perspectives, ideas, and knowledge. Our event has attracted a diverse range of contributors and presenters, enriching our understanding of human nature and behavior by showcasing the influence of their unique personal, academic, and cultural backgrounds. This diversity is a testament to the international reach of our conference, fostering multi-disciplinary collaborations and fostering intellectual growth and exchange.

END 2026 received 883 submissions, from more than 48 different countries, reviewed by a double-blind process. Submissions were prepared to take form of Oral Presentations, Posters, Virtual Presentations and Workshops. For presentation, the conference accepted 344 submissions (39% acceptance rate).

The conference also includes one Keynote presentation by Prof. Pedro Isaias, Universidade Aberta (Portuguese Open University), Portugal. We would like to express our gratitude to our invitee.

This conference addressed different categories inside the Education area and papers are expected to fit broadly into one of the named themes and sub-themes. To develop the conference program, we have chosen four main broad-ranging categories, which also covers different interest areas:

- In **TEACHERS AND STUDENTS**: Teachers and Staff training and education; Educational quality and standards; *Curriculum* and Pedagogy; Vocational education and Counselling; Ubiquitous and lifelong learning; Training programs and professional guidance; Teaching and learning relationship; Student affairs (learning, experiences and diversity; Extra-curricular activities; Assessment and measurements in Education.
- In **PROJECTS AND TRENDS**: Pedagogic innovations; Challenges and transformations in Education; Technology in teaching and learning; Distance Education and eLearning; Global and sustainable developments for Education; New learning and teaching models; Multicultural and (inter)cultural communications; Inclusive and Special Education; Rural and indigenous Education; Educational projects.
- In **TEACHING AND LEARNING**: Critical, Thinking; Educational foundations; Research and development methodologies; Early childhood and Primary Education; Secondary Education; Higher Education; Science and technology Education; Literacy, languages and Linguistics (TESL/TEFL); Health Education; Religious Education; Sports Education.
- In **ORGANIZATIONAL ISSUES**: Educational policy and leadership; Human Resources development; Educational environment; Business, Administration, and Management in Education; Economics in Education; Institutional accreditations and rankings; International Education and Exchange programs; Equity, social justice and social change; Ethics and values; Organizational learning and change, Corporate Education.

The contributions were published across two volumes, and this book represents Volume 1 of Education and New Developments 2026. It showcases the outcomes of innovative research and development efforts undertaken by authors committed to advancing teaching, learning, and the practical applications of education in contemporary contexts. Within its pages, you will find a diverse array of contributors and presenters who expand our understanding of educational matters by sharing their unique personal, academic, and cultural perspectives. Through their valuable insights and experiences, they enrich our exploration and contribute to the growth of educational discourse in our contemporary world.

This first volume only focuses on the main areas of TEACHERS AND STUDENTS, TEACHING AND LEARNING and ORGANIZATIONAL ISSUES being the contributions of the remaining area published in Volume 2.

We would like to express thanks to all the authors and participants, the members of the academic scientific committee, and of course, to our organizing and administration team for making and putting this conference together.

Hoping to continue the collaboration in the future.

Respectfully,

Mafalda Carmo
World Institute for Advanced Research and Science (WIARS), Portugal
Conference and Program Chair

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WHY IS ENVIRONMENTAL EDUCATION IMPORTANT IN PRESCHOOL IN THE 21ST CENTURY?

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Abstract

Environmental education of preschoolers is not just a trendy direction in pedagogy. It is the education that forms the ability of children to understand and love the world around them and take care of it. Introducing nature to preschoolers is an important way of educating them in terms of environmental culture. It is important to lay the foundations of environmental education from early childhood as the main personality traits are laid in preschool age. Ecological education of preschool children is one of the fundamental problems of the theory of education and it is of paramount importance for educational work. In this study, we will examine why preschool environmental education is important in the 21st century. Within the scope, we benefited from many studies and articles and included important opinions. In order to understand the subject well, we first explained the subjects of environment and environmental education. I talked about why environmental education is important in preschool and what conditions should be met for children and included exemplary activities to improve environmental education in preschool. We researched what has changed in environmental education in this century and why environmental education is important. Finally, we expressed our own ideas and views on environmental education in the 21st century.

Keywords: *Environmental education, nature, childhood, preschool children.*

1. Introduction

Contact with nature and targeted environmental education enable children to develop love, respect, and care for the environment, as well as a sense of responsibility for their own actions.

Preschool age is a particularly important developmental phase, because during this period the basic cognitive, emotional and moral attitudes of a person are formed and the foundations of the value system, attitudes, habits and behavior are laid.

It is during this period that children are particularly open to learning through direct experience, observation, and emotional connection with the world around them. Contact with nature and targeted environmental education enable children to develop love, respect, and care for the environment, as well as a sense of responsibility for their own actions.

In modern society, where children are increasingly growing up in urban environments and are exposed to digital technologies, nature is becoming less present in their everyday lives. This further increases the need for systematic and quality environmental education in preschools, which will help children learn about, understand, and value the natural environment. Environmental education at preschool age involves not only acquiring knowledge but also forming an emotional relationship with nature and developing ecological culture.

Hence, the research on the significance of environmental education in preschool in the 21st century is of particular importance, because through the educational process, we can contribute to creating generations that will be aware, responsible, and active protectors of the environment.

2. Design and objectives

The preschool period is a critical developmental period in which basic attitudes, values, and behaviors are formed that later influence the social, emotional, and cognitive functionality of the individual (Basile, 2000). In the context of environmental education, preschool age plays an important role in shaping children's environmental awareness as it enables the development of positive perceptions towards nature, people and animals, as well as the acquisition of first value orientations of responsibility and care for the environment (Kavaz et al., 2021; Chawla, 2015).

In the contemporary context of global environmental challenges – including climate change, ecosystem degradation and loss of biodiversity – environmental education in preschool is particularly important (Barnosky & Hadly, 2016; Tümer & Temel, 2021).

Early intervention through environmental education creates conditions for the development of environmental problem-solving skills, critical thinking skills, and positive responses to the environment from the earliest age (Lamanauskas & Malinauskienė, 2025; Ohlsson et al., 2024). In particular, interactive and practical activities in natural and landscaped environments increase children's motivation to learn and actively engage in sustainability activities (Ohlsson et al., 2024; Šindić & Lepičnik Vodopivec, 2025).

Studies conducted with preschool children show that well-organized and designed environmental programs have a positive effect on knowledge and attitudes towards the environment, compared to children who were not included in special programs (Poje et al., 2024). Furthermore, readiness and attitudes of educators are crucial for the successful implementation of environmental activities and their integration into everyday practice (Lamanauskas & Malinauskienė, 2025; Šindić et al., 2025).

Specifically, research identifies several key areas of focus when studying environmental education in preschool: children's perception of the environment (Kavaz et al., 2021), their awareness and knowledge of nature (Kabadayi & Altinsoy, 2018), attitudes towards the environment (Tümer & Temel, 2021; Biber et al., 2022), and environmental habits and attitudes of children and their parents (Kroufek et al., 2016). A common aim of these studies is to develop environmentally friendly behavior from preschool age and to support children's connection with nature (Karakaya et al., 2022).

In line with these findings, preschool environmental education is perceived not only as a transfer of knowledge, but as a complex developmental process that shapes children's value base, social skills, and critical ability for long-term sustainable choices (Adams et al., 2022; Ernst et al., 2021).

3. Methods

3.1. Research aim

To obtain an answer to the question "Why is environmental education and upbringing important at preschool age in the 21st century?", the paper conducts a systematic literature review that enables us to systematically identify, evaluate and synthesize relevant research papers, in order to obtain comprehensive and relevant conclusions. The literature search was conducted through Google Scholar (Advanced Search) and included access to multiple scientific databases such as: Web of Science (WOS), ScienceDirect, Springer Link, Wiley Blackwell, ProQuest Central, OVID LWW High Impact Collection, Taylor and Francis, EBSCO Academic Search Complete and SCOPUS. The search process included scientific papers published in peer-reviewed journals, conference and professional papers, and book chapters.

The criteria for conducting this analysis included research papers published in the last 10 years (2015–2025), availability of the full text of the paper, and matching the keywords used in the search: "environmental education programs in preschoolers", "ecological culture in kindergartens" and "ecological attitudes and knowledge in preschoolers".

4. Results

After using the search keywords, 352 papers were initially obtained. Next, the papers that did not contain the keywords and did not correspond to the topic of research in the paper itself were removed, leaving 55 papers for analysis, of which 25 were most suitable for our research. Of the 25 eligible papers, 2 papers were additionally eliminated, leaving a total of 23 papers included in the systematic literature review (Table 1).

Table 1. Studies included in the systematic review.

Kroufek, R., Janovec, J., & Chytrý, V. (2016). <i>Pre-school children's attitudes towards the environment</i> . <i>Envigogika</i> , 11(1). https://doi.org/10.14712/18023061.514	
Methods	Survey-based research using questionnaires and child-appropriate assessment tools
Main theme/ Focus	Preschool children's attitudes toward the environment and early environmental awareness
Key Activities / Practices	Observation of children's responses to environmental topics - Use of visual prompts and simple questions - Activities related to nature and everyday environmental situations
Stavreva Veselinovska, S., & Stavreva, A. (2018). Knowledge, experience, and skills to get children back into nature. <i>Knowledge – International Journal</i> , 26(6), 1551–1557.	
Methods	Descriptive and analytical approach based on literature review and educational practice
Main theme/ Focus	Developing knowledge, experience, and skills to reconnect children with nature

Key Activities / Practices	-Outdoor learning activities - Experiential learning in natural environments -Environmental education through play and exploration - Teacher-guided interaction with nature
Kabadayi, Abdulkadir, and Fatma Altinsoy. "Traditional and Technological Methods for Raising Pre-school Children's Awareness of Environmental Pollution for Sustainability." <i>Discourse and Communication for Sustainable Education</i> , vol. 9, no. 2, Daugavpils University, 2018, pp. 134-144. https://doi.org/10.2478/dcse-2018-0020 .	
Methods	Quantitative research
Main theme/ Focus	Environmental awareness and knowledge
Key Activities / Practices	Practical activities, experimental sessions
Tillmann, S., Tobin, D., Avison, W., & Gilliland, J. (2018). Mental health benefits of interactions with nature in children and teenagers. <i>Journal of Epidemiology and Community Health</i> , 72(10), 958–966. https://doi.org/10.1136/jech-2018-210436	
Methods	Systematic literature review
Main theme/ Focus	Mental health benefits of interactions with nature in children and teenagers
Key Activities / Practices	Review of empirical studies on outdoor activities, green spaces, and nature contact
Tillmann, S., Tobin, D., Avison, W., & Gilliland, J. (2018). <i>Mental health benefits of interactions with nature in children and teenagers: A systematic review</i> . <i>Journal of Epidemiology and Community Health</i> , 72(10), 958–966. https://doi.org/10.1136/jech-2018-210436	
Methods	Empirical research
Main theme/ Focus	Impact of contact with nature
Key Activities / Practices	Outdoor activities
Turkoğlu, B. (2019). <i>Opinions of Preschool Teachers and Pre-Service Teachers on Environmental Education and Environmental Awareness for Sustainable Development in the Preschool Period</i> . <i>Sustainability</i> , 11(18), 4925. https://doi.org/10.3390/su11184925	
Methods	Qualitative research
Main theme/ Focus	Environmental behavior
Key Activities / Practices	Games, outdoor activities
Stavreva Veselinovska, S., & Kirova, S. (2020). <i>Teacher–manager in creating environmental culture of primary education students through integrating ecological contents into EFL/ESL teaching</i> . <i>Воспитание / Journal of Educational Sciences, Theory and Practice</i> , 11(15)	
Methods	Practical part, and it analytically defines the terms: ecology, environmental awareness, environmental culture.
Main theme/ Focus	Integrating environmental topics into English language teaching.
Key Activities / Practices	Integrating environmental topics into English language teaching not only supports language acquisition, but also deepens understanding of the environment and sustainable development
Yılmaz, S., Çığ, O., & Yılmaz-Bolat, E. (2020). <i>The impact of a short-term nature-based education program on young children's biophilic tendencies</i> . <i>Ilkogretim Online – Elementary Education Online</i> , 19(3), 1729–1739.	
Methods	Empirical research
Main theme/ Focus	Development of ecological habits
Key Activities / Practices	Projects, experiments and family activities
Montoya & Rodríguez (2025). <i>School gardens as a research setting for early childhood environmental awareness</i> . <i>Education Sciences</i> , 4, 320. https://doi.org/10.1007/s44217-025-00785-z	
Methods	Qualitative case study
Main theme/ Focus	Garden-based environmental learning and early childhood environmental awareness
Key Activities / Practices	- School garden projects - Inquiry-based learning and observation - Hands-on interaction with plants and soil
Kavaz, T., Kizgut-Eryilmaz, B., Polat, B., Amca-Toklu, D., & Erbay, F. (2021). <i>Investigation of preschool children's perceptions to protect the environment through drawings</i> . <i>Theory and Practice in Child Development</i> , 1(1), 41–55. https://doi.org/10.46303/tpicd.2021.4	
Methods	Quantitative / Qualitative
Main theme/ Focus	Perception of nature in preschool children
Key Activities / Practices	Tests, questionnaires, interactive sessions
Koçak Tümer, B., & Temel, F. (2021). <i>Development of "Environmental Scale for Children."</i> <i>Kastamonu Education Journal</i> , 29(4), 11–21. https://doi.org/10.24106/kefdergi.789396 Tümer & Temel (2021)	
Methods	Quantitative research
Main theme/ Focus	Attitudes and behavior towards the environment
Key Activities / Practices	Surveys, measuring attitudes

Stavreva Veselinovska, S. (2022). <i>Why is environmental education important for children in the 21st century?</i> Воспитание / Journal of Educational Sciences, Theory and Practice, 17(1), 27–33. https://doi.org/10.46763/JESPT22171sv	
Methods	Theoretical-analytical study
Main theme/ Focus	Why is environmental education important
Key Activities / Practices	Analysis of concepts and examples from practice
Küpeli, K., & Bayındır, D. (2025). <i>Preschool outdoor education environment quality predicts children's environmental attitude, awareness and affinity towards nature (biophilia)</i> . Early Years, 45(5), 752–766. https://doi.org/10.1080/09575146.2024.2444886	
Methods	Observational study of preschool outdoor environments
Main theme/ Focus	Influence of high-quality outdoor settings on children's environmental attitudes
Key Activities / Practices	- Structured outdoor play - Nature exploration - Environmental storytelling
Karakaya, F., Bozkurt, S., & Yilmaz, M. (2022). <i>Developing preschool students' awareness of living things: Fungi in nature</i> . Pedagogical Research, 7(1), em0116. https://doi.org/10.29333/pr/11552	
Methods	Qualitative research
Main theme/ Focus	Contact with nature and emotional-cognitive development
Key Activities / Practices	- Outdoor games - Eco-projects - Nature exploration activities
Kurt Gökçeli, F. (2022). <i>Is an Environmental Education Program Integrated with Language Activities Effective on 48- to 66-Month-Old Children's Environmental Awareness?</i> Uluslararası Erken Çocukluk Eğitimi Çalışmaları Dergisi, 7(1), 19–42. https://izlik.org/JA48AX37PH	
Methods	Qualitative research
Main theme/ Focus	Effectiveness of integrating environmental education with language activities for preschool children (48–66 months)
Key Activities / Practices	- Educational activities combining environmental topics with language lessons - Interactive projects - Nature-based exercises
Marin, A. A., & Rusu, A. S. (2023). <i>Preschool environmental education: a systematic review</i> . Journal of Educational Sciences & Psychology, 13(75), 26–33.	
Methods	Quantitative research
Main theme/ Focus	Environmental behavior in children
Key Activities / Practices	Surveys and practical activities
Stavreva Veselinovska, S., Petrovska, S., & Sivevska, D. (2025). <i>Preschool education as a foundation for sustainable development and early environmental awareness in children</i> . World Journal of Environmental Research, 15(1), 72–83. https://doi.org/10.18844/wjer.v15i1.9730	
Methods	Empirical research
Main theme/ Focus	Preschool education and sustainable development
Key Activities / Practices	Projects and group activities, cooperation with parents

5. Conclusions

Research shows that early contact with nature through ecological activities fosters the development of curiosity, creativity, and problem-solving abilities, which strengthens children's cognitive and emotional development. Ecological activities in nature, such as planting plants, studying ecosystems, and interacting with natural materials, contribute to a better understanding of the environment and developing abilities for long-term responsible behavior.

Forming children who are aware of environmental problems and capable of taking action to solve them is the basis for creating environmentally responsible societies. In the contemporary context of global environmental challenges – including climate change, ecosystem degradation and loss of biodiversity – environmental education in preschool is particularly important. Studies conducted with preschool children show that well-organized and designed environmental programs have a positive effect on knowledge and attitudes towards the environment, compared to children who were not included in special programs (Poje et al., 2024). Furthermore, readiness and attitudes of educators are crucial for the successful implementation of environmental activities and their integration into everyday practice (Lamanauskas & Malinauskienė, 2025; Šindić et al., 2025).

Research identifies several key areas of focus when studying environmental education in preschool: children's perception of the environment (Kavaz et al., 2021), their awareness and knowledge of nature (Kabadayi & Altinsoy, 2018), attitudes towards the environment (Tümer & Temel, 2021), and environmental habits and attitudes of children and their parents (Kroufek et al., 2016). A common aim of

these studies is to develop environmentally friendly behavior from preschool age and to support children's connection with nature (Karakaya et al., 2022).

In line with these findings, preschool environmental education is perceived not only as a transfer of knowledge, but as a complex developmental process that shapes children's value base, social skills, and critical ability for long-term sustainable choices.

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