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Fostering Linguistic and Environmental Awareness Through Experiential Learning in Geoparks

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Abstract: Geoparks represent innovative educational spaces in which geological and cultural resources are utilized to foster students' knowledge, values, experiences, and skills. This theoretical study explores how experiential learning in geoparks can promote the development of linguistic and ecological awareness among students. Geoparks, as spaces where geological, natural, and cultural heritage intersect, offer a rich framework for integrated learning that connects language, culture, and ecology. From the perspectives of ecopedagogy, ecolinguistics, and intercultural education, the role of language as a means of communication, interpretation, and reflection on natural and social phenomena is examined. Experiential learning in these contexts enables students to cultivate a deeper understanding of sustainability, ecological ethics, and cultural diversity through direct engagement and exploration. It is concluded that this approach contributes to the formation of ecologically conscious, linguistically competent, and critically oriented individuals capable of acting responsibly in contemporary society.

Keywords: ecopedagogy, ecolinguistics, language awareness, ecological awareness, sustainable education.

Razvijanje jezičke i ekološke svijesti kroz iskustveno učenje u geoparkovima

Sažetak: Geoparkovi predstavljaju inovativne edukativne prostore u kojima se geološki i kulturni resursi koriste za razvijanje znanja, vrijednosti, iskustva i vještina kod učenika. Ovaj teorijski rad se bavi istraživanjem načina na koje se kroz iskustveno učenje u geoparkovima može podsticati razvoj jezičke i ekološke svijesti kod učenika. Geoparkovi, kao prostori u kojima se prepliću geološko, prirodno i kulturno nasljeđe, nude bogat okvir za integrirano učenje koje povezuje jezik, kulturu i ekologiju. Kroz perspektive ekopedagogije, ekolingvistike i interkulturalnog obrazovanja, razmatra se uloga jezika kao sredstva komunikacije, interpretacije i refleksije o prirodnim i društvenim fenomenima. Iskustveno učenje u ovim kontekstima omogućava učenicima da kroz neposredno doživljavanje i istraživanje razvijaju dublje razumijevanje održivosti, ekološke etike i kulturne raznolikosti. Zaključuje se da ovakav pristup doprinosi oblikovanju ekološki osviještenih, jezički kompetentnih i kritički orijentisanih pojedinaca, sposobnih za odgovorno djelovanje u savremenom društvu.

Ključne riječi: ekopedagogija, ekolingvistika, jezička svijest, ekološka svijest, održivo obrazovanje.

INTRODUCTION

In contemporary pedagogical thought, the importance of diverse experiences that shape children's understanding of the world is increasingly emphasized. Children in preschool and early school years learn most intensively through exploration, observation, and spontaneous interaction with their surroundings. Developing awareness of their environment and a responsible attitude toward it should begin in early childhood, as this is the period when children form their core values, attitudes, skills, behaviors, and habits (Gegić et al., 2025). Therefore, attention is gradually directed toward spaces that provide opportunities for active participation and experiential discovery, whether they are natural, cultural, or social environments. Such spaces, whether located in urban areas or natural settings, offer a wealth of stimuli that can foster a deeper understanding of certain phenomena, as well as strengthen curiosity and motivation for learning. Learning does not always take place in the classroom (formal education). Visits to museums, parks, forests, zoos, botanical gardens, or any type of geological site are among the most typical non-formal learning environments (Turkmen, 2022).

The outdoor environment and natural surroundings within the learning process constitute a setting that enables the spontaneous integration of theoretical knowledge and practical experience. This assertion is consistent with contemporary pedagogical and psychological theories, which maintain that children do not acquire knowledge solely through verbal transmission in the classroom, but rather through active exploration, observation, and interaction with real-world phenomena. The initial stages of experiencing and understanding the environment presuppose contact with nature and the development of an active relationship with it, during which not only emotional but also cognitive processes take place (Klemenović, 2004). In natural settings, opportunities arise for direct experience: the child observes, touches, explores, and manipulates elements of the environment, which contributes to the formation of deeper and more stable mental representations. Wells (2000) notes that a child’s ability to focus on and perceive natural phenomena is enhanced through daily exposure to natural surroundings. Consequently, natural environments function as a bridge between abstract concepts and concrete sensory-motor experiences, facilitating the child’s understanding and meaningful application of scientific content. By spending time in nature, the child becomes acquainted with the physical environment, satisfies their curiosity and need for movement, and expresses positive emotions and overall well-being (Sakač et al., 2013).

Starting from the understanding that geoparks represent innovative educational spaces in which geological, biological, and cultural resources can be used to enhance students’ knowledge, values, experiences, and skills, geoparks may be recognized as dynamic learning environments characterized by a high level of authenticity and interdisciplinarity that transcend the traditional concept of a classroom setting. According to Zouros (2004), a geopark should contain geological sites of high scientific quality, rarity, aesthetic appeal, and educational value. Their significance lies not only in geological formations, but also in the richness of biological elements, traditional practices, cultural

heritage, and local narratives, all of which together create a comprehensive learning environment. Within such spaces, students have the opportunity to experience and explore processes and phenomena firsthand, enabling deeper, lasting, and meaningful learning compared to traditional classroom models. This development is a response to societal progress and advancements in teaching methods within the evolving geotourism landscape (Fernández Álvarez, 2020; Frey et al., 2021).

EXPERIENTIAL LEARNING IN EDUCATION

Experiential learning occupies an important place in contemporary classroom and subject teaching because it enables students to actively participate in the process of acquiring knowledge. In practice, it has been shown that students understand and remember content more easily when they have the opportunity to engage with it through concrete activities, exploration, and hands-on work. This simultaneously increases their motivation and contributes to greater classroom engagement. When discussing this instructional strategy, the importance of experience primarily refers to students' prior knowledge, which enables them to learn more independently (Ivanuš Grmek & Hus, 2006). For this reason, special education teachers often choose experience-oriented methods, as they allow for more flexible, individualized, and student-centered learning. At the core of this approach lies the idea that experience is the foundation of all understanding. It is not limited to the mere recollection of past events, but represents an active resource that helps students interpret present situations and make decisions about future actions. According to Korbar-Črnjavič and Hus (2009), this way of learning fosters and enhances students' intellectual abilities, while also increasing intrinsic motivation and the desire to learn and discover new things. Experiential learning therefore seeks to connect what the student sees, experiences, and does with the processes of thinking, reasoning, and problem-solving. In such a learning environment, conditions are created for students to construct meaning independently, link new information with prior knowledge, and formulate their own questions. This approach encourages students to develop personal experiences during instruction and later discuss those experiences in the classroom, comparing them with the experiences of their peers. hrough discussion with peers and with the support of teachers, students broaden and deepen their knowledge while developing the ability to think critically. Experientially oriented instruction thus becomes a space in which theory and practice naturally intertwine, giving learning an authentic, lived, and meaningful character. Research focusing on learning in natural environments confirms that children in such settings demonstrate higher levels of engagement, sustained attention, increased motivation for exploration, and improved ability to recall and apply information. These effects are particularly evident among preschool children, whose cognitive development predominantly occurs through concrete activities and direct experiences.

MULTIDIMENSIONAL LEARNING AND CRITICAL THINKING

The use of geoparks for educational purposes relies on the principles of experiential and situated learning, according to which knowledge develops through active exploration and direct observation. Within geoparks, multiple dimensions of learning are activated:

- cognitive, through analyzing, comparing, investigating, and interpreting natural phenomena;
- linguistic, through describing, arguing, and expressing observations orally and in writing;
- ecological, through understanding the principles of sustainability, developing a responsible attitude toward nature, and recognizing the interconnectedness of natural and social systems;
- intercultural, through becoming familiar with local traditions, cultural practices, and the meanings associated with specific places.

Experiences shaped in this way encourage students to develop critical awareness, solve problems based on real-life situations, and acquire competencies essential for contemporary concepts of sustainable development. In this paper, we explored how experiential learning in geoparks, such as fieldwork, observation of natural processes, and interpretation of cultural heritage, can contribute not only to the development of linguistic awareness, but also to students' ecological literacy and ethics. In building this new ethical perspective of general importance, one that could ensure the future of our species and enable humanity to develop strategies for establishing and maintaining balance between humans and nature, the development of ecological awareness plays a crucial role (Marković, 1996). Children and young people are the generations that will inherit the consequences of today's decisions; therefore, understanding nature, assuming responsibility toward it, and cultivating the ability for ecological reasoning are of vital importance. Students' ecological awareness does not refer solely to knowledge about the environment, but also to the development of values, attitudes, and habits that shape responsible behaviour. Ecological awareness influences the creation of a certain way of life in which humans take from nature only as much as is necessary to meet basic human needs without disturbing the balance of the environment (Urošević et al., 2017). When students develop the ability to recognize the consequences of human actions, to understand the importance of preserving natural resources, and to apply ecological principles in everyday life, they become actors who actively contribute to this ethical perspective. Raising ecological awareness results in the acceptance and assumption of ecological and social responsibility (Andevski et al., 2012). In this regard, the school and the educational process play an important role: through experiential activities, projects, and practical tasks, students acquire ecological knowledge, but more importantly, they develop ecological sensitivity and a readiness to act responsibly. Such ecological awareness represents the foundation of a long-term sustainable society. According to Cifrić (2012), ecological awareness refers to the recognition of the necessity to

abolish human domination over nature – both in its original and socially constructed forms – and to establish a balance between natural systems and the human system.

PEDAGOGICAL BENEFITS OF EXPERIENTIAL LEARNING

This approach connects students' theoretical knowledge with practical experiences, activates multiple learning modalities, and fosters an investigative spirit. This segment demonstrates the practical applicability of the work and its contribution to pedagogical practice. Experiential learning is a method that directly engages students and enables the development of competencies required in the 21st century.

In this context, language is viewed as a tool that enables students to name, describe, interpret, reflect on, and analyze natural and social phenomena. In geoparks, language is used not only for communication but also for reflection, narration, and connecting individual experiences with broader ecological and cultural meanings. In learning within geoparks, language allows students to transform observations and experiences into knowledge, link geological and cultural phenomena, and develop critical awareness. Activities include narrative, descriptive, and argumentative forms of expression. In this sense, language represents a multidisciplinary and innovative approach and mode of work. Therefore, it is understandable how experiential learning influences the development of linguistic literacy and reflective thinking.

By using linguistic structures that emphasize relationships among living beings, natural processes, or ecosystem dynamics, students develop the ability to transform observations into a conceptual understanding of ecological phenomena, thereby laying the foundation for responsible ecological action.

Language in geoparks functions as a cognitive-ecological mediator, as it enables students to:

recognize and *verbalize* cause-and-effect relationships between natural processes (e.g., erosion, sedimentation, succession);

develop the terminological precision necessary for ecological reasoning;

construct narrative structures that connect personal experience with concepts of sustainability and nature conservation.

INTEGRATED COMPETENCIES DEVELOPED IN GEOPARKS

In addition to the aforementioned functions, language also has other important roles, such as the cognitive or epistemic function, "by which language, connected with thinking, contributes to the expansion of knowledge about the world around us" (Šipka, 2011:33). Consequently, approaches in geopark education that promote linguistic expression, such as descriptive notes, ecological journals, narrative mapping, or reasoned discussions, serve a dual purpose: they develop language competencies while simultaneously strengthening students' ecological ethics. In this context, educational activities and resources were employed to facilitate the learning process, including building dykes with gelatin and using

tectonic plate puzzles, while field trips were also an integral part of the initiative. The educational use of geological sites within the park was crucial for the development of field activities guided by experts (Garcia et al., 2019).

By integrating language into the experiential exploration of natural and cultural landscapes, students acquire more than mere factual knowledge; they develop the capacity for critical and reflective thinking about the ecological and social challenges of the contemporary world. The ability to identify, understand, create, express, and interpret concepts, feelings, facts, and opinions, both orally and in writing, is encapsulated in language, and the essential knowledge, skills, and attitudes required to achieve this competence include mastery of reading and writing strategies as key linguistic activities: understanding written information, possessing a rich vocabulary, and so on (Popović, 2020).

Experiential learning in authentic environments, such as geoparks, has a strong impact on students' attitudes, behaviors, and competencies. Through direct engagement with natural and cultural phenomena, students develop the ability to articulate their observations through language, thereby enhancing both their linguistic and ecological awareness. Activities in natural settings elicit emotional engagement, which further increases motivation and the retention of acquired knowledge. This approach enables students to become proactive and responsible citizens, capable of recognizing and addressing ecological problems before they escalate, and actively contributing to sustainable development and environmental protection through their actions and communication. Through the implementation of environmental content and the application of innovative teaching methods, ecological education also fosters the development of critical thinking and conceptual learning, which are essential for solving ecological problems and applying the concept of sustainable development in practice (Brun, 2011). This combination of experiential, reflective, and discursive learning underscores the importance of geoparks as educational spaces that connect theoretical knowledge with students' practical and ethical competencies.

In addition to the aspects mentioned earlier, it is particularly important to emphasize that geoparks provide environments that foster the development of students' ecological sensitivity – the ability to recognize, interpret, and evaluate ecological processes and relationships through language. In such spaces, experiential learning contributes not only to the cognitive or perceptual understanding of natural phenomena but also influences the ways in which students linguistically shape their own ecological experiences. This discursive dynamic is especially pronounced in authentic environments like geoparks, where students move between observation, reflection, and linguistic formulation, leading to the consolidation of ecological awareness and the ability to express ecological ideas in a reasoned manner. Beyond primary education, secondary schools, higher education, numerous extracurricular activities, and mass media also play a significant role in conveying both positive and negative attitudes toward nature (Minić & Jovanović, 2019).

This approach confirms that geoparks, through experiential learning, have the potential to shape not only students' knowledge and skills but also their linguistic patterns

and ecological values, which are key elements of contemporary education for sustainable development.

In this study, we examined how geoparks contribute to the development of integrated competencies: ecological literacy, linguistic reflexivity, intercultural sensitivity, and civic engagement. Experiential learning in geoparks represents an effective educational approach that connects practical experience, reflective thinking, and linguistic processing of observed phenomena. Through direct contact with natural and cultural resources, students develop the ability to articulate their observations, interpret them, and construct reasoned arguments, thereby directly enhancing their linguistic competence. Simultaneously, immediate interaction with the environment and cultural elements fosters ecological awareness, responsible behavior, and critical reflection on sustainability and the impact of human activities on nature. Altogether, this approach contributes to the education and upbringing of young people for life, providing them with opportunities to apply concrete knowledge, skills, attitudes, and values in everyday contexts (Matanović & Brun, 2011). Such learning not only improves reproductive knowledge but also significantly develops problem-solving skills, critical thinking, and social responsibility. Activities in geoparks elicit emotional engagement, motivate students, and enable the lasting acquisition of knowledge and values, shaping proactive, responsible, and reflective citizens ready to act in the context of sustainable development.

This approach highlights the multidimensional value of geoparks as educational spaces: they enable the integration of theoretical knowledge, practical experiences, and ethical competencies, creating a framework in which students simultaneously develop linguistic and ecological awareness. Therefore, the systematic inclusion of geoparks in curricula and teaching processes is recommended, along with the application of methodologies that emphasize experiential, situational, and reflective learning, to ensure the comprehensive development of students' competencies and contribute to a sustainable society.

CONCLUSION

Experiential learning in geoparks represents a powerful pedagogical framework that enables the simultaneous development of students' linguistic and ecological competencies. Being in authentic natural environments provides children with direct encounters with the phenomena they are studying, transforming theoretical knowledge into concrete, personal experiences. Such experiences become a catalyst for deeper understanding of ecological processes and serve as an important source of linguistic expression through description, explanation, comparison, and reflection. The development of students' ecological awareness is particularly fostered in environments that require observation, responsibility toward nature, and active participation, aligning with the idea that a sustainable ethical perspective emerges from personal experience and emotional connection with the natural world. Geoparks, as dynamic learning spaces, thus become places where students learn not only about nature but also for nature, cultivating the values, attitudes, and skills necessary for

responsible action in the future. Therefore, it can be concluded that this model of learning offers a unique opportunity to harmoniously integrate knowledge, experience, language, and ecology, contributing to the holistic development of students and shaping their ecological identity.

The conclusions of this study indicate that geoparks represent a significant educational potential. They facilitate integrated learning that connects science, culture, language, and social engagement, making them an exceptionally valuable resource for contemporary pedagogical practice. The conclusion consolidates theory and practice, highlighting the innovativeness and contribution of the research to education for sustainable development.

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