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SUSTAINABLE DEVELOPMENT IN THE CONTEXT OF PRIMARY EDUCATION

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The relevance of this issue is enshrined in fundamental international political documents, such as the United Nations 2030 Agenda, which emphasizes that Education for Sustainable Development (ESD) is an essential vector for achieving the Sustainable Development Goals (SDGs). In this context, primary education represents the critical period for the foundation of critical thinking and awareness of human-nature interdependence, when the values and attitudes that structure future behaviors are crystallized.

Sustainable development is the central paradigm of the contemporary global agenda, engaging the three fundamental dimensions – environmental, social and economic – in a dynamic balance relationship. Unlike ecological education, which focuses predominantly on the human-environment

relationship, ESD adopts a holistic perspective, integrating ecological awareness with social responsibility and economic efficiency.

In primary education, this interdisciplinary approach stimulates critical thinking, empathy and the capacity for innovation to solve complex problems. Students learn not only the notions of respect for the environment and saving resources, but also develop a mentality of social responsibility and collaboration for the common good. This early training generates active and innovative adults, capable of contributing to a balanced future. To operationalize these principles, educational institutions carry out activities that go beyond the environmental dimension, explicitly addressing social and economic issues.

This approach meets the requirement to identify and disseminate good practices in protecting the environment, maintaining social cohesion and promoting economic prosperity. However, the effectiveness of ESD requires robust assessment tools. The fundamental goal of research in the field is to create a universal tool for assessing the sustainability of primary schools, to be included in classification and accreditation systems. This tool must measure institutional performance in relation to environmental, infrastructure, transport and educational variables, facilitating continuous improvement. Education for sustainable development in primary education is not an option, but a strategic necessity for building a fair, green and prosperous future. In the Republic of Moldova, the inclusion of ESD in the curriculum is a priority for aligning with international trends and training informed, responsible and active citizens, prepared to respond to the global challenges of the 21st century.

At a defining moment for the future of the planet, when the ecological limits of the world are becoming increasingly evident, education for sustainable development (ESD) has become not just a pedagogical option, but an existential necessity. Beyond the official rhetoric of international conferences, the signs of crisis are manifesting themselves with disturbing clarity: ecosystems are severely affected, biodiversity is collapsing at an unprecedented rate, and future generations will inherit the direct consequences of our current decisions. In this context, environmental education is not just a compartment of ESD, but its ontological foundation, its nervous system without which the other dimensions – social and economic – risk remaining mere theoretical abstractions.

The relevance of this research is provided by the increasingly narrow opportunity until 2030, the deadline set by the UN Agenda for Sustainable Development Goals, while its importance lies in the unique capacity of education to generate profound transformations without resorting to constraints, being, in essence, the only non-violent weapon capable of foreshadowing a sustainable future without sacrificing human dignity.

The National Strategy for Sustainable Development 2030 provides ambitious objectives, but implementation faces major difficulties. The waste management system operates at reduced capacities, with recycling rates below 15%, while air pollution in urban areas constantly exceeds the limit values allowed by European legislation. These objective realities require not only strict regulations, but a profound transformation of the collective mentality, an operation that can only be achieved through education. Alignment with the European Competence Framework for Sustainable Development thus becomes not a bureaucratic formality, but a strategic necessity. The implications of the ecological crisis, education is imposed as the most powerful instrument of systemic transformation.

Therefore, the research confirms the importance of using a well-structured methodological approach in investigating educational phenomena and highlights the essential role of ecological education in the formation of responsible behaviors.

At the same time, the results obtained constitute a starting point for improving teaching strategies and for the development of educational programs oriented towards the formation of sustainable ecological behavior among primary school students.

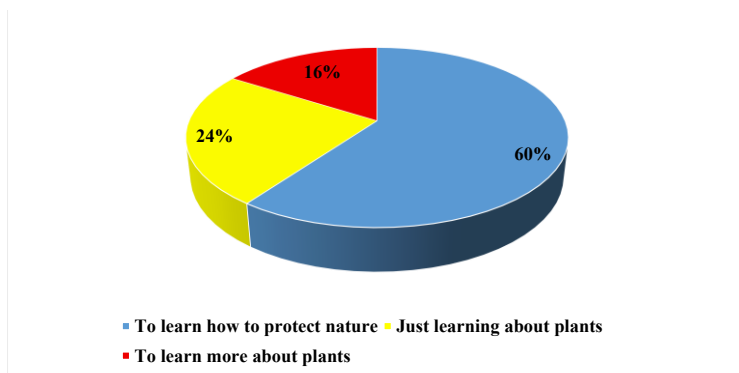


Fig. 1. Students' perceptions regarding the concept of "ecological education"

The data in Figure 1. represent students' perceptions regarding the meaning of "ecological education" providing a relevant image of the level of understanding of ecological education among the investigated subjects. The results are structured on three response options, each reflecting a certain degree of conceptual correctness.

The data analysis highlights the fact that 60% of students selected the option "To learn how to protect nature", which is the majority option. This

result indicates an adequate understanding of the essence of ecological education, as it involves the formation of responsible attitudes and behaviors towards the environment. The choice of this option demonstrates that a significant part of the respondents correctly associate ecological education with concrete actions to protect the environment, which corresponds to current educational goals, focused on the development of ecological skills and civic responsibility.

On the other hand, 24% of students opted for the option "To learn only about plants", which reveals a limited and partially correct perception of the analyzed concept. This category of responses suggests a reduction of ecological education to a strictly informative and biological dimension, without including behavioral and attitudinal aspects. Although the study of plants is part of ecological education, it is not limited to knowledge of the elements of nature, but involves a much more complex approach, which aims at the human-environment relationship and responsibility towards natural resources. Therefore, this relatively high percentage indicates the need to strengthen the applicative and value dimension of ecological education in the instructional-educational process.

A percentage of 16% of students ticked "To learn to use more plastic", an answer that reflects an erroneous understanding of the concept. This option contradicts the fundamental principles of ecological education, which promotes the reduction of the consumption of polluting materials and the adoption of sustainable practices. Although the percentage is the lowest of the three, its existence highlights the persistence of conceptual confusion and emphasizes the need for more effective educational interventions, aimed at clarifying correct ecological behaviors.

The overall interpretation of the data reveals that, although the majority of respondents (60%) have a correct perception of environmental education, a significant percentage (16% combining partially correct and incorrect answers) does not fully understand this concept. This situation indicates that representations about environmental education are still being formed and require consolidation through systematic and well-structured teaching activities.

From a pedagogical perspective, the results obtained emphasize the importance of integrating environmental education coherently into the school curriculum, especially in primary education. It is necessary for students to be involved in practical, experiential and interdisciplinary activities that go beyond the theoretical level and lead to the formation of authentic environmental behaviors. Methods such as discovery learning, thematic projects, activities in nature or greening campaigns can significantly contribute to the development of a correct and sustainable understanding of the concept.

Generalizing the above data, it highlights the existence of a positive trend among students, reflected by the majority percentage of correct answers, but also of conceptual gaps that require additional educational interventions. These results confirm the essential role of ecological education in forming an environmentally responsible generation and support the need to develop teaching strategies adapted to the age level of primary school students.

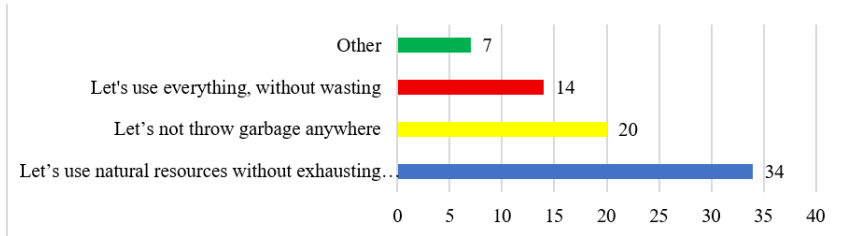


Fig. 2. Students' thinking regarding the concept of "sustainable development"

The results obtained show that the dominant option is "Let's use natural resources without exhausting them", chosen by 34 of the students. This option essentially expresses the correct meaning of the concept of sustainable development, as it directly refers to the responsible use of natural resources so that they can be preserved for future generations. The majority choice of this option indicates that almost half of the respondents have an adequate representation of sustainable development, understanding that it involves a balance between consumption, conservation and long-term responsibility. From a theoretical perspective, this result is positive, as it reflects the proximity to the established definition of sustainable development, based on meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Then "Let's not throw garbage anywhere", chosen by 20 students. This answer is not completely wrong, but it reflects a partial and narrow understanding of sustainable development. Students who chose this option associate sustainable development in particular with a concrete ecological behavior, namely maintaining cleanliness and avoiding pollution through waste. Although this behavior is part of the pro-ecological behaviors promoted by environmental education and education for sustainable development, it does not cover the full complexity of the concept. Sustainable development involves not only environmental protection, but also responsible use of resources, social equity, economic responsibility and active participation in

community life. Therefore, this significant percentage indicates that a significant number of respondents reduce development.

At the same time, the option "Let's use everything, without wasting", selected by 14 of the students, reflects an erroneous understanding of sustainable development. Although the wording may apparently create the impression of efficiency, its essence contradicts the idea of sustainability, since the rapid use of resources is not compatible with the principle of their long-term conservation. The choice of this option by 14 of the students can be interpreted positively, since the majority do not confuse sustainable development with the accelerated exploitation of resources. However, the existence of this segment shows that certain confusions persist and that it is necessary to clarify the difference between efficient consumption and excessive consumption. sustainable to aspects of ecological hygiene or to punctual behaviors towards the environment.

The option "other" was selected by 7 students, which suggests that some of the students either had a different representation of sustainable development than those offered in the preset options, or did not clearly identify the answer they considered appropriate. From a methodological point of view, this category may indicate the existence of varied perspectives or even conceptual uncertainties. In the analysis for the bachelor's thesis, this category is important, because it may signal the need for further investigation through open questions or interviews, in order to understand more clearly how respondents define sustainable development and what elements they associate with this concept.

Taken as a whole, the data in figure 2 indicate that the level of understanding of the concept of sustainable development is moderate.

From a pedagogical perspective, the results of this figure are relevant, because they show that sustainable development is perceived mainly through the prism of the ecological dimension, while the social and economic dimensions are less aware. In primary education, this fact suggests the need for integrated teaching activities, which explain to students, in an accessible language, that sustainable development does not only mean cleanliness or care for nature, but also the prudent use of resources, respect for the needs of others and responsibility for the future. Teachers have the role of transforming this abstract concept into one close to children's experience, through concrete examples, life situations, thematic projects and practical activities.

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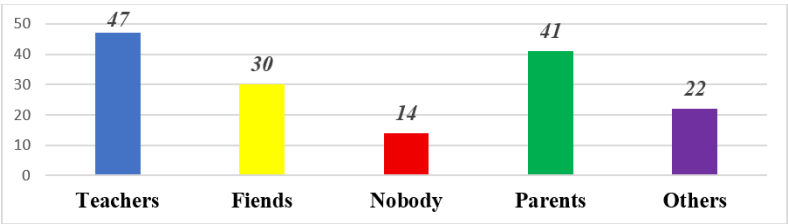


Fig. 3. The main sources that contribute to understanding the importance of environmental protection

The diagram above highlights the respondents' perceptions of the people or factors that contribute most to the formation of understanding of the need

to protect the environment. The answers are distributed across five categories: teachers, friends, nobody, parents and others. The recorded values are as follows: 47 answers for teachers, 30 answers for friends, 14 answers for nobody, 41 answers for parents and 22 answers for the category others.

The data analysis shows that teachers occupy the first place in the hierarchy of answers, with 47 options expressed, which indicates the major role of the teaching staff in the formation of students' ecological representations and attitudes. This result confirms the fact that the school and, in particular, the teacher represents a fundamental educational factor in the process of raising students' awareness of environmental issues. In the context of primary education, teachers have the opportunity to integrate ecological themes into learning activities, to capitalize on concrete situations in school life and to influence students' behaviors through personal example and practical activities. Therefore, the high frequency of this option highlights the importance of the school as a privileged space for ecological education.

The category "others", with 22 responses, suggests the existence of other sources of influence in the formation of understanding regarding environmental protection. This category may include the media, the Internet, information campaigns, extracurricular activities, community members or organizations involved in ecological projects. The presence of a relatively large number of responses in this category shows that ecological education is also supported by factors external to the school and family, which confirms the complex and social nature of the formation of ecological awareness.

An aspect that deserves special attention is represented by the option "no one", chosen by 14 respondents. Although this value is lower compared to the other options, it cannot be ignored, as it suggests that some respondents do not perceive the existence of clear or constant support in understanding the importance of environmental protection. This result may indicate either the absence of sufficiently visible educational influences, or the difficulty of some students in becoming aware of the sources that shape their attitudes. From a pedagogical perspective, this situation signals the need to intensify and clarify educational approaches, so that students can more clearly identify the people and contexts that contribute to their ecological education.

The global interpretation of the diagram highlights the fact that teachers and parents are perceived as the main factors that support the understanding of environmental protection. This hierarchy of responses is significant for the research, as it confirms the central role of the main socialization environments – school and family – in the formation of ecological awareness in primary school students. At the same time, the influence of friends and other external sources shows that ecological education is a complex process, resulting from the interaction of several educational and social factors.

From an educational perspective, the results support the idea that the effectiveness of environmental education depends on the partnership between school, family and community. The role of the teacher is essential in providing information, organizing activities and stimulating reflection on environmental issues, while parents have the role of reinforcing in the family environment the behaviors and attitudes cultivated at school. In the absence of this continuity between school and family, environmental messages may remain at a declarative level and may have a reduced impact on the actual behavior of students.

The results obtained can also be interpreted in the sense that students learn best about environmental protection when they benefit from concrete models and consistent support from significant adults. Both teachers and parents represent behavioral models, and their influence is all the greater when the messages transmitted are coherent and supported by personal example. Therefore, effective environmental education is not achieved in isolation, but through the convergent action of all factors involved in the child's education.

Generalizing the data in Figure 3, we find that teachers and parents are perceived by respondents as the main support agents in understanding the need to protect the environment. Friends and other sources of influence complete this process, and the low proportion of "nobody" answers indicates the existence of areas that require increased educational attention. These results confirm the importance of an integrated approach to environmental education, based on collaboration between school, family and community. In this context, it is necessary to intensify educational efforts aimed at clarifying concepts and forming correct environmental behaviors from the elementary school level.

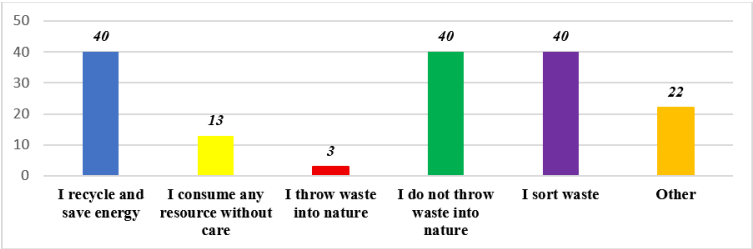


Fig. 4. Behaviors considered necessary for environmental protection

Students' perceptions of individual behaviors that can support environmental protection and the development of a responsible lifestyle. The responses are distributed across six options: "I recycle and save energy", "I consume any resource without care", "I throw waste into nature", "I do not

throw waste into nature”, “I sort waste” and “Other”. The values represented in the diagram indicate the following distribution: 47 responses for “I recycle and save energy”, 13 responses for “I consume any resource without care”, 3 responses for “I throw waste into nature”, 40 responses for “I do not throw waste into nature”, 40 responses for “I sort waste” and 22 responses for the “Other” category.

The data analysis reveals that the option with the highest frequency is “I recycle and save energy”, chosen by 47 respondents. This result highlights a positive and relatively mature orientation of the respondents towards concrete ecological behaviors, which involve both responsible waste management and the rational use of energy resources. The choice of this variant suggests that the respondents understand the personal contribution to environmental protection not only at a declarative level, but also by referring to practical, everyday and sustainable actions. From a pedagogical perspective, this answer is relevant because it reflects a correct association between individual responsibility and the idea of a sustainable future.

The following options are in equal positions: “I do not throw waste into nature” and “I sort waste”, each with 40 responses. The high frequency of these options confirms that respondents associate ecological behavior with concrete actions to prevent pollution and selectively collect waste. The option “I do not throw waste into nature” expresses a basic behavior of ecological conduct, which reflects respect for the environment and awareness of the negative effects of pollution. At the same time, the option “I sort waste” indicates a more applied level of ecological responsibility, as it involves not only avoiding harmful behaviors, but also active involvement in the correct management of waste. Together, these two responses support the idea that respondents largely identify elementary and useful ecological behaviors for protecting the planet. The “Other” category, with 22 responses, also has a significant share. This suggests that respondents perceive other ways of contributing to a better future for the planet, beyond those explicitly listed in the item. This category could include behaviors such as planting trees, reducing plastic consumption, saving water, using non-polluting transportation, reusing materials or participating in greening activities. From a methodological point of view, this result indicates a diversity of representations and an openness towards a broader understanding of ecological responsibility.

In conclusion, we find that the analysis of the concept of sustainable development highlights the fact that most students correctly associate this notion with the responsible use of natural resources, without their depletion. This reflects the existence of a favorable educational base for the introduction and consolidation of the principles of sustainability in primary education. However, the alternative or partially correct answers show that sustainable

development is still sometimes perceived in a limited manner, focused only on cleanliness or on avoiding pollution, without including the economic and social dimensions. In this sense, the results support the need for better structured educational interventions, which explain sustainable development as a complex, interdisciplinary and future-oriented process.

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ДОКАЗОВИЙ МЕНЕДЖМЕНТ ЯК МЕТОДОЛОГІЧНА ОСНОВА ПІДГОТОВКИ КЕРІВНИКІВ У СФЕРІ ОХОРОНИ ЗДОРОВ'Я: ДОСВІД ВПРОВАДЖЕННЯ В МАГІСТЕРСЬКІЙ ПРОГРАМІ

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Актуальність. Доказовий менеджмент (evidence-based management, EBMgt) – це підхід до управлінських рішень, що поєднує наукові дослідження, організаційні дані, досвід керівника та інтереси зацікавлених сторін [4]. Незважаючи на методологічну спорідненість із доказовою медициною, в освіті управлінців ці принципи залишаються нерівномірно інтегрованими в освітні програми.

В охороні здоров'я спостерігається певний поступ: дослідження фіксують зростання уваги до EBMgt-компетентностей у програмах для керівників медичних організацій [2, 5], а систематичний огляд окреслив ключові з них – критичне мислення, управління інформацією, дослідницькі навички та вміння застосовувати докази на практиці [2]. Натомість у загальних програмах MBA лише близько чверті обов'язкових курсів торкаються принципів EBMgt [1], і систематичне навчання доказовому підходу залишається обмеженим [6].