

Maciej Ciepela

<https://orcid.org/0000-0003-0362-8461>

Oksana Nagorniuk

<https://orcid.org/0000-0002-6694-9142>

Wiktoria Sobczyk

<https://orcid.org/0000-0003-2082-9644>

DOI: 10.34866/ydcq-5560

Challenges of environmental education towards different generations of adults: strategies and social consequences

Wyzwania edukacji ekologicznej wobec różnych pokoleń dorosłych: strategie i skutki społeczne

Słowa kluczowe: świadomość ekologiczna, edukacja ekologiczna, wrażliwość społeczna, Główny Inspektorat Ochrony Środowiska.

Streszczenie: W niniejszym artykule autorzy przedstawili problemy, z jakimi mierzy się edukacja ekologiczna w stosunku do osób dorosłych różnych generacji pokoleniowych oraz omówili metody kształtowania wrażliwości społecznej. Autorzy zwrócili uwagę na przepisy prawne oraz cele zrównoważonego rozwoju, których zadaniem jest zapewnienie nauki przez całe życie wszystkim osobom. Ponadto przytoczono wyniki badania świadomości ekologicznej mieszkańców Polski, przeprowadzonego przez Ministerstwo Klimatu i Środowiska, a także wskazano działania edukacyjne Głównego Inspektoratu Ochrony Środowiska.

Key words: environmental awareness, environmental education, social sensitivity, Chief Inspectorate for Environmental Protection.

Abstract: In this article, the authors outline the problems faced by environmental education in relation to adults of different generational generations and discuss methods of developing social sensitivity. The authors emphasize the importance of legislation and the Sustainable Development Goals to ensure lifelong learning for all. Additionally, the results of a survey on the environmental awareness of the Polish population conducted by the Ministry of Climate and Environment along with the educational initiatives of the Chief Inspectorate for Environmental Protection were cited.

Introduction

In recent years, significant efforts have been directed toward environmental protection. Under the influence of increasing environmental awareness among residents, all economic and scientific sectors have become invested in environmental conservation. There is a perceived link between the quality of the natural environment and the improvement of living standards [3]. This awareness is closely

linked to environmental education in Poland. The term "ecology" originates from the Greek words "oikos," meaning "place of life," and "logos," meaning "science." However, "ecological education" became significant, associated with the inaugural UNESCO International Conference in Tbilisi in 1977. This event marked the first global consideration of environmental issues, which encompasses their causes, consequences, mitigation strategies, and efforts to educate the world's population about environmental protection [13].

Hence, environmental education is intricately linked with the aspects illustrated in Figure 1. These include knowledge gain and understanding of environmental challenges; social and emotional skills; motivation; civic interest and engagement in activities that solve environmental challenges; and academic skills to identify and solve environmental problems. Moreover, environmental education fosters a critical perspective of the surrounding environment while honing problem-solving and decision-making abilities [19].

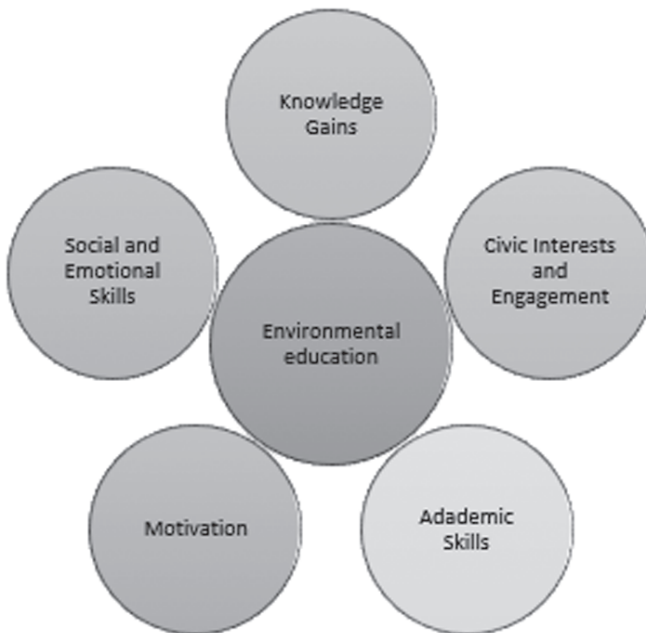


Fig. 1. Need and Importance of Environmental Education [19]

Different Generations of Adults

A person's generational affiliation is determined by their birth year, with distinct characteristics associated with each group. In the literature, several generations are identified [2, 23]:

Silent Generation (1922–1944): Often referred to as "the builders of modern Europe," World War II profoundly affected this Generation.

1. Baby Boomers (1946–1965): Known as the "baby boom" generation, they emerged after the war and during economic growth.
2. Generation X (1966–1980). Raised amidst the economic crisis of the 1970s.
3. Generation Y (1981–1999). Also called "Millennials," these individuals grew up in the era of globalization and digital data.
4. Generation Z (born after 2000): Often referred to as "Zoomers", they share the experience of being raised in a technologically advanced and interconnected world.

Different upbringings and access to technology and goods significantly influence behaviour and educational perceptions. Each generation has left and continues to leave an indelible mark on modern society, culture, and the economy [14].

Generational distinctions manifest across various aspects of life. "Generations Y and Z" exhibit proficiency in foreign languages and technology, continuously upgrading their skills through education. They view training courses as gateways to suitable employment and often adopt a materialistic outlook. On the other hand, older generations favour traditional career paths and methods of acquiring knowledge. They need more engagement with social media and tend to rely on conventional media like television, radio, and newspapers. As a result, educational approaches should be tailored to the unique characteristics of each generational group, incorporating a diverse range of media and teaching methodologies [2].

Environmental Education in Legal Terms

In legal terms, environmental education refers to laws, policies, and legal actions that promote environmental awareness, environmental protection, and sustainable development through educational processes. It is an essential element in creating a society that is more responsible for nature and contributes to solving the problems of environmental degradation [11].

The Environmental Protection Law (April 27, 2001, Journal of Laws 2001 No. 62, item 627) is an essential act in Poland in environmental protection. Capture the critical role of environmental education, including, among other things, in educational programs for all types of schools, as it helps raise people's awareness of environmental problems, the impact of human activity on the climate, and ways to protect nature. In addition, the task of the mass media is to shape a positive attitude of society towards environmental protection. Also, scientific institutions must include environmental issues in their programs and research [26].

Among the aspects related to environmental education in the context of the law are:

1. Legal requirements for environmental education: Many jurisdictions have laws that require the introduction of environmental education in the education system at various levels, from elementary schools to universities. Examples

- include the integration of environmental issues, sustainability, and ecology into curricula [7];
2. Awareness of environmental rights and responsibilities: Environmental education can help citizens understand their environmental rights and responsibilities. People can learn what activities are prohibited by law, what penalties are for violations of environmental laws, and what their rights are in conservation situations [26];
 3. Promoting sustainable lifestyles: The law may seek to incorporate environmental education that encourages the adoption of more sustainable consumption patterns and behaviour, such as reducing the consumption of natural resources, minimizing waste, and promoting renewable energy sources [3];
 4. Enhancing ecological competence: The law can support the development of environmental competencies, such as the ability to analyze the environmental impact of activities, the ability to make informed environmental decisions, and the ability to act to protect nature. Key environmental competencies facilitate access to essential markets, improving a company's image in the eyes of customers, reduce costs, and develop management strategies [4];
 5. Educational programs and social campaigns: The law requires the organization of educational programs, workshops, seminars, social campaigns, and advertisements or other promotions of goods and services to raise environmental awareness in society [26];
 6. Integrated approach in environmental policy: Environmental education can be an integral part of environmental strategies and policies, supporting the goals of sustainable development and long-term conservation [11].

Implementing environmental education in law requires synergy between the educational sector and environmental institutions. Working together can help create more informed and responsible citizens involved in environmental protection [7].

Public authorities in many countries emphasize the importance of access to lifelong education. Programs often include support for adults, especially those with low skills and qualifications. In the case of Europe, education programs focus on raising a specific level, while others are designed to improve literacy and numeracy [8].

Methods of Shaping Social Sensitivity

Shaping social sensitivity is a crucial aspect of personal and social development. It includes the ability to understand, empathize, and respond appropriately to the emotions, needs, and perspectives of others. Methods and strategies for creating social sensitivity in environmental education programs for children and youth include empathizing with feelings and perspectives. It can be achieved through active listening, asking questions, expressing understanding and accepting of others' feelings, consolidating a positive attitude towards the surrounding environment, and pursuing the need to be in contact with and observe a clean natural environment

[13]. Emotional sensitivity and social sensitivity are distinguished. At its core is sensory sensitivity, as it gives an idea of the surrounding environment [12].

Activities that engage social sensitivity include perspective exercises, in which children try to see situations from other people's perspectives. It can be done by imagining what feelings and thoughts others might have or talking to them about their point of view. Research also supports the hypothesis that perspective-taking skills emerge in children at age five and continue developing through preschool [10]. Another example is cooperation and communication. It is an example of sharing emotions in various social situations, which can help develop social sensitivity through interaction and exchange of points of view. Practice shows that the main factors of change in the emotional sphere of students are the result of mutual understanding, emotional perception, readiness to help, and the ability to respond to the phenomena of the surrounding world. Teacher plays a vital role in the early stages of education to support individual development within the framework of cooperative pedagogy [6]. An example of educational practice is social development through conflict resolution.

Conflict is a natural part of social functioning. Societies have developed different ways of dealing with conflict and resolving disputes. Learning effective conflict resolution techniques can help to understand differences and tensions between people and seek solutions that consider all parties' needs. Methods include informal methods such as mediation and arbitration in a familiar environment. And also formal methods, such as courts, voting [9].

Additionally, art plays a vital role in creating social sensitivity. The literature distinguishes three meanings of cultural education. These include humanistic education, aesthetic education, and cultural education. Sensitivity is essential in working with students, both children and adults. An integral connection is observed between aesthetic and moral education. Contact with art and creative activities makes it possible to reveal one's feelings and associations vividly, so the teacher should also be an example for students in cultural activity [12]. Shaping social sensitivity requires systematic effort and practice. Developing this skill is a long-term process that yields valuable results for personal and professional life [9].

Sustainable Development Goals for Education

The Sustainable Development Goals, shown in Figure 2, provide an action plan for a changing world in which the current generation's needs can be met sustainably, with care for the environment and considering the needs of future generations [17].

The fourth goal is to provide quality education to all and promote lifelong learning. Undoubtedly, high-quality education can guarantee an improved quality of life for people. One of the tasks included in the 2030 Agenda for Sustainable Development is to ensure that all women and men have equal and affordable access to quality technical, vocational, and higher education. Tasks also ensure that a significant

percentage of adults acquire literacy and numeracy skills. Increasing qualified teachers on the agenda is also necessary to achieve the goals [16].



Fig. 2. The Sustainable Development Goals [17]

Problems of Adult Education

Adult education faces the problem of its duration throughout life. It accounts for most of their lives; therefore, it should continue the education begun in youth. It is crucial to prepare children and adolescents for learning in adulthood while forming appropriate behaviour and interests. Breaking out of education after adolescence negatively affects skills and motivation. This phenomenon leads to progressive intellectual regression and a lack of professional and private aspirations [1]. It is a fact that 617 million young people worldwide lack basic literacy and numeracy skills [16]. In the case of the European Union, approximately 30% of adults need more information and communication technology (ICT) skills. Despite such influential educational needs, adults have the fewest opportunities for lifelong education. Access to education depends on education level, employment status, occupational category, age, gender, and skills. In particular, older and economically inactive people are excluded from lifelong learning [8].

The phenomenon of delayed entry into psychological adulthood, i.e. taking on marital, professional, and parental roles, is increasingly observed in young people. It often occurs due to economic and material factors, emotional immaturity, and disorders. Each generation entering adulthood has had to face new challenges. A problem in adult education impedes the development of cooperative relationships with the older generation [14].

Environmental Awareness Survey of Adult Residents of Poland

The environmental awareness survey has been conducted periodically since 2011. It consists of six blocks that address issues related to challenges for Poland and environmental problems, the natural environment and its protection, air quality, waste management, climate change, individual actions and consumer behaviour that support environmental protection. The survey was carried out as part of the Ministry of Climate and Environment research program. It was conducted in November 2022 using telephone interviews with a random sample of 1,000 people. Regarding the challenges for Poland, respondents see the biggest problem in health care (52% of respondents). Invariably, the respondents give a good assessment of the current environment in their area. The greatest need for environmental protection for 62% of respondents is a concern for future generations and human health. Additionally, 62% of the respondents indicated that the state of the environment depends on all of us. The respondents also emphasized the critical role of the source of information on the state of the environment, which is the Internet (74%), as well as television (52%) [15].

Regarding air quality, the most significant number of respondents cited factories as the problem of emissions into the natural air. Unfortunately, 54% of those surveyed do not plan to change their energy source to one more environmentally friendly, arguing that the cost is high. One can also observe a high awareness of waste segregation, which 96% of the respondents do. The majority (91%) recognize the problem of climate change, and the majority (60%) of us should take preventive and corrective measures. Residents recognize the problem of greenhouse gas emissions, and 83% of respondents favoured reducing them. The last block included individual actions and consumer behaviour supporting environmental and climate protection. 93% of respondents pay attention to reducing water consumption. Most (95%) save energy at home by extinguishing unnecessary lighting and using energy-efficient sources. Many residents (67%) are also eager to use clean energy, even if this would incur additional costs [15].

Educational Activities of the Chief Inspectorate for Environmental Protection

The Chief Inspectorate for Environmental Protection organizes information and education campaigns focusing on environmental protection, such as waste management, energy conservation, and air pollution. These campaigns may use social media, educational materials, posters and other communication tools. An example is the educational campaign for children, "Poznajmy środowisko (Let us get to know the environment)". Its purpose was to show the functioning of the Environmental Protection Inspection and sensitize children to environmental problems. Figure 3 shows a chemical demonstration prepared by the Central Research Laboratory of the Chief Inspectorate for Environmental Protection in one of the Mazovian elementary schools. Practice is an integral part of experiential learning, where participants were able to familiarize themselves with measurement instruments [24].



Fig. 3. The Central Research Laboratory of the Chief Inspectorate for Environmental Protection in a selected elementary school as part of the action, "Poznajmy środowisko (Let us get to know the environment)" [21]

Another example was the "Droga do czystego środowiska (Road to a Clean Environment)" – an education and information program aimed at increasing public awareness of the use of the environment by generally accepted rules and standards,' developed by the European Union under the Operational Program Infrastructure and Environment 2014–2020, Priority Axis II Environmental Protection, including adaptation to climate change, Measure 2.4: Nature conservation and environmental education. The campaign's objective was to reach a broad audience by developing audiovisual materials and strengthening environmental safety through law rules and regulations, particularly in preventing environmental crimes and crimes [18].

Cooperation between the Chief Inspectorate for Environmental Protection and universities is essential for effective environmental management and protection. It can encompass various fields and activities to study, monitor, analyze and solve environmental problems. Such cooperation is mutually beneficial, combining theoretical knowledge and practical experience in environmental protection. It can lead to effective pro-environmental measures and the creation of innovative solutions for the needs of society and industry. An example of cooperation was



Fig. 4. Educational classes for students at the Central Research Laboratory of the Chief Inspectorate for Environmental Protection in Poznań [25]

students' participation in educational classes at the Central Research Laboratory in Poznań (Figure 4). Expert lectures covered the research methodology used in implementing State Environmental Monitoring: air, water, noise, and electromagnetic radiation [25]. In addition, a cooperation agreement was signed on September 21 2021, between the Chief Inspectorate for Environmental Protection and the School of Justice. In addition to the classic cooperation between the two units, a new post-graduate course, "Ecocriminology", was established [20].

Summary

This article underscores the significant role that environmental education assumes in safeguarding the environment. However, adult education encounters multiple challenges. A pivotal principle is the concept of lifelong learning, necessitating tailored approaches for each generation that respect their preferences and engagement methods to achieve the desired impact. Central to this is fostering environmental awareness, sustainability, and social sensitivity. Environmental education is a cornerstone in building a sustainable future by reshaping social attitudes and behaviours and promoting a responsible stance toward the environment. Both legislation and the Sustainable Development Goals acknowledge the imperative of providing education at the highest level, a path intertwined with enhancing the quality of life.

On the other hand, social sensitivity should be developed from an early age. It provides the ability to understand, empathize and respond to various situations and social needs. It is a skill that allows people to understand others better and empathize with their perspectives and life experiences. Social sensitivity has many benefits and affects various aspects of an individual's life and society.

Findings from a survey conducted by the Ministry of Climate and Environment reveal satisfactory knowledge and environmental awareness among residents. People grasp the necessity of environmental care to preserve the planet for future generations. Furthermore, individuals are actively implementing pro-environmental actions, such as transitioning to more eco-friendly heating systems. Notably, Polish governmental entities like the Chief Inspectorate for Environmental Protection play a role in advancing environmental education and forging collaborations with universities. These efforts significantly enhance environmental knowledge, culminating in a society that is well-informed and equipped to make wise decisions.

Bibliography

1. Aleksander, T. (2015). Globalne i europejskie problemy współczesnej edukacji dorosłych. *Edukacja Ustawiczna Dorosłych*, nr 1, pp. 11.
2. Hysa, B. (2016). Zarządzanie różnorodnością pokoleniową. *Zeszyty Naukowe Politechniki Śląskiej*, pp. 387–394.
3. Karaczun, M. Z., Obidowska, G., Indeka, L. (2016). *Ochrona środowiska – współczesne problemy*. Warszawa: Wyd. SGGW.

4. Kubasik, A. (2006). Obszary kreowania kompetencji ekologicznych przedsiębiorstwa. *Studia Ekonomiczne / Akademia Ekonomiczna w Katowicach*, nr 37, pp. 157–158.
5. Kudryk, V., Melnyk, I. (2014). Pedagogical interaction in the context of humanization of education. *Rozprawy Społeczne*, Tom VIII, nr 4, pp. 28.
6. Pakuła, J. (2009). Prawne podstawy edukacji ekologicznej w Polsce. *Problemy Ekologii*, vol. 13, nr 5, pp. 247.
7. Raport Eurydice. (2015). *Edukacja i szkolenia dorosłych w Europie: zwiększanie dostępu do możliwości uczenia się*. Education, Audiovisual and Culture Executive Agency, pp. 8.
8. Roszkowska, W. (2006). *Rozwój społeczny a rozwiązywanie konfliktów społecznych*. Białystok: Wyd. Uniwersytetu w Białymstoku, pp. 267, 277.
9. Stępień-Nycz, M. (2011). Przyjmowanie perspektywy w obszarze poznawczym, społecznym i afektywnym: wzajemne zależności u dzieci w wieku przedszkolnym. *Psychologia Rozwojowa*, tom 16, nr 4, pp. 60.
10. Szalewska, M. (2021). Edukacja ekologiczna w ujęciu prawnym. *Przegląd Prawa Ochrony Środowiska*, nr 1, pp. 61–62, 67–68.
11. Szulc W. (2016). Kształcenie wrażliwości emocjonalnej i społecznej przyszłych nauczycieli metodami edukacji kulturalnej i arteterapii. *Edukacja Elementarna w Teorii i Praktyce*, vol. 11, nr 3, pp. 92–97.
12. Terlecka, M. K. (2014). *Edukacja Ekologiczna wybrane problemy* red. Magdalena Terlecka, *O edukacji ekologicznej w Polsce*. Warszawa: Instytut Ekologii i Bioetyki Uniwersytet Kardynała Stefana Wyszyńskiego, pp. 9, 36–37.
13. Wojciechowska, Z. (2019). Edukacja w narracjach osób należących do pokolenia 30+ i 60+. obszary różnic. *Rocznik Andragogiczny*, tom 26, pp. 126, 134.
14. *Badania świadomości ekologicznej mieszkańców Polski*, <https://www.gov.pl/web/edukacja-ekologiczna/badania-swiadomosci-ekologicznej> (accessed on 16 VIII 2023).
15. *Cel 4: Zapewnić wszystkim edukację wysokiej jakości oraz promować uczenie się przez całe życie*, <https://www.un.org.pl/cel4> (accessed on 16 VIII 2023).
16. *Cele zrównoważonego rozwoju* (accessed on 16 VIII 2023).
17. *Konferencja podsumowująca kampanię edukacyjną GIOŚ 'Droga do czystego środowiska'*, <https://policja.pl/pol/aktualnosci/227142,Konferencja-podsumowujaca-kampanie-edukacyjna-GIOS-Droga-do-czystego-srodowiska.html> (accessed on 16 VIII 2023).
18. *Need and Importance of Environmental Education* (accessed on 16 VIII 2023).
19. *Podpisanie porozumienia o współpracy pomiędzy GIOŚ a SWWS*, <https://www.gov.pl/web/gios/podpisanie-porozumienia-o-wspolpracy-pomiedzy-gios-a-swws> (accessed on 16 VIII 2023).
20. *Poznajmy środowisko!*, <https://www.youtube.com/watch?v=Ce-VHfAR-Vc> (accessed on 16 VIII 2023).
21. *Przyroda i różnorodność biologiczna*, <https://www.gov.pl/web/gdos/przyroda-i-roznorodnosc-biologiczna> (accessed on 16 VIII 2023).
22. *Różnice pokoleniowe*, <https://akademiarodziny.wzp.pl/vt-article/roznice-pokoleniowe/> (accessed on 16 VIII 2023).

23. *Ruszyła kampania edukacyjna GIOŚ dla dzieci 'Poznajmy środowisko'*, <https://www.gov.pl/web/gios/ruszyla-kampania-edukacyjna-gios-dla-dzieci-poznajmy-srodowisko> (accessed on 16 VIII 2023).
24. *Studenci na zajęciach środowiskowych*, <https://www.gov.pl/web/gios/studenci-na-zajeciach-srodowiskowych> (accessed on 16 VIII 2023).
25. *Ustawa z dnia 27 kwietnia 2001 r., Prawo ochrony środowiska* (accessed on 16 VIII 2023).

mgr inż. Maciej CIEPIELA

AGH University of Science & Technology

Faculty of Civil Engineering & Resource Management, AGH Doctoral School

dr Oksana NAGORNUKDepartment of Agricultural Economics in the Agrosphere of the Institute of Agroecology
and Environmental Management of NAAS**prof. dr hab. inż. Wiktoria SOBCZYK**

AGH University of Science and Technology

Faculty of Energy and Fuels