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BUILDING ENVIRONMENTAL AWARENESS AMONG STUDENTS IN POLAND – CASE STUDY WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

Climate change is one of the most important challenges facing our community today. Among its various sources, irresponsible human activity, including excessive consumption, plays a significant role. As a society, we compensate for periods of deprivation with increased consumption of many goods without regard for environmental effects. In this context, environmental consciousness, especially among young people forming their habits and attitudes, becomes extremely important. Generation Z, current university students, has demonstrated a notable increase in environmentally conscious actions and attitudes. The purpose of the article is to assess the state of environmental awareness and knowledge among Generation Z and to identify the activities of universities in building environmental awareness among students at Wroclaw University of Science and Technology (WUST). The article analyzes research conducted in Poland on environmental awareness and behavior among different groups of respondents. These findings were juxtaposed with the expectations of environmental education in Poland, noting that there is a lack of content related to environmental education and building environmental awareness in the study programs, which is due to the lack of a holistic approach to the entire process of environmental education. The article presents pro-environmental activities in the example of WUST. These activities mostly focus on the transfer of knowledge and somewhat less on motivating students to action. There is a lack of activities that build emotional involvement, which is crucial in developing environmental awareness. In addition, there is little involvement in social issues.

Keywords: environmental knowledge, environmental education, Generation Z, environmental behaviour, pro-environmental activities.

1. INTRODUCTION

Climate change, as one of the most important problems surrounding the world, is a global problem, affecting many regions, which in the short term may become the most important factor affecting the further history of the world. One of the causes that should be highlighted is man's irresponsible economy, including our irrational lifestyle and consumerism, which is particularly evident in post-socialist countries such as Poland. Since, in the context of society as a whole, it is easier to build proper awareness than to change it, hence the importance of building environmental awareness among young people, who are just forming their habits, behaviour and general attitude to the world.

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Low levels of environmental awareness and excessive human interference with the environment can lead to unexpected consequences for both nature and people. First of all, a damaged environment has a negative impact on human health. Human distancing from nature and overexploitation of its resources leads to an increase in the number of diseases known as civilization diseases. Interestingly, these diseases are developing as a result of the progress and development of civilization on a global scale, and are mainly found in highly industrialized countries (Tuszyńska, 2014).

The concept of environmental awareness itself is nothing new, having appeared in Poland in the 1980s under the name "eco-development" (Papuziński, 2000). On the other hand, the first studies on environmental awareness were conducted in Poland in 1983, these are the so-called Tarnobrzeg studies (Burger, 1984). They were followed by another study, conducted by Poskrobko in 1987 (Poskrobko, 1987) on the sources of environmental risks among specific employee groups. The most extensive research on the degree of environmental awareness among Poles was conducted by the Institute for Sustainable Development, in cooperation with CBOS, in 1992–2012 (Strumińska-Kutra, 2012). Conclusions of the research are discussed in (Kłos, 2015). Pro-environmental organizations and associations, which were established even before the year 2000, as well as numerous educational programs conducted in municipalities and the introduction of relevant content to educational programs in schools, have mainly contributed to the development of environmental awareness among Poles (Patrzałek, 2017). There is now wide access to knowledge, which is supplemented by education in schools, as confirmed by the results of a study conducted by the Ministry of Climate and Environment in 2022 (Grupa Badawcza DSC, 2022).

Despite the increasing level of environmental education among young people, as well as society as a whole, the results of surveys of the level of environmental awareness and pro-environmental behaviour (Grupa Badawcza DSC, 2022; Parzonko et al., 2021) show that they are at a low level. Which suggests that the activities undertaken so far in building environmental awareness among young people are insufficient.

Most researchers agree that some pro-environmental behaviour can be directly linked to ecological knowledge and environmental awareness. It is known that the longer someone is educated on environmental issues, the more extensive his or her knowledge and awareness, but this does not necessarily translate into increased pro-environmental behaviour. This raises the question of what other factors (besides knowledge) can influence increased pro-environmental behaviour? Kollmuss and Agyeman (Kollmuss, Agyeman, 2002) noted that other incentives, such as economic benefits or cultural values, can motivate people to engage in environmental activities without necessarily being driven by environmental concerns. In their work, they showed that environmental knowledge is a subcategory of environmental awareness and emotional involvement is what shapes environmental awareness and attitude. On the other hand, Chawla (1998) states that environmental consciousness is not built through single experiences but through a combination of various factors, such as (1) childhood experiences in contact with nature, (2) experiences of environmental destruction, (3) pro-environmental values conveyed by the family, (4) pro-environmental organizations, (5) role models (friends or teachers), (6) education. Summarizing the above considerations, one concludes that building environmental awareness should be based on knowledge, experience and emotional involvement.

In addition, environmental education should enter every level of education, from kindergarten, where the formation of awareness should begin, to university. Parzonko et.al.

(Parzonko et al., 2021) points out that it is important to form appropriate pro-environmental behaviours, including the inclusion of relevant content in school curricula at every level of education, which will influence the formation of an environmentally friendly attitude from an early age. Rodzoś (2022) stresses that it is not enough to change the educational curricula alone, but rather a thorough modernization of them is needed so that there is much more practice than theory, so that a problem-based approach dominates over a descriptive one, so that there is openness to different cognitive perspectives and to engaging in social issues. In addition, it was noted that the curricula lack content related to environmental education, environmental awareness and stimulation of pro-environmental behaviour, and this is the last stage of education, that is, the last chance to create pro-environmental attitudes and habits.

The question then arises, what are universities doing that is at the end of the whole education process? Certainly, universities feel responsible for the environmental education of young people, for building the environmental awareness of society and creating pro-environmental behaviour. However, it is interesting what activities they undertake for this purpose.

Thus, the purpose of this article is, firstly, to assess the state of environmental awareness and knowledge of young people of Generation Z, which currently constitutes the student multitude, secondly, to assess the level of environmental education in education, and thirdly, to identify the activities of universities in building environmental awareness of students on the example of Wroclaw University of Science and Technology. The research methods used are analysis of the literature on the subject, analysis of public opinion polls, own survey research, analysis of the activities of the research subject.

The article was planned as follows: firstly, the definition of environmental awareness will be introduced, then the research conducted in Poland for the last twenty years will be discussed along with the resulting conclusions and trends, including the study conducted by the author. Next, the issue of environmental education will be discussed and then the activities carried out at the university will be described and critiqued, using the example of Wroclaw University of Technology.

2. ENVIRONMENTAL AWARENESS

Earlier definitions of environmental awareness emphasize the importance of human concern for the future of the environment and the desire to mitigate the negative effects of human activities. In this group, the following definitions deserve emphasis, according to which environmental awareness:

a) is the result of the recognition of an environmental problem as a social problem and involves the public's recognition of the degradation of environmental living conditions as consequences of social behaviour (Papuziński, 2006);
b) can have different contexts for specific social communities and is related to the importance of the environment in the value system of these groups, as well as their knowledge of the dangers of its degradation (Wódz, 1993);
c) is a person's attitude to the natural environment, a set of information and beliefs about it, as well as the system of values that this person is guided towards it in his behaviour (Kiełczewski, 2001);
d) is a certain state of knowledge, views and perceptions of people regarding the importance of the environment in human life, as well as the state of knowledge about the ways of its use and protection (Górka et al., 2001).

The second group of definitions emphasizes the link between environmental consciousness and social awareness and social norms and values. As early as 2001, Gorka et.al. noted that we can consider environmental consciousness in a narrower and broader sense. The broader meaning of ecological awareness includes a set of functionally interrelated social norms and values concerning humans and social groups, as well as the place in it of values and opinions about the natural environment (Górka et al., 2001). Environmental consciousness is seen as a set of views, ideas and beliefs, a certain system of values that is widely accepted in a community and which becomes a model or pattern of thinking instilled in its members and enforced by social pressure (Dziamski, Nowosielski, 2013; Sztompka, 2012), which is reflected in the experiences and thinking of individual people (Frątczak, 1995). It is a kind of socialization process in which each of us participates throughout our conscious life. Consciousness is a subjective phenomenon involving the complement of the ecological knowledge and imagination of individual individuals, it is the result of one's own thoughts, sensations, experiences and ability to transform the acquired ecological knowledge into the norms of everyday life (Sobczyk, 2000).

Since environmental awareness is formed over time it can be considered as a kind of process, which includes certain stages related to the formation of sensitivity and the level of perceptiveness of the environment on a certain scale of the dichotomy of degraded and non-degraded environment. Subsequent stages include widespread interest in environmental problems and end with complete adherence to pro-environmental behavioural norms (Górka et al., 2001; Patrzałek, 2017).

Kollmuss and Agyeman (Kollmuss, Agyeman, 2002), on the other hand, emphasize that the formation of environmental awareness is heavily influenced by cognitive and emotional limitations. Cognitive limitations include (1) the non-media nature of many environmental problems, which arise and deteriorate in ways that are not very tangible, (2) the slow and gradual nature of ecological destruction, and (3) the complex nature of environmental problems, which negatively affects an individual's ability to understand processes and, consequently, his or her willingness to take action to protect the environment. Emotional involvement is defined as the degree to which we have an emotional connection to the natural world. The work of Chawla (Chawla, 1998) shows that such an emotional connection seems to be very important in shaping our beliefs, values and attitudes toward the environment. In other words, it is an individual's emotional involvement in an issue. Kollmuss and Agyeman (Kollmuss, Agyeman, 2002) verified hypothesis that the stronger a person's emotional response, the more likely they are to engage in pro-environmental behaviour. They view environmental knowledge, values and attitudes, along with emotional commitment, as a complex of factors referred to as environmental awareness (pro-environmental consciousness). This complex set is, in turn, embedded in personal values and shaped by personality traits and other internal and external factors.

3. SELECTED RESEARCH RESULTS ON ENVIRONMENTAL AWARENESS

This section analyses selected studies on environmental awareness, environmental knowledge and pro-environmental behaviour of Polish society. In addition to the Survey of Environmental Awareness and Behaviours of Polish Residents conducted annually since 2012 on behalf of the Ministry of Climate and Environment (Grupa Badawcza DSC, 2022) and the survey “Ecological Awareness of Poles” conducted by CBOS since 2008 (Omyła-Rudzka, 2020) on the whole society, analysed were the report Students towards Climate

Change (Guzy, Ochwat, 2022) where respondents were aged 9–20 years, research on Pro-Environmental Behaviours of Generation Z (Parzonko et al., 2021) and research on Ecological awareness in urban and rural communities (Chodkowska-Miszczuk et al., 2023). In selecting the study, it was crucial that the respondents include representatives of Generation Z. Generation Z are young adults born between 1995 and 2010 who are currently still in high school, studying and entering the job market. Generation Z makes up about 32% of the world's population, making them likely to have a significant impact on both global consumer sales and environmental behaviour, as they are likely to face the greatest environmental challenges in the future.

3.1. The survey of environmental awareness and behaviours of Polish residents

"Survey of environmental awareness and behaviour of Polish residents" has been conducted since 2011 previously commissioned by the Ministry of Environment and then for the Ministry of Climate and Environment (Grupa Badawcza DSC, 2022). The survey in November 2022 covered 1,000 Polish residents constituting a representative sample.

The survey shows that climate change is important to a growing number of respondents, with 91% of respondents in 2022. The least interested in the issue of climate change are those in the 35 plus age bracket and the most interested are those in the 15–24 age bracket. According to respondents, activities to minimize the adverse effects of climate change should be undertaken by each of us (60% of indications), central government (53%), international institutions (21%) and local authorities (19%). Taking into account the age of the respondents, it can be noted that the youngest respondents (up to 34 years old) are more likely than older respondents to believe that entrepreneurs and political parties are responsible for minimizing the adverse effects of climate change. Half of Poland's residents believe that their country should start reducing greenhouse gas emissions as soon as possible. Overall, 83% of Polish residents were in favour of reducing gases, regardless of the timing. A slight increase in pro-environmental attitudes can be observed from 2020, including reducing water consumption, not wasting food in one's home, taking additional activities to increase energy efficiency (Grupa Badawcza DSC, 2022; PBS sp. z o.o., BR sp. z o.o., 2020).

Respondents believe that the state of the environment depends primarily on everyone's activity (62%), on good legislation (36%) and on our society's recognition of the environment as an important issue (33%). The most important source of information about the environment is the Internet (74%) and television (52%). The two main reasons in 2022 for protecting the environment are concern for future generations (70%) and concern for human health (62%). According to respondents, everyone is responsible for shaping environmental attitudes and behaviours individually (44%), but school (38%), central authorities (31%), family (31%) and local authorities (22%) should also play a big role. Compared to 2020, there has been a significant increase in the percentage of respondents who say that it is up to each individual to shape environmental attitudes and behaviours (up 12%) (Grupa Badawcza DSC, 2022; PBS sp. z o.o., BR sp. z o.o., 2020).

The Ministry's data (Grupa Badawcza DSC, 2022) show a systematic increase in the level of appropriate social activities and attitudes and thus environmental awareness among the society, which is mainly due to an increase in awareness among adults and educated people, who owe it to self-education, as they know that they are mainly responsible for it.

3.2. Ecological awareness of Poles

The survey, entitled “Poles' ecological awareness”, has been conducted since 2008 by CBOS. The survey covers adult residents of Poland, who constitute a representative named sample drawn from the PESEL register. The latest survey (Omyła-Rudzka, 2020) was conducted in September-October 2020 on a sample of 1133 respondents.

The survey shows that concerns about the state of the environment are declared by a significant proportion of Poles, however, they are more often on a global scale (70% of respondents) than on a national (53%) or local (25%). The vast majority of respondents believe that their own behaviour, the way they live, translates significantly into the environmental condition (81%). This view has prevailed since 2009, however, this value has not changed since 2016. The perception of influence on the state of the environment among respondents aged 55 and over is significantly lower than among younger respondents (aged 18-34), who declare it at 88-89%. Better-educated respondents are more likely to believe that their personal activities translate into the condition of the environment (62% of respondents with primary/lower secondary education and 93% with higher education think so) (Omyła-Rudzka, 2020; Wądołowska, 2011).

Since 2008, there has been a systematic increase in environmental activities undertaken by ordinary people, such as segregating waste (95% in 2020), using energy-efficient household appliances (92%), using reusable bags (91%), giving up driving a car (47%), totally voluntarily picking up trash encountered in a forest, meadow, or by a river (47%), or avoiding buying environmentally harmful products (78%) (Omyła-Rudzka, 2020; Wądołowska, 2011).

Overall, the survey shows that the environmental awareness of respondents is relatively low. The source of knowledge about ecological problems and environmental protection is most often the media (95% of indications); among them, news programs and daily newspapers, as well as opinion magazines, less often specialized magazines. Younger respondents indicated school and subjects related to biology and geography in addition to the media (Omyła-Rudzka, 2020; Patrzałek, 2017).

3.3. Pro-environmental behaviours of Generation Z

The survey on pro-environmental behaviours of Generation Z was conducted in October and November 2020. A total of 449 questionnaires were received and reviewed for completeness, of which 15 incomplete or incorrectly completed questionnaires were rejected (Parzonko et al., 2021). This is particularly valuable research, as Generation Z has not previously been considered as a distinct demographic group in previous studies of pro-environmental behaviour.

Studies have shown that representatives of Generation Z are less engaged in pro-environmental behaviour than those described as “Working Adults”. Respondents belonging to the Baby Boomer generation, Generation X and Generation Y, were referred to as Working Adults due to the small sample size. The respondents from Generation Z, to a slightly greater extent than the respondents from the Working Adults, indicated that they would rather choose public transport than a car and turn off the lights when they leave a room. Working Adults respondents, on the other hand, are significantly more likely than Generation Z respondents to exhibit pro-environmental behaviours such as minimizing the use of processed foods and prepared meals, sorting waste, composting organic waste, conserving water and electricity at home, and abandoning paper invoices in favor of electronic ones. Surprisingly, the actual pro-environmental behaviour of Generation Z is not in line with their declarations (Parzonko et al., 2021).

The research showed that 80% of Generation Z respondents get their environmental information exclusively from social media. On the other hand, a rather surprising finding from the survey was that concern for the environment and commitment to pro-environmental behaviour are greater in older generations than in Generation Z.

The authors (Parzonko et al., 2021) speculate that the differences between the pro-environmental declarations and behaviours of Generation Z may be due to the fact that their declarations are largely shaped by social media, a social factor. The economic factor has less influence, perhaps because, first of all, they usually live with their parents and do not run their own household. Secondly, due to the intensive development of information technology, this is a generation that, unlike previous ones, is no different from their peers in developed countries. Therefore, shaping appropriate pro-environmental behaviour requires the activities of international organizations and the cooperation of national governments in this field.

The use of the media in the broadest sense, and social media in particular, to disseminate information about the dangers of negative human impact on the environment can help change the individual and collective behaviour of this generation.

3.4. Students towards climate change

The survey, titled: "Students towards climate change", was conducted by the Center for Research on Humanistic Education at the University of Silesia in November and December 2021 (Guzy, Ochwat, 2022). The research sample consisted of 2181 students aged 9–20, mainly from the Silesian Voivodeship (96.7%). 1,227 fully completed questionnaires were analyzed in detail. The largest group of respondents (almost 72%) was in the 15–18 age range, making the average age of respondents 15.5 years. This is particularly valuable research because it focuses on Generation Z, which accounted for 97.3% of respondents.

The survey emerges a not very optimistic picture of young people's knowledge and attitudes toward climate change. Yes, 86.4% of respondents believe that humans are responsible for climate change, but only 63.2% agree that it is human activity that causes climate change and only 64.7% believe that society has an impact on climate policy, and for less than 70% of students climate change topics are important. Fear for the future related to the climate crisis is felt by only 56.5% of the young respondents surveyed and less than 70% believe that through various activities the climate catastrophe can be stopped (Guzy, Ochwat, 2022).

One of the most disturbing findings of the survey is how low the involvement of young people (about 17%) in activities and actions related to education for the climate is. The low percentage of people reaching for books (8.2%) or films (31.7%) related to climate change is not surprising, as young people reach for a variety of sources of information from the immediate environment to the world closest to them: social media, television, influencers (Guzy, Ochwat, 2022).

According to the students, knowledge about climate change should be provided by: mainly teachers and ecologists, as well as parents, politicians, non-governmental organizations. Students also emphasize that they also seek relevant knowledge on their own. In addition, students also point to other sources of knowledge, such as: social networks and websites, media (press, television), scientists (Guzy, Ochwat, 2022).

3.5. Ecological awareness in urban and rural communities

The survey on ecological awareness in urban and rural communities was carried out in the spring of 2019 on the streets of the city and commune (Chodkowska-Miszczuk et al.,

2023). A total of 728 questionnaires were collected in two communes (urban and rural), which are located in the same voivodeship. After detailed verification of the questionnaires and removal of incomplete sheets, 710 questionnaires were obtained (475 in urban and 235 in rural).

The authors focused on the issue of energy awareness, which, according to some researchers (e.g., Dyląg (2014)), is seen as a key element of environmental awareness. The survey found that more than 80% of respondents are aware of their personal impact on the environment, considered mainly through the view of energy consumption. A significant proportion of respondents say they use electricity and heat rationally. Respondents pointed to RES as the best solution in terms of energy security. Of the city's residents surveyed, 65.8% showed medium or high interest in RES issues, compared to 34.2% with no interested at all. Awareness of RES is declared by more than 60.6% of respondents in urban areas and more than 91% of respondents in rural areas. Regardless of whether we are dealing with an urban or rural community, younger people from Generation Z and Y are definitely more familiar with the topic of RES, moreover, they recognize the need for pro-environmental changes (Chodkowska-Miszczuk et al., 2023).

The primary sources of knowledge about RES, regardless of where respondents are located, are the Internet and television. Additionally, in rural areas, the leading sources of data are family and friends. This is related to the traditional social resources identified in rural areas, which are based on family and neighborhood ties and trust in the closest people (Chodkowska-Miszczuk et al., 2023).

Respondents indicate that the advantages of using RES are both environmental and economic, citing environmental friendliness as the most important factor. Also of great importance is the economic aspect, i.e. the inexhaustibility of RES and the possibility to become independent of electricity suppliers and fuel imports (Chodkowska-Miszczuk et al., 2023).

4. THE ROLE OF ENVIRONMENTAL EDUCATION IN SHAPING ENVIRONMENTAL AWARENESS

A well-developed environmental consciousness in a community guarantees the pro-environmental development of a country, the level of which is determined by many factors, including, above all, environmental education. Therefore, the role of environmental education in shaping environmental awareness has received the most attention in scientific research (Chawla, 1998; Chodkowska-Miszczuk et al., 2023). The purpose of environmental education is to make Poles aware that the quality of life depends on the state of the environment in which we live.

From the research presented in the previous chapter, a picture emerges of a society whose ecological knowledge is at a relatively low level; although the entry into force of the amendment to the Law on Maintaining Cleanliness in Municipalities (Tuszyńska, 2014) had a positive impact on the public's attitude to the environment, the level is still low. Surveys show that environmental problems are treated secondarily, and the environment is treated in Polish society as a recognized – declared value (Patrzałek, 2017). Also unsatisfactory are the results regarding our students' awareness of climate change, and activities to explore this problem are practically not undertaken by them (Guzy, Ochwat, 2022). A positive aspect from the survey, is that the majority of respondents understood that caring for the environment is the responsibility of each individual (Dyląg, 2014; Omyła-Rudzka, 2020), but a disturbing conclusion is that universal education has very little

impact on students' activities, and the authority of the school and the knowledge it imparts are increasingly replaced by information obtained from the media and news programs.

4.1. Quality of environmental education at schools

In the study (Guzy, Ochwat, 2022), students evaluated the quality of education for climate conducted in schools. The survey shows that only 13.9% of students are satisfied with the quality of climate education at their school, and more than half of the respondents have the opposite opinion (59%). Analysis of the statements obtained shows that a variety of activities related to environmental issues are offered at schools, but only 26% of the respondents are of this opinion. In the statements of the students, it can be noted that the most frequent pro-environmental activities were offered to them in elementary school. Students repeatedly emphasized that activities and actions are more often of a one-time nature, although there are also cyclical activities proposed, such as participation in hobby clubs. Only 37.7% of students indicate that climate change issues are addressed in lessons.

These results are consistent with those in (Ropuszyńska-Surma, Weglarz, 2017), where 175 students from Wroclaw universities were surveyed. Students were asked at which level of education, from kindergarten to college, content related to environmental education appeared. They had the most such content when they were elementary school students in grades 1–3, grades 4–6 and lower secondary school, it was 56%, 71% and 64.6% respectively. Less than 39% had some ecological lectures at higher secondary school. The lowest level of environmental education is at universities, only 13% of the students had any ecological courses (Ropuszyńska-Surma, Weglarz, 2017).

Students indicate that the most common forms of environmental education at school are: traditional lectures, ecological competitions, participation in eco-programs, talks with specialists, case study visits, other activities e.g. cleaning the world (Guzy, Ochwat, 2022; Rodzoś, 2022; Ropuszyńska-Surma, Weglarz, 2017).

Students definitely rank better lessons that allow them to engage in discussion, explain the content taught in depth, are more practical (joint actions such as cleaning up the planet, outdoor activities, Oxford debates), are taught by professionals (experts and people educated in the field), and are taught with passion, which will influence motivation for active participation (Guzy, Ochwat, 2022). They give a much lower rating to lessons where teachers use only giving methods. Students also suggest that education for the climate should take place as part of systemic education in lessons of various subjects. Young people also suggest more real activities in non-school spaces (e.g., cleaning up, sorting garbage together, planting trees), watching films on environmental issues, conversations, debates in favor of fewer facts and data.

4.2. System of environmental education at schools

Discussing school climate education, it should be remembered that in the 1990s, environmental education was introduced into Polish schools, first as part of the natural sciences, and then as a formally separate inter-subject pathway with assigned content. This solution did not bring the expected results, and on the occasion of one of the school reforms the pathway was abolished (Rodzoś, 2022). The school is still obliged to form pro-environmental attitudes, but it does so not very effectively. In order for environmental education to make sense, it is necessary to give the student a chance to use the knowledge gained in practice, and above all to apply it in everyday life.

According to Dr. Jolanta Rodzoś of the Maria Curie-Sklodowska University (2022), an inadequate education system is responsible for the poor level of students' environmental

awareness. The affliction of the Polish education system is the over-theorizing of education and the focus on certain, unquestionable knowledge that is safe for the teacher and the student. Frequent changes in the education system have meant that there is no longer enough desire, time and energy for deeper modification of content, for investing in the development of teachers' knowledge and competence. The second unfavorable feature of the Polish school is an unwillingness to shape attitudes and, in fact, treating this task as a completely side thread. This may be related to the changeability of the philosophy of education depending on the ruling option, which intensifies the caution in the implementation of socially and politically sensitive content (Rodzoś, 2022). And yet it is the duty of teachers to be socially engaged in environmental protection and to shape environmental competence among their students. The teaching profession is the most predestined to assume the function of ecological leadership and shape the social responsibility of students, parents and residents of local communities (Tuszyńska, 2014).

Polish school unfortunately lacks complete and up-to-date knowledge of the environmental and climate situation globally and in our country. According to Prof. Piotr Skubala (Guzy, Ochwat, 2022), in the current core curriculum in Poland, information on climate change and protection is mostly scattered, selective, does not show the complexity of the problem, and only a few selected topics related to climate change are only in the extended curricula of some subjects.

Education is essential to prepare society to deal with the climate crisis. Environmental education should be integrated at all levels of education and in all educational disciplines. It is worthwhile for it to focus equally on the “head”, “heart” and “hands” of students. And as students draw their diverse inspirations from many sources, it shows how many channels can be used to convey information related to climate responsibility.

The decreased role of school in environmental education is due to systemic deficits. The environmental education system now needs to be strengthened and more attention paid to using practical, professional knowledge and promoting more active forms that engage youth. Only through holistic curricula can students be provided with knowledge, green competence, hope and commitment. This education should already be incorporated into university education, including in the professional training of teachers in all subjects and at all levels of education.

4.3. Environmental education at universities

Surveys conducted among students from Wroclaw universities (Ropuszyńska-Surma, Weglarz, 2017), found that only 25% of students had any courses related to environmental education in college, with the percentage even lower for non-engineering studies (just 6%). In engineering studies, various specialized courses related to environmental education or climate change are included in the curriculum. Included in the engineering curriculum are various specialized courses related to environmental education or climate change. These courses are mainly offered in fields of study such as environmental conservation, environmental engineering or sanitary engineering. In other in fields of study, these courses appear in the curriculum sporadically.

This is due to the fact that the current national guidelines for the development of study programs (The Regulation of the Minister of Science and Higher Education of November 14, 2018 on the Characteristics of the Second Level of Learning Outcomes for Qualifications at Levels 6–8 of the Polish Qualification Framework, 2018) do not explicitly include provisions on ecological knowledge, building ecological awareness or creating pro-environmental attitudes and behaviours. The Polish Qualification Framework (PQF),

like the European Qualification Framework (EQF), distinguishes eight levels of qualification, with level 6 for first-cycle studies and level 7 for second-cycle studies. Each of the PQF levels has been characterized by general statements on the learning outcomes required for the qualification of a given level. The characteristics of the PQF levels refer to the full spectrum of learning outcomes required for the qualification, that is, knowledge, skills and social competence.

The content related to the environment is directly related to the following characteristics at levels 6–7 of the Polish Qualification Framework (The Regulation of the Minister of Science and Higher Education of November 14, 2018 on the Characteristics of the Second Level of Learning Outcomes for Qualifications at Levels 6-8 of the Polish Qualification Framework, 2018):

a) from the field of knowledge – the student knows and understands the fundamental dilemmas of modern civilization, and the student knows and understands the (basic) economic, legal, ethical and other conditions of various professional activities related to the field of study,
b) in terms of social competence – the student is ready to fulfill social obligations, inspire and organize (co-organize) activities for the benefit of the social environment.

In other characteristics, this content may also appear, but as side issues, such as in the skills characteristic where the student is able to conduct (participate in) a debate. Despite the fact that there is little content related to ecology in the study programs, universities conduct activities related to environmental education of young people, try to build environmental awareness and create pro-environmental behaviour by conducting activities outside the study program.

5. CASE STUDY – WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

Research (Ropuszyńska-Surma, Weglarz, 2017) has shown that only a limited number of courses with pro-environmental content appear in technical studies. It is therefore legitimate to ask about the responsibility of universities and the propagation of pro-environmental attitudes. Universities agree that their role is to foster pro-environmental and pro-saving attitudes and to maintain and strengthen them, and their goal is to build an environmentally responsible community.

So what are universities doing in this topic? To answer this question, the activities undertaken at the Wrocław University of Science and Technology (WUST) in 2021-2024 were analyzed. As mentioned in earlier chapters to build environmental awareness should be based on knowledge, experience and emotional involvement of students and the environmental education conducted should focus equally on the "head", "heart" and "hands" of students. Thus, the activities of the University were looked at through the prism of these three elements, keeping in mind that emotional involvement is key in creating pro-environmental behaviour.

A Center for Sustainability and Climate Protection has been established at the University with the goal of integrating the University community in an effort to build the Green University of the Future, aiming for zero-carbon. Another initiative is the establishment of the Coalition of Wrocław and Lower Silesian Universities for Sustainable Development and Climate Protection. The goal of the Coalition is to cooperate, initiate and synchronise actions in the area of climate protection in the city of Wrocław and Lower

Silesia (*Center for Sustainability and Climate Protection*, 2024). These institutions are responsible for the activities listed below.

List of completed activities in the area of knowledge (*Center for Sustainability and Climate Protection*, 2024; *Wrocław University of Science and Technology*, 2024):

a) Cyclical or one-time conferences, including Current Trends in Air and Climate Protection, Eco-COALITION Congress, Climate Change: Science, Society, "Zero Emission Poland - Challenges of the Future", ENERGY, MANAGEMENT, ENVIRONMENT 2022, "Young in Energy", "Technology for Business",
b) Climate Days at WUST – an annual event,
c) Water days at WUST – an annual event,
d) Lecture forms, such as: open popular science lectures "Closer to Architecture" for students, a series of six debates entitled "Cities of Ideas" in 2024, a workshop "Sustainable development, or how to be a responsible consumer" in 2024, a webinar – socially responsible university, meetings with a low-carbon brand – BMW Inchcape Wroclaw,
e) Education and information campaign entitled: We save at PWr, #GreenPWr,
f) Eco-education campaign, in which teachers can order a lecture, workshop or field activity for their students at the Faculty of Environmental Engineering,
g) The "eco-education program for Eco-Education" carried out by the Student Assistance Fund and dozens of other academic organizations.

List of completed activities in the area of experience (*Center for Sustainability and Climate Protection*, 2024; *Wrocław University of Science and Technology*, 2024):

a) University competitions, such as the competition for Student Teams to develop a new concept for the development of the inner courtyard in the A-1 building, the "Santander Eco Prizes for WUST students and doctoral students" for the creation of a project for an innovative ecological installation to support WUST's pursuit of zero-emissions, the Polytechnica Nova competition held annually for employee and student projects,
b) Interdisciplinary university projects, e.g. application of innovative sensor systems to assess air quality on campus, ProtoLab – a week-long design workshop (online) and with hands-on workshops where students implemented their projects under the guidance of tutors,
c) Participation of students in national and international competitions,
d) Participation of students from scientific circles in various national and international competitions,
e) World Water Day, including such activities as a photo contest with a photo exhibition, the premiere of a film on the water footprint, and a field game,
f) Educational study visit to the Ministry of Climate and Environment.

List of completed activities in the area of emotional engagement (*Center for Sustainability and Climate Protection*, 2024; *Wrocław University of Science and Technology*, 2024):

a) The #TrashTagChallenge campaign, which encourages students to clean up their neighbourhoods and develop a good habit of consciously segregating waste and not littering our environment,
b) KliWRO – a group of students from the University with a keen interest in climate protection issues created a special page on Facebook,
c) The university's participation in the WWF's Earth Hour campaign.

6. CONCLUSIONS

The article assesses the state of environmental awareness and knowledge of young people from Generation Z based on a review of available studies conducted between 2019 and 2022. From these studies emerges a picture of a society whose environmental knowledge is at a relatively low level, as is the environmental awareness of Generation Z. The society, including Generation Z mostly understands that taking care of the environment is the responsibility of each individual, but a worrying conclusion is that general education has very little impact on students' activities, and the authority of the school and the knowledge it provides are increasingly being replaced by the internet and the media.

This was followed by an assessment of the level of environmental education in the education system on the basis of available research, including reference to the quality of education, to the education system and to environmental education at universities. Based on the research, it can be concluded that it is necessary to implement a coherent policy of social responsibility towards the climate, which should additionally secure resources for its implementation, because without this, even the most valuable activities of the school will have little effect (Rodzoś, 2022). The second conclusion is related to the low level of confidence of Polish society in science and its achievements, which affects the position and effects of school work. On the other hand, on the basis of our own research, it was noted that there is a lack of content related to environmental education, environmental awareness and stimulation of pro-environmental behaviour in study programs. It should be emphasized that in order to build environmental awareness, education should be based on three pillars: knowledge, experience and emotional involvement of students. Therefore, in identifying the University's activities in building students' environmental awareness, they were divided into three categories.

The pro-environmental activities outlined are insufficient, as they mostly focus on imparting knowledge, and somewhat less on activating students into action. On the other hand, there is a lack of activities that build emotional engagement, which is crucial in developing environmental awareness. Over the course of 4 years, only 3 different activities were identified that can be categorized as building emotional engagement. It should be noted that in the study (Guzy, Ochwat, 2022), students complained that their ideas to address the climate crisis are not taken into account, resulting in a small number of activities that build engagement.

6. RESEARCH LIMITATIONS

Limitations of the analysis conducted include: the lack of comprehensive studies of the environmental awareness and knowledge of Generation Z, the subjectivity of assessing the level of environmental education in the education system, and limitations in accessing data from other universities.

Given the lack of comprehensive studies of the environmental awareness and knowledge of Generation Z, the article relies on five different studies, each with a different research sample. In the reports (Chodkowska-Miszczuk et al., 2023; Grupa Badawcza DSC, 2022; Omyła-Rudzka, 2020), the Generation Z was a subgroup of the research sample, one of many, hence the conclusions drawn do not fully reflect the characteristics of Generation Z, as is in the case of the other two reports (Guzy, Ochwat, 2022; Parzonko et al., 2021). The research was conducted over a time frame of three years, but the changes are not dynamic enough to have a major impact on the results obtained.

The conducted evaluation of the level of environmental education in education is partly based on subjective opinions of experts, which, of course, does not reflect the picture of the overall education system, but the author's intention was to draw attention to some existing problems in the field of environmental education. The author is also aware of the fact that the survey conducted among students, was conducted on a non-representative research sample. They were only an attempt to look through the perspective of students on the system of environmental education at the university.

Identification of the university's activities and assigning them to the appropriate categories of knowledge, experience and engagement has been done with due diligence; however, this is the author's subjective observation. The author collected data systematically through a newsletter sent to employees through an intranet. The activities presented here concern only one university, in order to be able to draw somewhat more far-reaching conclusions it would be necessary to conduct similar analyses for other universities, however, access to source data here will be a limitation.

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