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## PEDAGOGICAL STUDENTS AS ECOLOGICAL EDUCATION ANIMATORS

### STUDENCI PEDAGOGIKI JAKO ANIMATORZY EDUKACJI EKOLOGICZNEJ

**Streszczenie:** Obecny stan wiedzy potwierdza, że edukacja ekologiczna jest częścią integralnego procesu pedagogicznego każdej placówki oświatowej, mającego na celu m.in. rozwój działań proekologicznych. Celem badań było zdiagnozowanie poziomu świadomości ekologicznej absolwentów kierunków pedagogicznych oraz ich determinacji do angażowania się w działania edukacyjne ze społecznościami lokalnymi na rzecz zrównoważonego rozwoju. Badania oparto na paradygmatycznych założeniach zrównoważonego rozwoju, teorii aktywności społecznej, teorii przywództwa edukacyjnego oraz teorii świadomości ekologicznej. Koncepcja badawcza opierała się na refleksji nad różnicami między liderami pod kątem ich potencjału przywódczego, tj. transformacyjnego lub transakcyjnego. Wyniki pozwoliły na weryfikację wiedzy studentów na temat podstawowych koncepcji zrównoważonego rozwoju, zestawienie deklaracji zachowań przywódczych zagregowanych do skal transaktywnej i transformacyjnej oraz refleksję nad uwarunkowaniami podejmowania przez młodych edukatorów działań na rzecz środowiska lokalnego. Na liście przyczyn bierności w działaniach na rzecz społeczności lokalnej wskazano m.in. brak motywacji i poczucia wspólnoty i brak pozytywnych wzorców

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do naśladowania. Przeprowadzone badania pozwalają na stwierdzenie konieczności przebudowy systemu edukacji ekologicznej na wszystkich poziomach kształcenia oraz podniesienia rangi liderów społeczności lokalnych poprzez formalne wzmocnienie ich pozycji ekologicznej.

**Słowa kluczowe:** aktywność, edukacja środowiskowa, świadomość ekologiczna, style przywództwa

**Abstract:** The state of the knowledge confirms that environmental education is a part of the integral pedagogical process of any educational institution, aimed among others at the development of environmental activities. The aim of the research was to diagnose the level of environmental awareness of pedagogy students and their determination to engage in educational activities with local communities for sustainable development. The research was based on the paradigmatic assumptions of sustainable development, the theory of social activity, the theory of educational leadership and the theory of ecological awareness. The research concept was based on a reflection on the differences between leaders in terms of their leadership potential, i.e., transformational or transactional. The results allowed for the verification of students' knowledge about the basic concepts of sustainable development, declarations of the leadership behaviour aggregated to the transactive and transformative scales and reflection on the determinants of undertaking activities for the local environment by young educators. The list of reasons for passivity in activities for the benefit of the local community included, among others: lack of motivation and sense of community and lack of positive role models. The conducted research allows for a conclusion about the necessity of the ecological education system's reconstruction at all educational levels and raising the rank of leaders in local communities by formally strengthening their environmental position.

**Keywords:** activity; environmental education; ecological awareness; leadership styles

## 1. Introduction

Ecological awareness is a type of social awareness, which consists of the following elements: knowledge, which is the basis for shaping attitudes, skills, views and attitudes related to the protection of health and the natural environment (Corraliza & Collado, 2019). The level of awareness of the person taking action is indicated by the set of beliefs adopted for the purpose of interpreting the behavior studied by the observer. When constructing the concept of ecological awareness, it is necessary to indicate a specific way of understanding the phenomenon, its definition and the problems in the area we are interested in, which is reflected in their conscious analysis. According to Rogayan and El Elyonna (2019), there is a significant relationship between environmental awareness and actions for the environment, which is confirmed by many studies at various levels of education (e.g., Bhat et al., 2016; Cherdymova, 2018; Omran et al., 2017; Singh, 2015).

The aim of the research was to diagnose the level of environmental awareness of the pedagogy students and their determination to engage in educational activities with local communities for sustainable development. The undertaken

research is characterized by originality, because 1) the educational programme for students – future educators – is innovative on a national scale, and 2) as the review of the literature on the subject of the research has shown, there are no current reports on the relationships between the studied variables, i.e. youth environmental awareness and their activities in promoting sustainable development in the local environment and their readiness to act as a leader in pro-environmental activities. Moreover, the tested relationship is considered in the context of the leader's characteristics and his/her abilities (transactional and transformational, according to Sternberg, 2020) to play this role in society, which has not been the subject of research to date.

## 2. Theoretical Background

The research was based on the paradigmatic assumptions of sustainable development, the theory of social activity, the theory of educational leadership and the theory of ecological awareness. We are most inclined to the theory that a sustainable society is one that can last for generations and is far-reaching in its thinking about the future, and at the same time flexible and wise enough not to undermine either its natural heritage or social support systems (Meadows et al., 1992). The theory of social activity views human behavior as anchored in collective practice, not only about individual skills and knowledge, but we can talk about the appropriateness of certain means for a certain practice, and we can investigate how the introduction of a particular tool changes practice and how practice can change the use of specific tools. It is also a question of how collective practice develops, in small steps or larger leaps (Bertelsen & Bødker, 2003).

In the undertaken research, it was considered crucial that leadership is a social process that involves the influence of one person on another or on groups and leads to the achievement of mutually agreed goals (Northouse, 2009, p. 12). According to Sternberg (2021), the aptitude for transformation focuses on positive and significant change, in line with the Active and Engaged Citizenship and Ethical Leadership (ACCEL) model. Consciousness, in a broad philosophical sense, is the highest, specifically human form of active reflection on reality, in a more specific sense – human understanding of the surrounding world, in order to place their own actions in it (Cherdymova et al., 2018). The relationship between the theoretical background and the research topic is presented in Table 1.

Table 1. Theoretical perspective of the research

Theory	Key Factors	Practical Training
The theory of sustainable development	participation, security, responsibility, integrated ecological systems social animation (Viederman, 1994: 5; Wesley-King and Sanchez-Meyers, 1981)	It is of particular importance to understand the assumptions of sustainable development through the prism of participatory processes that are created and implemented by a community that respects and carefully uses all environmental resources.
The theory of social activity	practical social activity, consciousness (Ratner, 1997)	Consciousness implements the social activity that inspires it. Activity theory explains individual differences in the functioning of individuals and groups.
Educational leadership theory	transactionally and transformationally gifted individuals (Sternberg, 2021)	Transactional leadership focuses on the interpersonal relationships that influence the exchange between leaders and educators, leaders and the rest of the community. In the case of transformational leadership, attempts were made to increase the degree of internal / independent motivation to act for the benefit of the local environment.
The theory of ecological awareness	ecological knowledge, awareness of the consequences of human activity, the relationship between awareness and activity for the environment (Korotenko, 2017)	The paradigmatic basis of the description of consciousness was the understanding that there is a progressive ecological crisis, the causes of which lie in the dominant technocentric way of human activity and cannot be overcome without changing the dominant type of world-view universals and consciousness.

The connections between the main theoretical areas important from the research point of view are presented in Fig.1.

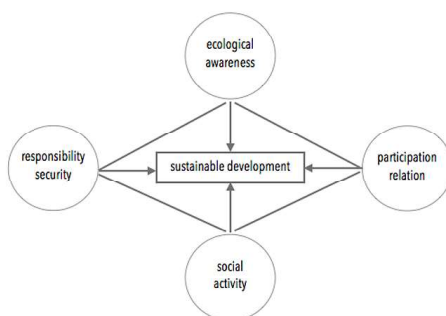


Fig. 1 Theoretical framework (TF)

### 3. Conceptual Background

During the preparation of the conceptual framework of the research, the belief was that ecological awareness is a powerful tool in the field of environmental protection. Education and knowledge have a significant impact on behavior change (Gonzaga, 2016). Guided by the results of previous research, it was assumed that the environmental awareness of university students is related to the field of study (Singh, 2015), and pro-environmental activities shape their attitudes and increase their motivation focused on practical activities for the environment (Omran et al., 2017), which ultimately allows the selection of leaders influencing social commitment in the field of various pro-environmental activities. It was also assumed that ecological awareness can be analysed in three dimensions, understood as structural components of ecological awareness, i.e., in the cognitive dimension, and as views and behaviours in the form of an evaluative motivational orientation (Cherdymova et al., 2018). Therefore, structural and substantive features of environmental awareness were adopted.

The research procedures were based on four specific problems concerning: pedagogy students' knowledge about threats to the environment and human health, declared abilities to prevent environmental degradation and protect health, views related to the protection of health and the natural environment, involvement in educational leadership of local communities. The environmental awareness of people participating in the research had a screening value in the context of selecting potential leaders involved in environmental education at the local level (Fig. 2). The research concept was based on Sternberg's (2021) reflection on the differences between leaders in terms of their leadership potential, i.e., transformational (focused on community activities) or transactional (based only on resource exchange). People with transactional and transformational abilities have different motivational systems. Transformative individuals use their intelligence and other skills to make positive, meaningful and transformative community-relevant differences, while transactional talents use their intelligence and other abilities to benefit themselves and focus on reward and punishment systems (Sternberg, 2021, p. 2). Ultimately, it was assumed that only leaders with the characteristics of transformational leadership would engage in animation activities for the local community. The conceptual frame is shown in Fig. 3.

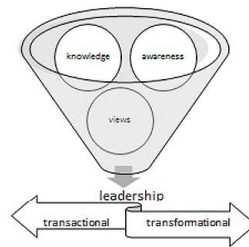


Fig. 2 Transformational and transactional leadership as two different ways of activity in the environment

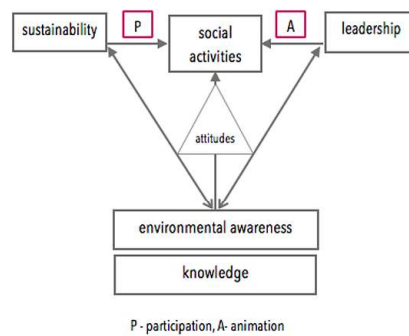


Fig. 3 Conceptual framework (CF)

#### 4. Research Methodology

In developing the research methodology, the views of Corcoran et al. (2004) were followed: that is, this type of research should include a critical analysis of the practice and be documented in such a way that it may have transformational value for other interested parties. As Corcoran et al. (2004, p. 9) prove, the field of sustainable development in higher education is complex: there are no two identical schools that would regulate the formal learning outcomes of students in this area. The selection of the research sample was guided by the belief that increasing the understanding and awareness of sustainable development among pedagogy students is beneficial for young people in building a professional career in a sustainable environment, taking into account environmental, social and economic consequences (Alkhayyal et al., 2019).

The main aim of the research was to diagnose the level of ecological awareness of graduates of pedagogy at a pedagogical university and their determination to engage in educational activities as leaders of local communities for sustainable development. The following main research problem was formulated: What are

the main aspects of young educators taking the role of an environmental education animator for the local community?

The following specific problems have been assigned to the main problem:

P.1. What percentage of the surveyed young educators is good at using basic ecological concepts?

P.2. What declarations of behavior in favor of environmental protection in local communities are revealed by the respondents?

P.3. What are the conditions for undertaking activities for the local environment by the pedagogy students – future educators?

In order to solve the problems outlined, an inductive course of research was chosen. The specific cases or situations were observed or analyzed in order to establish general principles and rules. It also means that the conducted research allowed for the verification and understanding of the theory. In such a course, it is customary to abandon the formulation of research hypotheses. Research goals and tasks are defined, methods are selected in terms of the possibility of collecting as much information as possible about the studied variables, and then arranged and the relationships between them are determined.

In the first stage of the research, the diagnostic survey was used, consisting of three parts: multiple choice questions (true answer); declaration of behavior on a five-point Likert scale; and a survey consisting of nine questions concerning the determinants of undertaking activities for the local environment by young educators.

The diagnostic material concerned:

1. Knowledge and understanding of the definitions and basic concepts of sustainable development, waste management, water and air protection, energy saving, transport (knowledge test). Sample questions, suggested answers, and goals for the knowledge test are provided in Table 2.

Table 2. Sample questions of the test concerning the knowledge and understanding of the definitions and basic concepts of sustainable development

No	The content of the question	Options of answers	Objective
1	The withdrawal of incandescent light bulbs in the EU aims to:	a) Advertise the use of energy-saving fluorescent lamps b) Depart from the tradition of using ordinary incandescent lamps on a local scale c) Lower electricity consumption, which benefits all EU members d) Remind citizens to turn off electrical appliances before leaving the room	Verification of knowledge of the facts and of all aspects of the recall of conventional incandescent lamps in the EU



No	The content of the question	Options of answers	Objective
2	When segregating waste, you should:	a) Put paper into the blue container, b) Put plastic and metals in the green container c) Put bio-waste in the blue container d) Put mixed waste in a white container	Checking basic knowledge of the principles of waste segregation
3	Sustainable development is a widely recognized concept of progress that consists of:	a) Researching the physical, mental and social development of a human beings b) Social and economic development, while maintaining the principles of environmental protection for future generations c) Maintaining the socio-economic balance and optimal profits for society d) Maintaining the balance between supply and demand in EU countries	Control of understanding of the concept of sustainable development

2. Declaration of consumer and health behaviour and declarations of behaviour aggregated to the TA (transactive leadership) and TF (transformative leadership) scales. Examples of verified statements are included in Table 3.

Table 3. Examples of declarations of behaviors aggregated to the TA (transactive leadership) and TF (transformative leadership) scales

No	Representative statements on the TA scale	Representative statements on the TF scale
1	I check the composition of the products on the packaging	At least once, I have written a petition to the office in a matter concerning the local community
2	I insulate the house I live in and seal windows and doors	I point out to dog owners if I see that they are not cleaning up after their pets
3	I eat fewer processed foods	I submit an idea proposal to the participatory budget in my commune (district, town)
4	I save water when washing dishes	I report to the administration any environmental degradation in the vicinity of my place of residence (e.g., cutting down trees, damaging the lawn, etc.)
5	I repair broken items instead of buying new ones	I accept invitations to various social actions (protests, environmental events, etc.)
6	I use energy-saving lamps instead of ordinary light bulbs	I am active on social forums – I exchange information about social activities
7	I use radiators with a thermostat – I lower the temperature at night and in my absence	I organize educational projects for the local community or small groups

The conducted research was related to the determination of indicators of the declaration of aggregated behavior in two categories: “transactive” and “transformative”. For this purpose, a Likert-scale survey was conducted, which included 72 statements concerning the following areas of ecological space: air (e.g.



I use the “Smog alarm” application), water (e.g. I turn off the water while I soap myself in the shower), waste (e.g. If I have the opportunity, I set up a composter for organic waste), transport (e.g. I ride a bicycle, walk or use public transport), energy (e.g. I only boil as much water as I need at the moment), pro-health behavior (e.g. I do not use alcohol, drugs, legal highs), consumer behavior (e.g. I buy goods in returnable packaging).

3. Reflection on the determinants of undertaking activities for the local environment by young educators.

Overall, 220 people (deliberate selection), graduates of one of the universities in Warsaw, aged 23–26 participated in the study. From the study group, 90 people volunteered for further research. This study was carried out in three stages described in Table 4.

Table 4. Stages of research on the determinants of disproportions between declarations aggregated to the “transactivity” scale and declarations aggregated to the “transformativity” scale and their role in the context of various aspects of activities undertaken by respondents

No	Study stage	Objective	Research method	Sample size / number of responses
1	I	Determining the reasons for the disproportion revealed in the conducted analyses between the declarations aggregated to the “transactivity” scale and the declarations aggregated to the “transformativity” scale	Participating discussion	90/90
2	II	Determining which of the given reasons play the most important role in the tested sample	Diagnostic survey	90/90
3	III	Supplementing the list of reasons with additional aspects not disclosed in Part I.	Diagnostic survey	90/27

## 5. Results

The knowledge test conducted in the first research stage on a group of 220 people allowed for the reduction of the research sample, taking into account the correctness coefficient of the answers obtained  $n > 50\%$ . In the studied sample, four people obtained a rate lower than 50% at stage I, therefore, in the further research procedure, the data obtained from these four people were not taken into account (they were excluded from the research sample). The justification for such a procedure was the concern for obtaining reliable data and promising a good understanding of the concepts related to sustainable development by the respondents. The distribution of positive results of the knowledge test is presented in **Chart 1**. Its characteristics are similar

to the normal distribution. The majority of participants/respondents (55) obtained the result of 9 (25.46%) who obtained a positive test result.

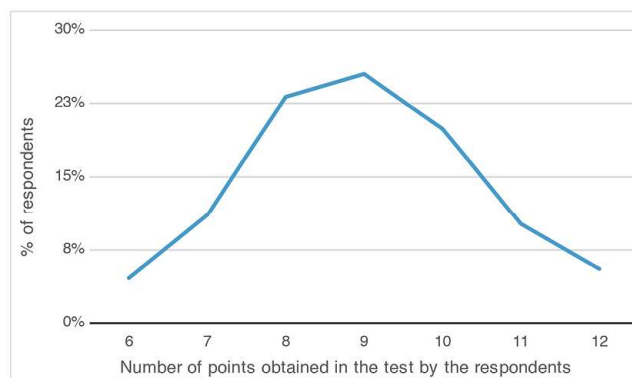


Chart 1. Distribution of positive results of the knowledge test

The study of consumer and health behavior declarations as well as declarations of behavior aggregated to the TA and TF scales was preceded by checking the reliability of the test used. The results of the Cronbach's alpha coefficient are presented in **Table 5**.

Table 5 The results of the reliability of the test

No.	Cronbach's alpha conversion area	The value of the Cronbach's alpha coefficient
1	Full test	.9293
2	The part of the test corresponding to the TA category	.9001
3	The part of the test corresponding to the TF category	.8624

The relationship between the responses obtained on the TA scale and on the TF scale was analysed. The applied Pearson's chi-squared test showed the value of the coefficient  $\chi^2 = 188.02331$ ;  $p = 0.00$ . Spearman's correlation coefficient was .59,875;  $p = 0.00$ . Therefore, it is possible to conclude a statistical relationship between TA and TF at the significance level of 0.01.

After a careful analysis of the obtained results, most of the subjects showed a higher result on the transactivity scale than on the transformation scale. This is evidenced by the following arguments:

The dominant factor of the distribution of "transactivity" results is 4, and for "transformation" it is 3.

The median of the distribution of "transactivity" scores is 4, and for "transformation" is 3.

The range of variability of the results of “transactivity” is 2–5, for “transformation” is 1–4.

The significance (at the level of  $p < 0.001$ ) of the difference between the results of both scales is confirmed by the Wilcoxon signed-rank test (for dependent samples).

In the study group there were 184 cases (85%) for which the score on the transactivity scale was higher than on the transformation scale; there were 31 cases with an equal score on both scales (14.8%). In the studied sample, there was only one case (0.46%) higher on the transformation scale than on the transactivity scale. After a participatory discussion among the surveyed students, the purpose of which was to identify the reasons for the revealed disproportion between the declarations aggregated to the “transactivity” scale and the declarations aggregated to the “transformativity” scale, it was found that the respondents reported the following reasons: 1. Low self-esteem 2. No involvement during a pandemic (due to the risk of infection) 3. New, no consideration of such a possibility 4. Lack of courage and experience 5. Lack of creativity 6. Lack of competence 7. Lack of acceptance for the idea of civil society 8. Low rank of the idea of social activity 9. No gratification

As a result of the analysis of the survey, the distribution of significance of causes was determined (Chart 2).

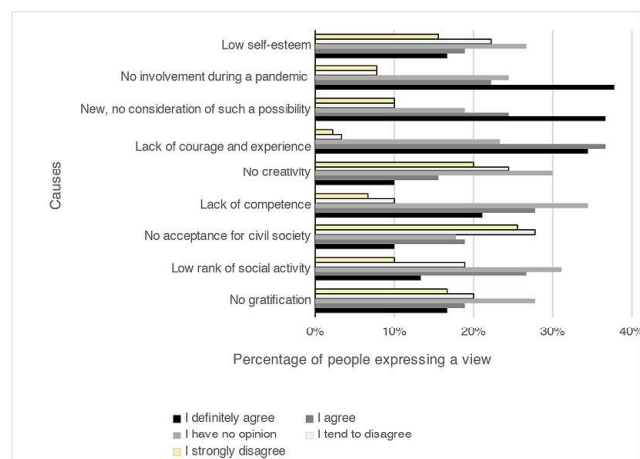


Chart 2. Reasons for the lack of readiness to act as a leader and take up activities for the local community

As a result of an in-depth analysis of the responses obtained and the aggregation of selected responses: “I rather agree” and “I strongly agree” (Chart 3), the following reasons were of the highest importance: 54 people (50.5%) indicated the “lack of involvement during the pandemic due to the risk of infection” as a very important

or important reason, 55 people (61%) indicated “novelty, lack of consideration of such a possibility” as a very important or important reason, 64 (71%) respondents indicated the “lack of courage and experience” as a very important or important reason.

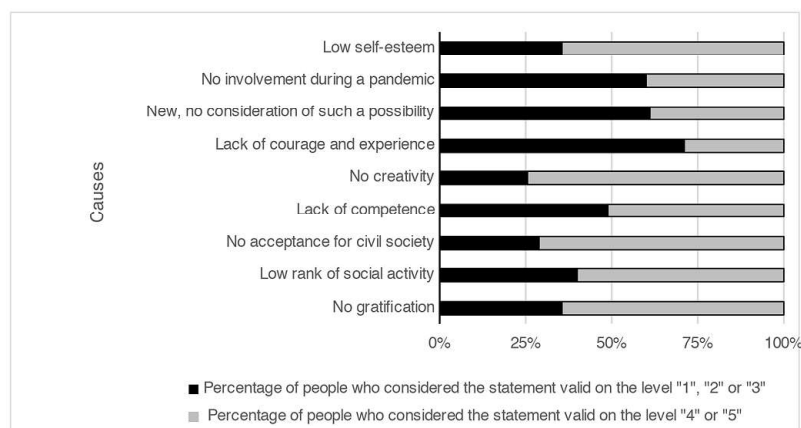


Chart 3. The significance of the views of the respondents on the reasons for the lack of readiness to act as a leader and take up activities for the local community

The third stage of the study was attended by students who, after getting acquainted with the current research results, wanted to comment on and supplement the given results. They added to the list the following reasons for inactivity in activities for the local community and for not taking up the role of a local animation leader: lack of time (combining study with work, family responsibilities); lack of motivation and a sense of community / unity with the local community, fear of being misunderstood by others, no positive role models to follow from an early age, lack of knowledge about the possibilities of pro-environmental activity, housing situation, completely different interests, no help from the authorities and no commitment from the public, other trends dominating in society.

## 6. Discussion of the Results and Conclusions

Scientific research conducted for many years in various countries shows that, despite the education in this field, pedagogy students do not have sufficient operational knowledge in the field of *environmental literacy*, influencing the level of their environmental awareness and attitudes (e.g., Roth, 1992; Stanišić & Maksić, 2014).

In social communication, when initiating activities, an important role is played not only by the leader's (teacher's) own attitude, but also by his/her tendency to preventive and corrective behaviors. “Leadership grows daily, but not overnight” (Maxwell, 2020). This is also indicated by the authors in the introduction to this

present article, as well as in the quoted theories: the sustainable development theory, the theory of social activity and the theory of educational leadership. In order to assess the behavior of the respondents regarding environmental protection, unfortunately the focus was only on the declarations of young educators. It turned out that, similarly to the level of knowledge, the respondents showed a high rate of declaring pro-environmental behavior. The most intriguing problem concerned the determinants of taking up activity by the respondents for the local environment as educational leaders. The results of this study were surprising. It turned out that despite the good level of knowledge and declarations of pro-ecological behavior, which are confirmed, among others, by the results of research conducted by Balińska et al. (2020), an extremely low percentage of young educators expressed a desire to remain the leader of environmental education for local communities. Another question arose: Why is this so? For this purpose, a participatory discussion was held. During the discussion, it was revealed that there are two groups of attitudes towards leadership activities in the field of environmental protection and human health. Most of the respondents had a higher transactivity score than the transformation scale.

The analysis of the transformational leadership style shows that it develops on the basis of relationships between people, which largely promotes the motivation to act for the benefit of others (Wigren, 2017, p. 20). The ability to work in a team based on social relations seems to be poorly promoted in study programmes.

Transactional leadership is presented by a greater percentage of respondents; this may indicate the need to create a formal position (paid profession) of an animator (leader) or an educational (ecological) leader in the education system, focused on the transformation of social and natural reality, which would inspire residents to act for the natural environment. This means formal university preparation of transformational leaders who will work professionally and not socially, only as a volunteer, in the local environment.

The results of research conducted by various authors (e.g., Evans et al., 2015, An et al., 2011) indicate that leadership in the field of environmental transformation influences the internal and external orientation to the environment; however, this type of leadership orientation is rare, as confirmed by the research conducted by the authors. Research has shown that most of the participants of the academic course, having the appropriate level of knowledge and declaring pro-environmental behavior, show transactive orientation. These two types of environmental orientation act as mediators of the relationship between environmental transformation leadership and behavioral declaration. Both transactional and transformational orientation involves giftedness that is not innate. Rather, they are shaped by life at school and at home, interacting with personal attitudes towards the life of the gifted individual (Sternberg, 2020).

The conducted research may be the basis for further exploration in connection with the need to rebuild the ecological education system (e.g. changing

the proportions between the so-called theoretical classes and the implementation of social activity and social projects, starting activities aimed at increasing the importance of environmental education at universities – e.g. including activities for the environment in the student evaluation system – more ECTS in connection with more time devoted to social involvement and activity for other members of the community.

Following the thought of John C. Maxwell (2020), the authors' recommendations concern environmental education not only at the academic level, but also at secondary and primary levels, preparing young educators for this role should start much earlier than in college – teamwork, environmental projects, activities for the local community and volunteering is a great preparation for transformational leadership. This does not change the fact that our society suffers from a deficit of transformational leadership, so perhaps the solution to the willingness to socialize in the local environment could be formalizing these activities by preparing for the profession of a local community animator (mediator, leader) within higher education. The results of the conducted research are also recommendations for the humanities to pay more attention in the education process to the problems of the climate crisis and shaping ecological awareness, and above all, shaping pro-ecological activity and behavior not only among students, but also among citizens. It seems necessary to conduct further research in this direction.

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