

EDUCATING YOUTH ON PROJECT SUSTAINABILITY - PROJECT ENGAGEMENT AND RECOGNITION OF THE GREEN DEAL

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Abstract. The European Green Deal is a blueprint for a more sustainable life throughout the European Union and its member states. It is based on environmental protection and sensible consumption. However, implementing Green Deal policies necessitates the participation of local populations who are affected by pollution. This paper presents the significance that youth hold in contributing to the implementation and development of the European Green Deal and the circular economy as well as the key role they play in local self-government in order that the aims of the European Green Deal be achieved. To do so, three pilot studies (29 youth were engaged) and one comprehensive research (201 youth were engaged) were conducted on university and secondary school students in Republic of Serbia in 2022. Based on these, youth were found to not possess environmentally friendly habits, as well as adequate education on sustainability challenges. Theoretical and practical implication has been discussed.

Keywords: *youth ecology knowledge, environmental protection, ecology habits, circular economy*

Introduction

Adopted by the European Commission in 2019, the European Green Deal is a tool aimed to strengthen strategic economic growth and infrastructure development through measures to encourage a circular economy and laying groundwork for a financial future for green development projects (Smol et al., 2020). Green deals have been growing in importance as evidenced. Politically, Schoenefeld (2021) green deals may serve to help resolve political turbulence within the European Union.

Dowson et al. (2012) draw attention to the economic and political challenges posed to all green deals as their high costs and inability to provide profitable returns make them difficult to implement in the current political and economic environment. They cite the example of energy savings done in residential buildings which result in additional overhead costs due to the nature of the materials needed to upgrade outdated infrastructure. Montanarella and Panagos (2021) underscore the need for the Green Deal to consider the importance of agricultural land as being both a contributing and mitigating factor for climate change.

The Green Deal also would benefit the overall health of the population of the European Union (EU) through the reduction of pollution and the improvement of air quality (Siddi, 2020). Siddi (2020) points out that Covid-19 has hindered investments and development in the Green Deal, threatening it in the process.

Pettifor et al. (2015) links the inability to drive through Green Deal objectives with a misunderstanding of the end results. Leading to mismatch in comprehending results

from their initial investments. Wolf et al. (2021) brings into question the political popularity of such deals as well in the face of the Euroscepticism of Brexit and political skepticism of nascent, America-first' policies in The United States of America.

Dobbs et al. (2021) called for innovation in the way the Green Deal is enacted, especially how it affects the individual and how the individual understands it. Aggestam et al. (2021) also conclude that there is a disconnect between the benefits of the Green deal, its stakeholders and its end beneficiaries.

Literature review

Active participation of residents in the provisions of the Green Agenda

In order for the Green Deal to be seen as legitimate, it is necessary to involve everyday individuals in its provisions on climate change and implementation (Colli, 2021). Tsoutsos (2020) claims that response to the Green Deal would be easier and more positive should individuals understand how it positively affects them in terms of improving their own residential surroundings. Furthermore, Muñoz (2021) is of the opinion that the individual must be informed and given the opportunity to participate in public and decision-making in relation to the Green Deal.

Rubio-Iglesias et al. (2020) have called for the existence of Environmental Protection Agencies to support civic initiatives and public advocacy and serve as a platform for easy access to information related to the environment and environmental protection. One instance of using novel technology for green purposes came through a study in which a survey was administered through TripAdvisor whose data was able to be compared to urban and green spaces to analyze quality of life (Ghahramani et al., 2021). Holland (2004) claims that public gardens may also be one area in which youth may be included.

Nazneen et al. (2021) assert that the way local residents perceive sustainable development goals assists in the creation of policy and its implementation. "Green government" aims to have everyday individuals participate in government whose aim is also to involve professionals into levels of public administration (Mattijssen et al., 2018) which may be conducted through novel online technology (Obenaus-Emler et al., 2021).

Prosperity and sustainability

O'Riordan et al. (2013) claim sustainability to be a key positive influence factor in improving individual lives. Spinozzi and Mazzanti (2018) conclude that biodiversity and sustainability are a factor that may be used to help determine one's well-being. Hanna et al. (2019) link outdoor activity with mental health and well-being, which contributes to the ability to understand sustainability. Helne and Hirvilammi (2015) conclude economic activity to be the mistaken focus of sustainability; rather it should be sustaining a healthy environment which in turn will lead to healthier economic outcomes that should be the central concern.

Hao et al. (2020) find that subjective norms, perceived economic value and the positive expectation of the result has a direct impact on decisions to participate in the circular economy. Obradović et al. (2021), through the scope of local attitudes on tourism affecting the local environment, claims that the local populations prefer nature preservation to economic development caused by tourism. Agboola and Oluyinka

(2019) conclude that the quality of public spaces is important as it affects the quality of life and the environment.

The Government of the United Kingdom (2021) has introduced strategic education goals to be achieved by 2030 which are to educate on the importance of zero- carbon networks and instructing on world-changing skills to prevent and slow climate change. The European Commission (2021) has reported the EU to be developing Climate Positive Circular Communities (CPCC) to change the habits of future generations to have a green impact on the environment. Piontek (2020) concludes that there needs to be a consensus on environment-related matters and issues, such as climate change and renewable energy, in order to ensure that it may be implemented and cites Greta Thunberg (Greta Thunberg is 30 years old Swedish environmental activist who become worldwide famous when she addressed at the United Nations Climate Change Conference in 2018. Greta's the main focus is taking action for climate change mitigation) as a key leader forging a common identity and opinion among Generation Y and Z (Sabherwal et al., 2021).

Making youth actively involved in sustainability and the environment

Horton et al. (2013) have investigated the importance of the existence of sustainable communities, concluding that they raise environmental awareness among youth due to their environmental awareness and the importance of the community. García-Holgado et al. (2020) concluded that youth are excluded and neglected in their communities as concerns their present and future environmental needs. Pevnaya et al. (2019) emphasize that merely having youth be aware of the history of their surroundings contributes to sustainability-minded youth. Shallcross and Robinson (2008) said that practical and situational learning in institutions of primary learning provides a basis for future involvement and advocacy for sustainability. Vazonienė and Vazonis (2020) state that the inclusion of youth in local governments helps them stay in their respective local communities over the long term, thereby contributing to sustainable actions. Politicians and Non-governmental organizations (NGOs) should better take youth into consideration in terms of how they are important for sustainable environmental protection.

Henderson and Tudball (2016) and Davis (2009) all stress active youth participation in environmental education in daycare centers as a means by which communities may openly discuss sustainability through their children. Hart (2013) and Chawla and Rivkin (2014) conclude that early exposure to interaction with the environment and nature is key for its future protection. It is key to include and educate youth from an early age on environmental protection and how the environment functions (Barry and Hoyne, 2021). Davis (2005) reports that having early-youth educators instruct on waste reduction and pollution is key to creating environmentally aware youth. Corcoran and Osano (2009) advocate for an environmental education aimed at youth that incorporates projects, real data, and transdisciplinary sciences. Stratford et al. (2015) state that involving university-level youth into sustainable education and projects strengthens their self-confidence to fight for their environmental rights. However, given current resources, education systems and educators must be better equipped in order to carry out education that underscores environmental protection (Lampă et al., 2013). Zamora-Polo et al. (2019) underscores a weakness in youth, namely that students are only superficially familiar with sustainable development goals, and it is therefore necessary for students to be better equipped at implementing sustainable goals in their education and future

career. Environmental factors may influence the level of participation youth have in education or in the labor market. Ruesga-Benito et al. (2018) found that EU youth were more likely to be NEET (Not in Education, Employment or Training) when influenced by overall negative environmental factors and worsened concurrent poverty and exclusion.

Blythe and Harré (2013) report that youth associations are the foundations by which sustainable youth culture may be formed.

Involving youth in local community decision-making

Involving youth in local community development is essential to ensure that youth develop links with other community members as well as contribute to these same communities. Volunteer groups are also essential for involving youth locally. The authors also report that youth participation in local governments is one method by which youth may inspire confidence and create a positive impression in society. Moreover, Crowley and Moxon (2017) stress the national importance of involving youth in local decisions as it encourages direct participation in government and democratic institutions. The Organization for Economic Cooperation and Development's research (OECD, 2021) on the Covid-19 pandemic concludes that public administration is central to confidence building in youth.

A direct positive impact to youth involvement is also involving elderly members who are more experienced, who may provide guidance to youth. Coin the term "4-H Youth Development" in their research to highlight the importance of committees lead between youth and the elderly in local communities in which youth may receive advice from someone more experienced (Zeldin et al., 2008). Zeldin et al. (2000) also report that interlinking youth cooperation with older members of the community helps create an interchange that ensures future progress of the community as knowledge is passed down from one generation to another and community goals are pursued.

However, caution should be made as interest groups and institutions may redirect or distort youth participation for their own ends, leading to disillusionment and disenfranchisement. Matthews (2001) notes that youth councils in the UK act as a good channel of communication from youth but may distort youth opinion, shaping it to meet their own ends. There seems to be a constant conflict of existing interest groups when involving youth as they may distort the voice of youth. For instance, Faulkner (2009) found political interest groups and infighting between groups ruined participation and feedback of youth involved in local politics.

Youth sustainability networks through communication

There is a consensus that social media acts as a backbone in youth's activities, influencing their opinions and providing cohesion for them as a distinct group. Hasim and Salman (2010) state that sustainable use of the Internet is essential for youth in order for them to interconnect through interaction over social media. Social media is the fastest channel of communication for youth. To counteract this danger, Hashimoto-Martell et al. (2012) propose the creation of urban courses in which youth might connect through working on environmental issues that deal with their direct surroundings. A study conducted by Plan International (2021) found that youth learn about climate change chiefly through social media.

In terms of academic support, Solís et al. (2018) go one step further, proposing global academic networks that may act as a further resource to strengthen sustainability

by carrying out essential research by providing missing data needed to achieve sustainable development goals. Raikes et al. (2017) highlight the importance of researchers and scientists acting as science educators, stating that they must take into account the accessibility and understanding of their work for a broader audience, especially children.

Materials and methods

Three pilot studies were carried out prior to the final stage of the research. Pilot study 1 was conducted at the Faculty of Organizational Sciences (University of Belgrade, Serbia) among students pursuing their masters' degree in project management. A pilot study was thereafter conducted for 2 other master students at the Faculty of Organizational Sciences (University of Belgrade, Serbia) as well as participating faculties from Lithuania and Iceland. Pilot study 3 was conducted among first-year students at the "St. Ahilije" secondary school. In all studies, the lectures were designed with practical examples and environmental problems including open discussions and workshops.

The pilot study has been delivered in three waves of data collection, with the intention of preliminary testing the concept proposal. The total number of participants in three wave pilot study was 29. According to Hertzog (2008), 10 to 40 is adequate for pilot studies; Whitehead et al. (2016) suggests a pilot study should have a sample size of 30 or more. In contrast, Johanson and Brooks (2009) argue that a sample size between 10 to 15 is sufficient for a pilot study. In the first pilot study, we conducted a panel discussion among 5 out of 6 enrolled students (83,33%).

In comparison, the second part of the pilot study engaged 9 out of 9 students enrolled in the course Projectification and the sustainable governance of projects (100% engagement). This part of the pilot study aims to deliver perspectives on sustainability issues among youngsters 22-24. The third part of the pilot study engaged 15 out of 25 secondary school students within the selected course (60%) to discuss local ecology problems and establish their prevailing attitudes and opinions on the topic. The panel discussion has been applied in pilot studies, while the second study also includes a questionnaire at the end of the debate.

Participants reviewed the material in an open discussion at the end of the lectures for pilot studies 2 and 3. Although participants of Study 2 were surveyed by electronic questionnaire and those of study 3 wrote their impressions on a paper form, these questionnaires were the same. The questions administered first focused on the participants' environmental habits and then asked how the material covered encouraged them to change these same behaviors. Overview of the research phases is presented in *Table 1*.

The final and official fourth study was based on impressions and conclusions from the first three pilot studies and was conducted as follows (*Table 2*): The electronic questionnaire survey totaled 201 respondents (135 female, 66 male). The majority of respondents 155 (77.1%) were under 28 years of age. The survey consisted of 22 questions, 6 of which were basic background questions such as the participant's educational background, area of residence (urban/rural), age, gender, and employment status. The remaining 16 were designed to determine the influence of environmental education and awareness of the respondent. These 16 were further divided into subcategories such as knowledge/opinions on environmental protection, consumption

habits and attitudes/awareness of the European Green Deal. These questions followed a Likert scale from 1 to 5, with 1 being no influence and 5 being a significant influence. As the research aimed to create a set of data to analyze University-educated individuals on their environmental education, the survey was distributed through student groups of the University of Belgrade and the University of Kragujevac. Students were then encouraged to distribute these questionnaires to their friends under the condition that they were under 29 years of age and were either an attending student or an alumnus of the University of Belgrade or the University of Kragujevac.

Table 1. Overview of the research phases

	Participants	Aim of research	Data gathering technique/Analysis	Timeframe	Total number of respondents
Pilot Study 1	Students attending their Master's Degree Program at the Faculty of Organizational Sciences, Belgrade, Serbia	To carry out an open discussion 1. To establish the respondents' awareness and familiarity with environmental problems, 2. To establish respondents' attitudes and interests.	Panel discussion/Grounded theory methodology	January, 2022	5
Pilot Study 2	Master students from Serbia attending the course "The project justification and sustainable governance of projects"	1. To establish familiarity with common environmental issues 2. To test the first electronic questionnaire	Panel discussion, Questionnaire/Grounded theory methodology	February, 2022	9
Pilot Study 3	The "St. Ahilije" Secondary School	1. To establish familiarity with environmental issues, rights, and duties 2. To discuss local ecology problems and establish their prevailing attitudes and opinions on the topic	Panel discussion//Grounded theory methodology	May, 2022	15
Model Testing	Serbian youths (Gen Y (1981 - 1996) and Z (1987-2012))	To conduct the final derived survey in electronic form to test its effectiveness at gauging opinions, attitudes and behaviors on the environment and related issues	Questionnaire/Regression analysis	January - June, 2022	201

Table 2. Demographic characteristics of the fourth (final) study

Characteristics	n (%)
Sex	
Male	66 (32.8)
Female	135 (67.2)
Generation	
Gen Y	46 (22.9)
Gen Z	155 (77.1)
Employment status	
Student	149 (74.1)
Employed	44 (21.9)
Unemployed	8 (4.0)
Professional qualification	
Primary Education	9 (4.5)
Secondary School Education	102 (50.7)
Bachelor	12 (6.0)
Post-graduate education (Master and PhD)	78 (38.8)
Place of living	
City	116 (57.7)
Small Town	47 (23.4)
Village	26 (12.9)
Mixed	12 (6.0)

Research results

Pilot study No. 1 - Engaging with youth and what they already know / practice

In order to establish the attitudes youth share on issues related to the Green Deal (chiefly, environmental issues, protection, preservation and sustainability), a presentation was held on Projectification and the Sustainable government of Projects at the Faculty of Organizational Sciences (University of Belgrade, Serbia) which master students of the same institution attended. The presentation provided background on issues related to pollution and sustainability affecting the local area in which the participating students might be familiar with. These included waste collection and recycling, environmental protection in urban and non-urban environments as well as everyday habits or activities attendees were likely to participate in. Furthermore, examples of local self-government units were also provided to demonstrate uncoordinated activities among committees for Environmental Protection, as well as activities youth have taken through individual and public action to contribute to their communities.

The attendees were highly responsive, carefully following the presentation and active in the subsequent discussion. The main takeaway would be that while the attendees did show great interest in the presentation and the issues covered, there was a severe lack of any reliable information or knowledge shown as well as inadequate action on the part of the individual attendees to pursue environmental action or sustainable living habits. For instance, it was found through the discussion that only one student engaged in recycling, while the others reported pursuing no sustainable habits whatsoever. Moreover, the students reported not being active in their communities and not following the work of their respective local self-governments. For one tangible and direct example, the

attendees reported being unaware of the effects of fast consumer fashion and would continue to purchase clothes at the same rate but would now take into consideration how much waste was generated with each cycle. The positive outcome, at least, was that the attendees were made aware of, engaged with, and were provided with a fundamental background on sustainability that sparked their interest. They expressed great interest in the concept of a circular economy as well as were made aware of greenwashing. A high point was that the attendees demonstrated varying degrees of familiarity with waste awareness, regulations, and the work of local self-government. These attitudes give reason to move forward to activate youth on environmental issues so that they may be better informed about the work of their communities in order that they contribute to their local communities and environment.

Pilot study No. 2 - "Projectification and sustainable governance of projects"

Visiting students from Iceland and Lithuania, as well as students from the host University in Serbia attended the course "Projectification and sustainable governance of projects", in which a short lecture was held on the example of the local administrative unit of Arilje. The lecture itself covered environmental challenges facing both the local population as well as young environmental activists, particularly river environments on which micro-hydropower plants (MHPs) are built as well as insufficient waste disposal. The construction of such projects was shown as being non-zero sum as they severely affect the surrounding areas. Examples of (youth) activism were presented in which were met with government resistance. The promotion of sustainable habits (proper disposal of waste for recycling, veganism, and composting, zero waste food preparation, local brands) was also actively discussed. The lack of professional staff to carry out environmental protection was also addressed according to research the presenter had elsewhere undertaken. At the end of the lecture, the students were administered an electronic questionnaire. The 9 attendees who filled out the questionnaire ranged in age from 24 to 39, 1 male and 8 female. 2 respondents are from the University of Iceland, 1 from Lithuania, while 6 are from Serbia. The questionnaire as well as the attendees seem to be aware of the needs for sustainability and certain aspects related to how Green deal may affect or improve their individual lives, but do not report that they may be actively involved in nor how to apply the Green deal in their own lives.

The respondents surveyed in pilot study 2 demonstrate themselves as following a limited number of sustainable ecological habits, such as conserving electricity by turning off lights and other electronic devices when leaving a room, limiting one's consumption, not wasting food willfully and eating sustainably, following practices that conserve water, a willingness to exchange or donate clothing or other items instead of throwing them away as well as an awareness of giving to or participating in charity.

The respondents heavily report that local waste management to be the most significant problem they encounter on a daily or personal basis. The respondents frequently cite littering and mass dumping in public areas such as parks and a lack of respect for recycling. The respondents report a general attitude of others to dispose of trash ubiquitously. There is a distinct lack of instruction or legal warning, according to the respondents, on waste disposal. They also note that government authorities do not possess uniform approaches across city areas leading to some areas in which pollution is pronounced and others where it is minimized. They also report local authorities as being unresponsive to the cares and concerns of local citizens outside of election campaigns. They also report local authorities to be unresponsive to communication. In

terms of broadening awareness, they feel that central platforms disseminating key information is ideal. Ultimately, the respondents are left feeling alienated and discouraged as they do not have any sense of agency or the ability to cause positive change.

Pilot study 3 - Environment, position, and contribution of young people in local self-government units

15 students of the “St. Ahilije” secondary school attended the course “Environment, position and contribution of young people in local self-government units” which covered legislative framework related to the environment and environmental protection, the impact that pollution has on public health as well as civic duty. The importance of what behaviors and habits the students could change in their own lives to contribute their part to environmental protection were also covered. Following the presentation, the attendees were asked the questions: “What made the biggest impression on you? What environmental habits do you have? What was the most useful thing you heard today?” The data analysis was performed using the Grounded theory methodology, usually used for the qualitative part of the research, which includes axial coding and checking the literature analysis well balanced for the future proof of the testing concept.

The presentation was done through interactive discussion, in which the participants shared their own examples from their respective communities as well as the environmental issues they faced. The attendees, while noting that they were aware of environmental issues that affected their community, were neither informed nor educated on the decomposition rate of materials or wider issues such as the function and state of landfills. They expressed that they followed environmentally friendly habits such as disposing of garbage properly, using multi-use items, engaging in eco-friendly gardening practices as well as some maintaining a vegetarian diet. They also assessed the lecture as useful as it burdened their awareness of national and global environmental issues.

While the participants did demonstrate a familiarity with locally related environmental issues, they were poorly informed of border ones. At least half of all participants also demonstrated environmentally friendly habits. The outcome of the lecture was that the participants were more responsive.

Pilot study research results overview

The main conclusions that may be derived from the pilot studies relates to sustainable education, interaction with local government and youth networks.

Sustainable habits/education: The attendees reported that they tried to save on electricity use, reduce their consumer spending when it comes to fashion or other FMCGs (fast moving consumer goods), try to eat organic and minimize food waste, as well as trying to eat locally produced food or produce as sad Colli (2021). They also report not using one-use disposable items to minimize waste production.

Interaction with local government: Many report that local governments do not concern themselves with addressing waste disposal issues in public places, especially for garbage, litter and other refuse. Others report that their local government is unwilling to take any responsibility and is more interested in “passing the buck” to others. All reported that email and social media were the most efficient and direct ways to speak with local government but did state that they felt as if they were not actively included in ecological discussions. Rexhepi et al. (2018) have researched positive

responses to youth-engagement models, concluding that games can be redirected as a channel for learning, interaction and active participation which then increases the overall chances of urban sustainability in local communities.

Youth networks: The attendees report that youth networking may be one step that could be undertaken in order to improve environmental issues and youth networks, as well as that they consider incorporating further global youth networks to be a positive step as Schusler and Krasny (2010) founded. Pilot study research results is presented in *Table 3*.

Table 3. Pilot study research results

Pilot Study No. 1	Only one participant engaged in recycling No other participant reported following any sustainable habits No participant was active in their communities No participant followed the work of their respective local self-governments The discussion had only a limited positive effect on behavior. (To illustrate, while the participants reported being unaware of the effects of fast consumer fashion, they only stated they would take it into consideration but not change the pace at which they bought new clothes) Participants expressed significant interest in the concept of a circular economy as well as were made aware of greenwashing. Participants demonstrated varying degrees of familiarity with waste awareness, regulations, and the work of local self-government.
Pilot Study No. 2	Participants reported their belief and opinion that regional and global youth organizations are a good method by which young people may network and focus their energy and attention on environmental protection through sharing similar experiences and act as a network that may be a bulwark for intermediation with local government institutions and authorities.
Pilot Study No. 3	While participants did demonstrate a familiarity and general knowledge on environmental issues, it was only superficial. They were largely unaware of larger issues as well as hard facts. They did show a propensity to follow environmentally friendly behaviors within their extended family.

Table 4 provides an overview of the five separate areas which the European Green Deal (EGD) encompasses: education and behavior in environmental protection, individual inclusion and interaction, networking, and the circular economy. Each area is a component, possessing 5 sub-components used to form the questionnaire where answers are given on a scale of 1 to 5 (1 being “I totally disagree” and 5 “I totally agree”). The sub-components are derived from those which have received the most focus in the literature. Smol et al. (2020) and Schoenefeld (2021) have claimed the European Green Deal to be a tool that strengthens strategic and economic growth and financial future. Siddi (2020) also holds that the EGD helps reduce pollution and thereby improves public health. Montanarella and Panagos (2021) note that the EGD is important for the conservation of agricultural land. Aggestam et al. (2021) have reported there to be a disconnect with the benefits and drawbacks brought about by the EGD. Raikes et al. (2017) assert the importance of education and positive reinforced habit which is mirrored by Zamora-Polo et al. (2019) and Ruesga-Benito et al. (2018). Corcoran and Osano (2009), Stratford et al. (2015) concluded from their research that there are insufficient educational staff.

Table 4. Summary of research variables identified through literature review and pilot studies

ID	Description	Literature	M ±SD
Youth habits (H)			
H1	shop organic	Asyhari et al. (2022)	3.09 ±1.164
H2	buying used goods	Wang & Li (2022)	2.31 ±1.219
H3	buying recycled goods	Tjiptono & Elfitasari (2018)	2.71 ±1.337
H4	way of growing food	Rahman et al. (2021)	3.86 ±1.218
H5	buying local breeds	Suyanto et al. (2019)	3.66 ±1.271
Youth contributions (C)			
C1	every day ecological habits	Steinberg et al. (1992)	2.93 ±1.247
C2	Public protests for green energy	Braungart & Braungart (1990)	2.36 ±1.218
C3	volunteer activities such as cleaning public parks or community gardens	Krinsky & Simonet (2017)	2.44 ±1.378
C4	follow information on decarbonization	Monyei & Oladeji (2019)	2.54 ±1.284
C5	better decarbonization situation with youth involving	Monyei & Oladeji (2019)	3.51 ±1.345
Youth connections (YC)			
YC1	global academic networks	Solis et al. (2018), UK Government (2021), Hasim & Salman (2010)	3.45 ±1.244
YC2	youth associations are the foundations	Blythe & Harré (2013)	3.47 ±1.221
YC3	researchers and scientists acting	Raikes et al. (2017)	3.71 ±1.183
YC4	Social/digital media	Marlowe et al. (2017)	3.92 ±1.189
YC5	urban courses	Hashimoto-Martell et al. (2012)	3.60 ±1.167
Youth actions (A)			
A1	developing Climate Positive Circular Communities (CPCC)	European Commission (2021)	3.44 ±1.182
A2	youth are excluded and neglected in their communities	García-Holgado et al. (2020), Horton et al. (2013)	3.64 ±1.192
A3	participation of youth in environmental education in daycare centers, public gardens	Henderson & Tudball (2016), Davis (2009), Holland (2004), Pevnaya et al. (2019)	4.11 ±1.104
A4	politicians and NGOs should better take youth into consideration	Hart (2013), Vaznonienė & Vazonis (2020), Crowley & Moxon (2017), Zeldin et al. (2008),	3.80 ±1.192
A5	committees lead between youth and the elderly in local communities	Zeldin et al. (2000), Matthews (2001), Faulkner (2009)	4.00 ±1.147
Education (E)			
E1	the importance of researchers and scientists acting as science educators for youth	Raikes et al., (2017), Zamora-Polo et al. (2019)	3.70 ±1.193
E2	environmental factors and participation youth in education	Ruesga-Benito et al. (2018)	3.97 ±1.077
E3	educate youth from an early age, interaction and educating with the environment and nature	Barry & Hoyne, (2021), Hart (2013), Chawla & Rivkin (2014)	3.99 ±1.168
E4	practical and situational learning	Corcoran & Osano (2009), Stratford et al. (2015), Shallcross & Robinson (2008), Zamora-Polo et al. (2019), Ericson et al. (2014)	3.90 ±1.149
E5	cation systems and educators must be better equipped, importance of online	Lampă et al. (2013), Raikes et al. (2017)	3.93 ±1.142

ID	Description	Literature	M ±SD
	learning, the importance of researchers and scientists acting as science educators		
Knowledge about circular economy (CE)			
CE1	creating green job	YouthXchange, UNESCO (2016), Shevchenko et al. (2021)	3.00 ±1.358
CE2	adopting lifestyle choices	YouthXchange, UNESCO (2016)	3.22 ±1.192
CE3	conversations about achieving inclusive green economies	YouthXchange, UNESCO (2016)	3.32 ±1.319
CE4	learning and training opportunities for green skills	YouthXchange, UNESCO (2016),	3.82 ±1.094
CE5	economy grow, opportunity to accelerate the transformation process	YouthXchange, UNESCO (2016), Rodríguez-Espinosa (2021), Smol et al. (2020)	3.61 ±1.166
Knowledge about Green Deal (GD)			
GD1	strategic economic growth	Smol et al. (2020), Schoenefeld (2021), Dowson et al. (2012)	3.39 ±1.100
GD2	reduction of pollution	Siddi (2020)	3.74 ±1.142
GD3	agricultural land	Montanarella & Panagos (2021)	3.73 ±1.118
GD4	political skepticism	Wolf et al. (2021), Pettifor et al. (2015), Dobbs et al. (2021)	3.26 ±1.184
GD5	disconnect between the benefits	Aggestam et al. (2021)	3.00 ±1.153
Knowledge about green transformations (KGT)			
KGT1	green transformations financing	Spratt (2015)	3.20 ±1.119
KGT2	decarbonisation and low economic costs	Tvinnereim & Mehling (2018)	3.44 ±1.143
KGT3	benefits of green business and society	Scoones et al. (2015)	3.66 ±1.155
KGT4	new environmental and fiscal policies by GD	Sikora (2021)	3.63 ±1.125
KGT5	Sustainable consumption of aggregates and resources	Bringezu (2015)	3.67 ±1.141

Henderson and Tudball (2016) as well as García-Holgado et al. (2020) point to the importance of active interaction between youth and individual members of the local community. Hashimoto-Martell et al. (2012) nevertheless favor courses carried out in urban environments. In order to best determine how to engage and educate youth on the EGD, questionnaires were administered to participants that incorporated questions to target these areas and components. While the YouthXchange research does include the circular economy, UNESCO (2016) and the key components were formed from the research, other key-component answers were sorted into the creation of new green jobs, other contributions to the economy and the development of green skills.

Model testing

A standard multiple regression was used to assess the ability of H, KGT, YC, A and E to predict GT. Preliminary analyses were performed to determine whether the assumptions of normality, linearity, and homogeneity of variance were met. The reliability of the measurement scale was examined through the Cronbach alpha

coefficient which was considered to be the scale's internal agreement (*Table 5*). The value of the Cronbach alpha coefficient must be >0.7 to meet prerequisites (DeVellis, 2003). In the quantitative research conducted, all scales showed high internal consistency, indicating a high reliability and internal agreement of the sample's scales.

Table 5. Internal consistency of the variables

Variables	Cronbach's Alpha	N of Items
Youth habits (H)	.740	5
Youth contributions (C)	.810	5
Knowledge about circular economy (CE)	.783	5
Knowledge about green transformations (KGT)	.901	5
Youth connections (YC)	.909	5
Youth actions (A)	.881	5
Education (E)	.932	5

The model presented accounts for 68.1% of the GD values (*Table 6*). This result may be extremely high. KGT, YC, A and CE make a unique and statistically significant contribution to the prediction of GD ($p < 0.05$). Within the regression model, H, C, and E does not make a unique and statistically significant contribution to the prediction of GD.

Table 6. Regression model

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
	B	Std. Error				Tolerance	VIF
(Constant)	.369	.176		2.095	.037		
H	-.021	.050	-.020	-.427	.670	.717	1.395
C	-.011	.051	-.012	-.220	.826	.542	1.845
KGT	.491	.061	.520	8.041	.000	.384	2.606
YC	.186	.067	.210	2.787	.006	.283	3.536
A	.164	.066	.173	2.480	.014	.328	3.044
E	-.078	.061	-.086	-1.273	.205	.348	2.874
CE	.125	.062	.124	2.023	.044	.428	2.336

Dependent variable: GD

$R^2 = 0.692$; Adjusted $R^2 = 0.681$; $F = 61.583$, Sig.=0,000

In the results given in *Table 6*, significant statistical values are found in the contribution to the Green Deal, where the standard deviation is <0.05 . KGT (students' knowledge of green transformation) at a value of 0.000, YC (youth networking) at 0.006, and A (environmental actions undertaken) at 0.014 stand out as the most significant. Taking into account that young people possess few if any ecological habits, as indicated by the value (H), as well as that they do not contribute to their local communities (C) and for the education they received, the results achieved were negative (E).

Discussion

There is no a large number of studies in Serbia which are focused on understanding environmental knowledge and attitudes among young people. Group of researchers investigated that primary-school and secondary-school students to be lacking in education and awareness of environmental issues but could not attribute it to their education (Maravic et al., 2014). Krajnc (2022) also concluded that Serbian youth do not receive enough formal education on environmental issues to raise enough awareness. They also found out that Serbian awareness of environmental education to be insufficient to that of both Slovenia and Poland, students of which countries are well aware of sustainability and their importance for the environment. Our results confirm these conclusions as the results point to youth who are, at best, tangentially aware of certain issues that may affect their local environment but not overtly educated on sustainability or other environmental matters.

As both youth and future generations will bear the brunt of climate change, there are indications that youth are more likely to suffer from eco-anxiety because of the effects of climate-change, viewing it as a present concern and not one that awaits them in the future (Currie, 2022). Due to impending climate catastrophe, green transformation has now grown into an urgent imperative, necessitating changes to business and everyday life lest the damage become too great and the tide unable to be stabilized or turned (Schmitz, 2015). In the face of this anxiety, it is difficult for youth to plan accordingly and be effective individually aware active environmentalists. Our paper finds there to be a link between youth, education on environmental concerns and environmental awareness.

Our study finds that education of youth helps raise their awareness of environmental issues that may lead to increased community activity. Being aware of the effects of negative environmental impacts is important to cause positive social change. These results are reflected in Brondi et al. (2012), who, through a survey of high school students in Italy originating from a local area known for having a history of industrial waste contamination, highlighted the role that youth play and the importance of their participation. These authors also conclude that it is crucial for local institutions to recognize the importance of youth in the decision-making process as their participation is required in solutions that will affect them and their future. As our results underscore the importance of educating youth about environmental issues in order to raise environmental awareness, Meseret (2016) also recognizes and emphasizes the need for schoolchildren to be environmentally aware in order to stop the use and abuse of ecological resources, the author calls on the modernization of programs in educational institutions and the encouragement of youth to be able to freely express their opinions. Meseret (2016) also states that higher education institutions must implement participatory environmental activities with their students in order to institute a sense of social and environmental responsibility. Meseret (2016) ends their research through the claim that, while youth attitudes are key to the development of future environmental protection, such attitudes nevertheless require further development and are heavily dependent on the intensity of the involvement of educational institutions.

Our research also showed positive results for independent networking to occur as one solution to solve community problems but only once the participants had been educated. Education to give rise to such networking is also concluded by Ibatullina (2021), in a study among Russian youth, asserts that youth must be treated as equal members of society who have the legal foundation to act and highlight the need to create a civic

attitude oriented towards ecological culture based on stability and sustainability in regard to the environment. Moreover, as our results point to individual change and awareness, Krasny and Tidball (2012) argue for the active participation and contribution of the individual. Their research cites examples of members of urban communities finding innovative ways to manage their local urban environment such as through tending gardens and planting trees to promote green spaces.

The research data indicate that youth in Republic of Serbia are knowledgeable about green transformations and the circular economy, demonstrating an interest in creating solutions to environmental problems as well as being environmentally active, but only upon being educated and confronted with the need to do so. While there are no indicators that they have established sustainable environmental habits, they have shown a greater propensity to contribute to their communities. Therefore, this education is appropriate as it lays the groundwork for educational awareness and activity, even if the youth surveyed remained largely unaware about the potential provisions of the European Green Deal for their community. It is necessary to reform education, to significantly stimulate the interest of young generations in this field, through finding an adequate approach in future research.

Research limitations

This study was based on the interactions with participants who were already involved in education which may show a bias towards already having received information or education on the subject of environmental protection. Moreover, the authors were unable to monitor if the participants' actions had indeed changed following their participation in the study. A longer-term study which may detect influence to enforce change in habit and attitude over the longer term is certainly necessary but is a severe limitation within the confines of this study. Moreover, environmental attitudes were not proven to be followed outside of a primary survey and lecture. Some reported answers may not stem from a desire for environmental protection, but rather economic necessity (such as the reliance or purchase of second-hand goods).

We have timeframe constraints according to students' engagement in sustainability courses. The courses are realized in the winter semester, so the whole procedure should be repeated yearly.

Conclusion

Although youth may take interest in the environment and improving their ecological habits, they lack the opportunity to do so through projects or activities and are deprived of a full education on environmental issues and protection. By adopting the European Green Deal, the European Commission has created a tool needed to strengthen strategic economic growth and encourage the development of a circular economy, which might provide a bright future for projects aimed at green development. The ecologically friendly habits that are more common among youth such as favoring organic food, the purchase of second-hand goods, and their commitment to volunteering within their local community are a good sign. Nonetheless, youth need to be included in the public discourse on environmental issues and protection as, not only is it a growing present concern, but they will be the key stakeholders and caretakers of the environment into the future. Therefore, governmental, and non-governmental institutions/entities should do more to incorporate youth and create policies that serve in youth's benefit. This

would include strengthening early education, the practical participation of young people in formal education and its reform, educating more on the circular economy and creating green jobs. Our research has shown that if youth are informed about the importance of the environment and its protection, they do show interest; therefore, the Green Deal and its provisions must also be taught to youth so that they may be better aware of its benefits and how it aims to shape future, environmentally friendly policies. Youth should be encouraged to take up participation in their local community by being active in local government and community organizing. Further joint academic research among students representing different countries may also serve to strengthen the aims of the Green Deal by creating an informal academic network. Shutaleva et al. (2022) specifically highlight that individual awareness of the global importance of environmental issues is key to developing environmental education. A new ecological culture must be created for a stable future that youth may help shape now and tomorrow.

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