ECONOMICS WORKING PAPERS

VOLUME 6

NUMBER 4

2022

ISSN 1804-9516 (Online)

ECONOMICS WORKING PAPERS

Volume 6 Number 4 2022

Publisher: University of South Bohemia in České Budějovice
Faculty of Economics

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Edition: 5, 2022

ISSN: 1804-9516

ECONOMICS WORKING PAPERS

ECONOMICS WORKING PAPERS. Published by Faculty of Economics. University of South Bohemia in České Budějovice• The editor's office: Studentská 13, 370 05 České Budějovice, Czech Republic. Contact: tel.: 00420387772493, Technical editor: Markéta Matějčková, e-mail: matejckova@ef.jcu.cz • ISSN1804-5618 (Print), 1804-9516 (Online)

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GRADUATES WITH ENVIRONMENTAL KNOWLEDGE AND THEIR DECISION RELATED TO THEIR FUTURE PROFESSION

R. Buchtele

Abstract

Education for sustainable development has become a key parameter of modern higher education. The integration of the concept of sustainable development into education represents a natural consequence of the growth of environmental awareness that began in the second half of the last century. This education has also gained importance in the context of the green economy.

The main aim of the study is to investigate the impact of the teaching of environmental topics and sustainable development in terms of environmental knowledge on students' decisions regarding their future professions. Furthermore, the secondary aim is to find out whether students have pro-environmental values and attitudes.

The research is based on a quantitative approach, where the questionnaire was chosen as the main instrument of data collection. The questionnaire includes the tool of environmental sociology, the New Ecological Paradigm (NEP) & Human Exceptionalism Paradigm (HEP) analysis. The remaining questions are based on sub-hypotheses which draw on the theoretical part.

The research results confirmed pro-environmental attitudes among university students. Basic characteristics of environmental education and the role of environmental knowledge as perceived by these students have also been described. The correlation analysis extended the findings in relation to the possible influence of environmental education on students' decision regarding their future profession.

Keywords: Education for sustainable development, Environmental knowledge, Higher education, NEP & HEP analysis, Sustainable development, Quantitative approach

JEL Classification: I20, I23

1. Introduction

We are currently living in the time of the Anthropocene, when human activities globally affect Earth's surface and ecosystem (Crutzen & Stoermer, 2000). The predictions that the planetary limits have been exceeded from the point of view of economic development are being increasingly confirmed. The alternative concept of economic development, the sustainable development (SD), was defined in 1987 (World Commission on Environment and Development, 1987) and since then, it has been applied to all spheres of human activity. Educational institutions play a key role in this issue, since they shape new generations of graduates with environmental knowledge.

The main aim of the study is to investigate the impact of the teaching of environmental topics and sustainable development in terms of environmental knowledge on students' decisions regarding their future professions. Furthermore, the secondary aim is to find out whether students have pro-environmental values and attitudes.

In the context of the green economy, jobs requiring environmental knowledge and skills are called green jobs. They can represent an opportunity for young graduates to enter the labour market and gain a promising work position, as this trend is evident across Europe. However, the number of green jobs for graduates is lower in the Czech Republic (Sulich et al., 2020). This fact indicates that analysing this group of graduates can be seen as essential for the application of SD, as their role in the labour market seems to be increasingly important.

The study consists of two basic parts. The first part deals with the theoretical background of the growth of environmental awareness, which was particularly significant in the second half of the twentieth century and gradually led to the definition of SD as an alternative development paradigm. This concept then constituted the basis for environmental education, resulting from both the overall environmental awareness of society and the transformation of the economy towards the green economy.

The analytical part contains the results of the questionnaire survey. Several important topics are addressed. First, the potential pro-environmental attitudes of students are analysed, using the environmental sociology instrument - NEP & HEP. Other survey questions focused on the role of SD in environmental education. Further questions deal with environmental knowledge from the perspective of formal school education and out-of-school form of education. The correlation analysis then extends the findings by examining the impact of environmental education through environmental knowledge on graduates' future career choices.

2. Materials and methods

The research is based on a quantitative approach (Disman, 2011). A questionnaire was chosen as the main research instrument. The questions used in the questionnaire are based on sub-hypotheses that have been established on the basis of theoretical background and previous research (e.g. Buchtele, 2020; Buchtele & Lapka, 2021).

The questionnaire includes the tool of environmental sociology: the NEP & HEP analysis. The instrument dates back to the late 1970s, when a new scientific discipline, namely the environmental sociology, was formed and became independent. Specifically, a revised NEP scale is used (Dunlap et al., 2002). New ecological paradigm (NEP) is intended to replace the Human Exceptionalism Paradigm (HEP), which is based on the cultural essence of western civilization. The change in human values towards the NEP is based on a gradual feeling of ecological threat (Vysušil, 2005).

Vysušil (2005) describes the circumstances of the paradigm shift as follows. From an anthropocentric perspective, which constitutes the basis of the HEP paradigm, humans are superior to the natural environment. In this case, a human is understood in the context of human society and culture. This paradigmatic basis was in place until the environmental impacts of human activity began to manifest themselves, changing the relationship between humans and the natural environment from one of dominance to one of equality. The essence of the HEP paradigm has been explored for example by White (1967 who places the anthropocentric stance in the context of Christian traditions. Whitney (2015) argues that the modern Western world and its associated environmental problems are the historical outcome of anthropocentric Western Christianity, along with the synthesis of the 19th century technology and science.

The empirical instrument consists of a battery of statements relating to either NEP or HEP. Traditionally, a Likert scale is used in such cases (Likert, 1932), allowing the respondent to express the level of agreement or disagreement with the statement, using usually a five to seven point scale.

Other survey questions are based on the concept of SD and its role as the basis for environmental education. This is followed by an analysis of the importance of environmental knowledge, including its source, school or out-of-school. The last section analyses the relevance of this environmental knowledge for students' future career choices. The correlation analysis extended the findings, examining the possible influence of environmental education on students' decision regarding their future profession. The bivariate Pearson correlation was used

for correlation analysis. *"It computes Pearson's correlation coefficient, Spearman's rho, and Kendall's tau-b with their significance levels. Correlations measure how variables or rank orders are related"* (IBM, n.d.). The subject of the correlation analysis were questions dealing with the impact of environmental knowledge on possible changes in economic development and future employment choices. These two questions were subjected to correlation analysis with questions about the study of the subject that included environmental issues and sustainable development, the importance of teaching environmental topics and sustainable development at the lower level of education according to students, the importance of teaching of environmental topics and sustainable development for the future development of the economy, the source of environmental knowledge - school.

The sample of respondents included students of study programs with an environmental focus, namely economic, humanities and agricultural study programs. Survey data were collected from a total of 309 questionnaires. The mediation of the questionnaire to students was preceded by an analysis of the study programs of selected fields of study in order to share the environmental background condition. The questionnaires were distributed using Google Forms. The hypotheses for quantitative research are set as null hypotheses.

Hypothesis 1: "Students do not have pro-environmental attitudes."

Hypothesis 2: "Teaching environmental issues and SD does not influence students' decisions about their future profession."

3. Theoretical background

The theoretical part deals with the growth of environmental awareness across society, which resulted in the definition of the concept of SD. This is followed by education for SD and the role of environmental knowledge in the context of the green economy.

3.1. Growth of environmental awareness and the emergence of sustainable development

Pro-environmental thinking spread most markedly in the second half of the 20th century. However, it was preceded by a number of ideas and considerations which, due to their significance, contributed to the discourse on the relationship between humans and the environment.

A discourse in philosophy, dealing mainly with nature, dates back to the period preceding the industrial revolution. A concept from the Dutch philosopher Spinoza may be mentioned as an example. Spinoza perceived God as nature. He replaced the familiar *Deus et natura* (God and Nature) with *Deus sive natura* (God or Nature). This relationship was thought to mean that nature should not only be explored, but also admired and worshipped (Spinoza, 1954). The relationship between man and nature represented also the subject of philosophical considerations by Jean-Jacques Rousseau. He states that a man who is a "noble savage" is free of vices associated with modern civil society. His thoughts and attitudes are complicated in this regard. He further describes that once people become civilized, a return to nature is not possible. Therefore, it does not encourage people to become noble savages without social ties and with underdeveloped intellectual abilities (Rousseau, 2002).

As Moldan (2003) states, the interest in nature conservation as we understand it in today's concept dates back to the middle of the 19th century. The focus was being put on the scientific discipline – ecology. This discipline was defined by the German biologist Ernst Haeckel. Ecology examines the relationship between organisms and their environment (Haeckel, 1866).

Publications from ecologists gradually started to include ideas discussing the ethics of human's relationship to Earth. Therefore, the idea of the American ecologist and forester Aldo Leopold (1989) is worth mentioning. His reflections date back to the first half of the 20th century, but *A Sand County Almanac* has been published much later. He criticized the approach to Earth, since, according to him, people consider Earth as something that only serves to satisfy their needs. If people changed this view and considered themselves as part of the environment to which they belong, they would approach Earth with love and respect. "Healthy" contempt for material surplus was to replace modernization. The ecological conscience that the author would like to see arise among humans can be gained by abandoning such a relationship with Earth that is based only on economic principles.

The book *Silent Spring* represents a turning point. It was first published in 1962 and author Rachel Carson responded to the negative impact of the use of dichloro-diphenyl-trichloroethane (DDT) in agriculture. The book addresses the environmental impact of the overuse of these pesticides in terms of the possible development of resistance among selected pests. This work became an accelerator for environmentalism (Carson, 1964). The influence of this book was also confirmed by Davis (2012), who, fifty years after its first publication, confirmed that Carson's reasoning shaped the public and scientific understanding of pesticides.

The late 1960s also provided important publications such as *The Population Bomb* (Ehrlich, 1968). This publication responded to the significant increase in world population in the context of the environment and food security. The author saw the solution in controlling human population growth while increasing food production (Ehrlich, 1968). Another scientific paper that dealt with human population, published in the same year, was *Tragedy of the Commons* (Hardin, 1968). The considerations in this publication deal with human population in relation to natural resource use and the welfare state. The idea is that the welfare state enables overpopulation from a human rights perspective. In a case where people rely only on themselves and every other person has a higher chance of suffering from hunger, there would be no overpopulation as there is a limitation in terms of livelihood (Hardin, 1968).

The early 1970s can be seen as a turning point in the discourse on the global economy and industrial society, especially in terms of overexploitation of natural resources, human impact on natural ecosystems and pollution (Bruckmeier, 2020). In 1968, a group of scientists, politicians and businessmen from ten countries began collaborating in Rome at the Accademia dei Lincei. The organization was named the Club of Rome. The members of this group wrote the book *The Limits to Growth*. In collaboration with MIT scientists, they created a mathematical model of Earth's evolution that illustrated the global impact that could occur if the current resource consumption continued. The model works with five basic elements: population, food production, industrialization, pollution and consumption of non-renewable natural resources. According to the authors, the annual increment of these variables can be expressed mathematically as the exponential growth. It shows that the economic growth that does not respect the limits of the planet will result in a disaster, as the carrying capacity of the planet will be exceeded. To avert this scenario, it is essential to change such growth trends of the monitored elements in order to create an economic situation that is sustainable in the long run. The authors state that global restrictions in the context of emission reductions and negative environmental pressures can affect the quality of life in the 21st century. The book that contained the results of this analysis immediately became world-famous (Meadows & Club of Rome, 1972). One way to prevent the environmental disaster was outlined by Goldsmith (1973). The author proposed small decentralized communities that have lower levels of industrialization, because agrarian communities are more environmentally friendly, and moral principles are better enforced in smaller groups of people than in large, urbanized communities.

These considerations can be followed by the lesser-known *What Now – The 1975 Dag Hammarskjöld Report* (UN, 1975). Global development and economic growth are described in

the report as not supporting the well-being of all people and communities. The report includes a proposal for several points, which represent sub-objectives, both short-term and long-term, that should constitute an integral part of the alternative development paradigm. According to the authors, the goal of eradicating poverty and a fair redistribution of resources should represent the basis. Related to this is the strengthening of the capacity of third world countries to achieve their independent development. Furthermore, the transformation of social, economic and political structures was discussed. Additionally, the United Nations should become adapted to the new requirements of development. The report also called for the orientation of scientific capacities and new technologies towards an alternative development paradigm (UN, 1975).

This need for a new development paradigm was also supported by a series of reports stated in the *North-South (1980)* and *Common Crisis (1983), created* by the Independent Commission on International Development Issues, chaired by West German Chancellor Willy Brandt. These reports called for a complete restructuring of the global economy, along with a new approach to development, including poverty eradication programs in developing countries (Quilligan & Brandt 21 Forum, 2002). Equally important was the *World Conservation Strategy* (IUCN, 1980), published by International Union for Conservation of Nature and Natural Resources and co-authored by United Nations Environment Programme (UNEP), the World Wildlife Fund (WWF), the Food and Agriculture Organization of the United Nations (FAO), and the United Nations Educational, Scientific and Cultural Organization (UNESCO). The report proposed several main objectives. In particular, it aimed to preserve essential ecological processes and life-support systems, preserve genetic diversity and to achieve sustainable utilization of species and ecosystems (IUCN, 1980).

These calls for a new developmental paradigm resulted in the publication of the report *Our Common Future*. This report included the very first official definition of SD. *"Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs."* (World Commission on Environment and Development, 1987). The definition clearly states that the basic needs of the world's poor inhabitants should be given priority. Goals that fall within the economic and social spheres need to be defined in terms of developed countries, but also in terms of developing countries. Development in this case is also understood as the gradual transformation of the economy and society. It is further emphasized that the physical development can only be applied in a rigid political and social environment. In the second part of the definition, the social justice within a generation but also

between generations in accordance with the preservation of the environment is also emphasized (World Commission on Environment and Development, 1987).

The report is headed by Gro Harlem Brundtand, who chaired the World Commission on Environment and Development (WCED). As the contribution of the report can be seen that, instead of abstract treatises, it is composed of specific facts and these facts are interpreted in a concise and clear form. Other important characteristics compared to previous publications include, for example, the report's optimism in contrast to the *Limit of Growth*. As the second important characteristic can be mentioned that the authors of the document have linked environmental problems with poverty (Court, 1992). Markovska et al. (2013) add that part of the concept represents justice across individual social groups but also justice between generations. It also clearly defines the idea of development in the context of a shared understanding of long-term goals regarding Earth. Nátr (2006) highlights the representativeness of the commission of the report. The countries represented in the report are regarded by the author as substantial (Norway, Sudan, Italy, Saudi Arabia, Zimbabwe, Ivory Coast, Germany, Hungary, People's Republic of China, Colombia, India, Brazil, Japan, Guyana, USA, Algeria, Indonesia, Nigeria, the USSR, Yugoslavia and Canada). The list of the countries shows that these were not only developed countries, but that the countries of the so-called poor South were also sufficiently represented in the commission. Markovska et al. (2013) adds that awareness of the consequences of exceeding environmental limits and of the need to use natural resources with regard to the long-term carrying capacity of the planet has grown across society. However, the unequal distribution of these resources, which is still the subject of many problems, cannot be overlooked. The considerations thus led to a choice between environmental protection or economic protection in terms of long-term prosperity.

A more recent study by Meadows et al. (1992) was published 20 years after the publication of *The Limits to Growth*, summarizing an analysis of global developments from 1970 to 1990. The conclusions of the previous model were supported. The main message of the publication was that the limits had already been exceeded, hence the name *Beyond the Limits*. The authors further state that at that time, an evidence of exceeding the limits could already be observed, such as a deforestation at an unsustainable pace. Furthermore, it has been speculated that grain production is not in line with the growth rate of the world's population. Speculation about possible global warming has also spread. Although the publication was still somewhat optimistic, it was clear that the philosophy of not crossing the line of sustainability had turned to trying to get back this imaginary line by implementing wise global politics. The book was

also published in the same year as the UN Conference on Environment and Development in Rio de Janeiro (UNCED) took place. The authors describe this agreement in such a way that people have finally begun to address environmental issues on a global level. Meadows et al. (2004) published an update of their analysis after another ten years – *The Limits to Growth: The 30-year Update*. The analysis of the problem is divided according to the combination of three causes behind it – rapid change, planetary limits to that change, errors or delays in perceiving the limits and controlling the change. The contribution of the publication lies mostly in the fact that it is a structured economic analysis of the limits of economic growth with respect to the compilation of data and graphs.

Bruckmeier (2020) described historical development in the context of the discourse of SD based on three successive phases, covering the historical period from 1500 to the present. The first, pre-industrial phase, which can be dated from 1500 to 1750, was characterized by rather local environmental problems – mainly extensive deforestation and smog. From the point of view of the development of society, this is a period when a modern-world economic system was being formed. The second phase is industrial (1750–2000). The industry developed – first in Europe, later in developing countries. At the same time, the globalization of world economies took place. There are significant changes in climate, biodiversity, and land-use as well. A pressure to change the development paradigm can be observed at the end of this period. The last phase, since 2000, is called post-industrial. The discourse deals mainly with new possible contours of the future sustainable society.

Diesendorf (2000) explains the difference between sustainability and sustainable development as follows. Sustainability or a sustainable future is the result of a process that represents sustainable development. SD is based on the intersection of three pillars of sustainability: economic, social, environmental. To achieve sustainability, policies in these three areas must complement and support each other (European Commission, 2020). This definition of the three pillars of sustainability was probably first defined by Barbier (1987), as stated by Purvis et al. (2019). Barbier (1987) defines sustainable economic development as the process of interaction of three systems: natural, economic and social. The main goals of the natural system are: genetic diversity, resilience, biological productivity. The basis of the economic system represents the reduction of poverty by meeting basic needs, setting up equality and increasing the number of useful goods and services. The goals of the social system include: cultural diversity, social justice and participation. Purvis et al. (2019) state that the definition by Barbier (1987) differs from the targets established later by the UN. He adds that the well-

known scheme of the three interconnected pillars does not have a single source of origin, but it is rather a gradual result of academic considerations in the early literature on SD. However, Bruckemeier (2020) states that the three-dimensional concept of sustainability, which represents the mainstream understanding of sustainability, has been used in principle since the 2002 Earth Summit in Johannesburg.

Within the discourse of SD, culture has, for most of the time, been considered an integral part of the social pillar. It is also often referred to as the so-called socio-cultural pillar. Later, significant differences between cultural and social factors became apparent (Dessein et al., 2015). Chiu (2004), for example, separates the social and cultural pillars. Conversely, Qtaishat et al. (2020) bring social and cultural factors together in the context of sustainable urban development. This clearly follows that the scientific outputs often have different concepts of social and cultural factors and their relationships in the context of sustainability.

According to Dessein et al. (2015), we can find three roles of culture in SD. The first option is to perceive culture as the fourth pillar, separate but still linked to the other three pillars. The second role of the culture lies in its ability to manage and balance the partial factors of the other pillars. Culture stands between the environmental, economic and social pillar and acts as a driving force. The last role is based on the fact that culture determines people's activities and decisions and is thus an overarching factor for all efforts to achieve sustainability. As a result, as the links between sustainability and culture grow, disparities across the pillars weaken. Culture in this sense represents the basis for SD. Hawkes (2001) also defined culture as the fourth pillar of sustainability. The author understands it as a formal space for a general discourse of values. Furthermore, the author defined several areas of social interaction in which culture acts as an accelerator of the transfer of values. One of those values represents education.

The important role in achieving sustainability plays the Agenda 2030. It builds on the previous Millennium Development Goals (MDGs) agenda. The set goals reflect the ambitions of this universal agenda. The goals cover all three spheres of SD. The global nature of the agenda is underlined by the fact that resulted from negotiations between the representatives of the governments of the UN member states. The agenda is fully in line with the UN Charter and international law. It follows up and confirms the conclusions of major UN conferences and summits, which have gradually shaped global efforts towards SD (UN, 2015). The process of preparation began at the UN Conference on Sustainable Development in 2012. The 2030 Agenda represents the most comprehensive strategy in this area. It is particularly significant because it is based on the clearly defined data and a monitoring process for application. This

set of indicators is still being refined at the UN to better measure the progress (MŽP, 2015). A development program for the period 2015–2030 in the form of 17 Sustainable Development Goals (SDGs) was adopted by the UN. (UNIC, 2021). For these objectives, groups of indicators have also been set – 102 in total. These are structured according to the relevant objectives (SDGs) (Eurostat, 2021a).

3.2. Education for sustainable development

Within the SDGs, Goal 13, the target 13.1 is related to environmental education, encouraging immediate action to combat climate change. Among other things, the education and awareness raising for climate change mitigation and early warning are preferred as tools (UN, 2015). UNESCO's Commitment to Sustainable Development (2011) considers education for SD as one of the most basic and at the same time the best instruments for the fight against poverty and inequality in general. It is further underlined that education has a direct impact on human values and through this process of transformation it is possible to achieve the expansion of values and attitudes that are necessary for the new paradigm of sustainability. In the context of the green economy, it represents the channel through which the expertise and skills required by the economy are transferred.

Cato (2009) describes the green economy as an alternative to the current dominant economic paradigm. UNEP (n.d.) defines the green economy as low-carbon, resource-efficient and socially inclusive. Public and private investments in assets, infrastructure and activities represent an accelerator of income and employment. They also have a positive impact on reducing CO2 emissions and preventing the loss of biodiversity and ecosystem services. The original definition of the concept was linked to overcoming the economic crisis, as stated by Vávra et al. (2015). They define the essence of the green economy as a tool to overcome the negative impacts of the crisis and restart economic growth in a way that is acceptable in terms of environment.

Zguir et al. (2021) emphasize the need to promote the concept of SD across curricula. According to the authors, education for SD is gradually becoming ubiquitous. They also point out that although a number of countries are striving for its implementation, there are several challenges at the political and application level. Žalėnienė & Pereira (2021) state that universities should play a key role in implementing SD and its principles. Sustainability-based curricula represent a tool for transforming thinking.

The countries across the world are in various stages of the implementation process according to the latest scientific outputs of recent years. For example, in Europe, Spanish research among technical universities has also concluded that SD is still not sufficiently integrated into technical university programs (Sánchez-Carracedo et al., 2021). According to Takala & Korhonen-Yrjänheikki (2019), Finnish technical universities have shortcomings in the pre-final implementation of strategies and the integration of SD into study programs as well. Regarding the situation outside Europe, Qatar is for example in the process of developing the integration of education for SD (Zguir et al., 2021). Among students of accounting at universities in Saudi Arabia, education for SD is also considered insufficient (Ebaid, 2021).

Environmental knowledge can be defined as the amount of information that individuals have about the environment. Based on such information, their ability to understand and evaluate the impact of activities on society and the environment is derived (Chekima & Chekima, 2019). According to Mostafa (2007), this knowledge includes the notions of what people know about the environment and the key relationships that shape it. Furthermore, this knowledge makes it possible to appreciate the environment and forms the collective responsibility that is essential for SD. Pagiaslis & Krontalis (2014) add that environmental knowledge includes both objectives, related to knowledge of the causes of specific environmental problems and measures to solve them, as well as subjective knowledge.

The next step represents the practical use of the acquired knowledge. In this case, we talk about skills (Havlíčková & Žárská, 2012). Strietska-Ilina et al. (2011) describe the change in the demand for workers' skills in favour of environmental skills using several steps. First, there is a green transformation of economies, where the structure of activities changes towards those that produce less emissions and their production is less resource-intensive. This results in structural changes across sectors and a shift in employment. As a result, the demand for certain skills decreases, and conversely, the demand for environmental skills increases. In the second step, new technologies are introduced within these structural changes, creating completely new jobs. In the third and final step, existing jobs are subject to greening, and there are additional requirements for expanding skills towards the environmental ones. Colijn (2014) emphasizes the role of technical skills in green transformation. The labour market is influenced mainly by IT, but also by greening and it is also associated with the need for technical skills, especially in the field of science, technology, engineering and mathematics.

In the context of the green economy, new jobs that require environmental knowledge or skills are known as so-called green jobs. UNEP (2008) defines them as *"work in agricultural,*

manufacturing, research and development (R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality. Specifically, but not exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high-efficiency strategies; decarbonize the economy; and minimize or altogether avoid generation of all forms of waste and pollution."

There are various estimates of how many jobs can be considered green in the EU. For example, Colijn (2014) states that at the time of the analysis, they represented approximately 3.25% of jobs. According to Eurostat (2021b), a total of 1.6 million jobs were created in the EU by the year 2018, equivalent to full-time employment in renewable energy and renewable energy production. There has been an increase of 1 million jobs since the year 2000 from the original 0.6 million. In comparison, in the field of waste management, this indicator has a value of 1.2 million jobs for 2018, and this number was approximately 0.8 million in the year 2000 (more details to be found in Annex 1 and Annex 2).

There is a difference in the share of green jobs across EU member states. For example, Norway, Denmark and Switzerland have a relatively large number of jobs that fall into this category. On the other side, the countries of Central and Eastern Europe are lagging behind. The concept of SD has also not yet spread across the entire spectrum of the labour market. Green jobs concern in particular: agriculture, fisheries, forestry, architecture, but also engineering and construction. Many of the greenest places are concentrated on developments in renewable energy (Colijn, 2014).

Sulich et al. (2020) examined the impact of greening economies on the labour market with regard to recent graduates. According to the authors, green jobs represent a possible solution for young people who are looking for their first job. This applies in particular to urban regions and also represents a tool for reducing employment disparities between sub-sectors. The results of the research are not favourable for the labour market in the Czech Republic, as only 1.83% of young people find their first job in the field of green economy. In contrast, for countries such as Poland or Belgium, this share is around 15%. Sulich et al. (2020) further add that although Poland has a similar historical background to the Czech Republic, young people are dominated by fixed-term work, but there are also regions that invest heavily in wastewater treatment or renewables.

The following research outputs are primarily concerned with higher education as defined by the UN (n. d.): "*Higher education includes 'all types of studies, training or training for research*

at the post-secondary level, provided by universities or other educational establishments that are approved as institutions of higher education by the competent State authorities."

Scientific discourse on the education for SD differs in approaching the issue. The first group of researches considers the process of implementing the concept into study programs at the level of higher education. Wiek et al. (2011) focused on the analysis of already established study programs at the bachelor's and master's level. The aim was to synthesize the findings for a possible revision of these programs. The authors recommend following factors as key to ensuring high-quality education for SD: continuous monitoring of performance within and outside the program, experimenting with the learning environment and also working with partial shortcomings and achievements. Sanchez-Carrillo et al. (2021) identified in their research advances in the implementation of sustainability in higher education in the context of SDGs. They confirm that the concept of sustainability has become more important in recent years, especially at the time when SDGs have been defined. The authors further state that the progress has not been so significant for several reasons. Incorporating sustainability within the content of only a few selected subjects cannot by regarded as effective. The application of the concept of sustainability across higher education is also limited by internal factors such as: limited knowledge of the topic or political barriers.

Lozano et al. (2013) describe the process of implementing sustainability into education as well. They state that there still exists a large number of colleges and universities where the traditional paradigm prevails. This can result in a situation in which society and the state are ahead of educational institutions regarding the context of sustainability. The authors suggest that educational institutions should take the lead in implementing the principles of sustainability. They are in a position to do so, as they can influence more generations through education. It is desirable for the concept of SD to represent a unifying element of the entire university system. Various declarations, charters or partnerships also play a role, creating a framework or a comprehensive set of rules on how to implement sustainability, although the authors also state that this is not always the case and confirm the possible existence of exceptions. Ebaid (2021) worked with the integration of SD into university curricula in the context of Saudi Arabian accounting students. The conclusions show that there is an insufficient implementation of this concept across universities with a focus on accounting in Saudi Arabia. As an important finding can be regarded that students are aware of the concept, although the school environment is not the primary resource. Furthermore, students have a positive attitude towards this future integration of the concept into the curriculum. Similar research, which aimed

to evaluate the attitudes of university students to the integration of the concept of SD into the curriculum, comes from the authors Nikolic et al. (2020). In the course of this research from the Serbian environment, it was also found that students know the main determinants of SD. As in the previous case, they have a positive relation to the integration of the concept into the curricula of the relevant study programs at universities in the sense of the inclusion of knowledge, values and skills. It was also possible to derive several barriers from the results. Students do not perceive educational institutions as key subjects for the implementation of SD. Students belief less in their acquired environmental knowledge. On the contrary, students attach an important role to mass media in the development of pro-environmental attitudes and awareness of the SD.

Different approaches, that are suitable for the process of implementing the principles of SD in education, are the subject of further research. Žalėnienė & Pereira (2021) assume that higher education makes a decisive contribution to the achievement of the SDGs. The authors underline the importance of interdisciplinary studies. They also state that the transformation begins on campus. The culture of sustainability that emerges among academics is then gradually transferred to students. Challenges and potential barriers have also been defined. Among them, the authors included: the structure of curricula, established ethical principles, the political environment and the influence of stakeholders. The interdisciplinary approach within the implementation of SDGs has also been confirmed by Annan-Diab & Molinari (2017) within the framework of the MBA study. The authors state that if the topic of SD is included only in specific courses or fields, it cannot be regarded as a sufficient tool to prepare the graduates for the challenges of sustainability. Steiner & Posh (2006) describe transdisciplinary case studies as a functional tool for higher education towards SD. In practice, in the Austrian case, the students were asked to devise the ecological, economic and social solutions for a deserted area where mining used to take place. The transdisciplinary approach represented the basis for the cooperation of students, teachers, researchers and especially stakeholders. Knowledge was applied in the context of a real problem and a process of mutual learning was implemented. The authors underline the importance of the students experiencing the process of implementing SD, not just gaining knowledge about its properties.

3.3. Summary of the theoretical background

The growth of environmental awareness has led to a gradual transformation of the relationship between humans and the environment. In other words, the anthropocentric attitude

was gradually replaced. For this paper, this is important in terms of the emergence of a sub-discipline, namely the environmental sociology. This area emerged in the 1970s, and its subject matter was defined as the study of the relationship between society and the environment (Dunlap & Catton, 1979). The NEP & HEP instrument used in the analytical part measures this change in attitudes. At the time of the emergence of environmental sociology, as Catton & Dunlap (1980) state, a major paradigm shift was needed in sociology. The Human Exceptionalism Paradigm (HEP) was gradually replaced by the New Ecological Paradigm (NEP).

This is also related to the important contributions to environmental issues (e.g. Leopold, 1989; Carson, 1964; Ehrlich, 1968; Hardin, 1968; Meadows & Club of Rome, 1972; Goldsmith,1973; UN, 1975; IUCN, 1980). Their reflections and conclusions gradually led to the definition of SD as an alternative development paradigm (World Commission on Environment and Development, 1987). The concept of sustainable development is the basis for education for SD (e.g. Zguir et al., 2021; Žalėnienė & Pereira, 2021). The NEP & HEP analysis is followed by questions in the questionnaire that analyse the impact of the sustainability discourse on students. Other questions are already directly based on the role of universities as a source of environmental knowledge (e.g. Žalėnienė & Pereira, 2021). This environmental knowledge is influenced by a range of factors and it is also not entirely clear how much of this knowledge is driven by university environmental education. University environmental education also uses different approaches (e.g. Žalėnienė & Pereira, 2021; Annan-Diab & Molinari, 2017; Steiner & Posh, 2006). The next part of the questionnaire focuses on this fact, comparing in a simplified way the level of importance of individual sources of environmental knowledge. The environmental knowledge is particularly important in the context of the green economy (UNEP, n.d.) and green jobs (UNEP, 2008). The last sub-questions and the correlation analysis link environmental knowledge and the future labour market position of graduates through the impact of this knowledge on their future career choices. Based on these theoretical premises, two basic hypotheses were formulated.

4. Data analysis

The sample of respondents for the quantitative research consists of 27.5% men and 73.5% women. This gender distribution roughly corresponds to the overall gender representation at the universities of humanities and economics, which constitute the majority of students in the sample.

Another important characteristic of the sample was their participation in a subject that included environmental issues and SD. Although students were primarily selected from fields that are environmentally oriented, some respondents state that they have not yet completed such a subject. A total of 63.4% of respondents stated that they attended a class that included environmental issues and SD during their university studies. On the contrary, 36.2% stated the opposite. One respondent did not state this fact and left the question blank. Respondents come from the following universities: University of South Bohemia České Budějovice, Ambis, Czech University of Life Sciences Prague, University of Hradec Králové, Jan Evangelista Purkyně University in Ústí nad Labem, Charles University, Prague University of Economics and Business, The College of European and Regional Studies. A total of seven respondents refused to specify the university. Table 1 below specifies the individual representation of respondents in relation to their university.

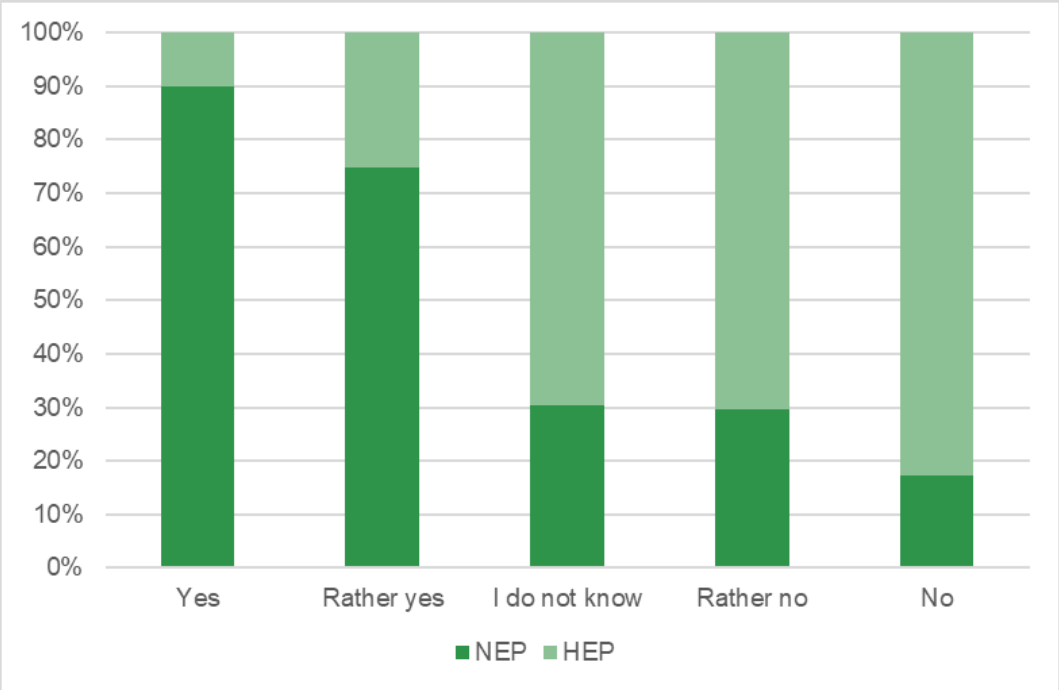
Table 1 Distribution of respondents in relation to the universities where they study

University	Number of respondents
University of South Bohemia České Budějovice	57
Ambis	29
Czech University of Life Sciences Prague	9
University of Hradec Králové	14
Jan Evangelista Purkyně University in Ústí nad Labem	91
Charles University	7
Prague University of Economics and Business	53
The College of European and Regional Studies	42
Not specified	7
Total number	**309**

Source: Information provided by the university students

At the very beginning of the research, students' attitudes towards the environment were examined. The tool of environmental sociology, namely the NEP & HEP analysis, was used. The potential pro-environmental attitudes of students can affect a number of other variables examined. The NEP & HEP analysis is connected with hypothesis 1. Figure 1 shows the number of respondents' answers with respect to belonging to the NEP or HEP paradigm. The result shows that pro-environmental attitudes towards NEP predominate among students. For NEP statements, positive answers predominate, and conversely, for HEP statements, negative answers predominate. The frequency of affirmative answers for NEP statements noticeably exceeds the frequency of disagreeing answers. The situation is exactly the opposite for HEP statements.

Figure 1 NEP & HEP analysis



Source: Information provided by the university students, n = 309

Table 2 shows the partial NEP or HEP statements (Dunlap et al., 2002). Each statement is assigned to either the NEP or HEP paradigm.

Table 2 Revised NEP Scale – NEP & HEP statements

NEP statements		HEP statements	
We are approaching the limit of the number of people Earth can support.	NEP1	Humans have the right to modify the natural environment to suit their needs.	HEP1
When humans interfere with nature, it often produces disastrous consequences.	NEP2	Human ingenuity will ensure that we do not make Earth unliveable.	HEP2
Humans are severely abusing the environment.	NEP3	Earth has plenty of natural resources if we just learn how to develop them.	HEP3
Plants and animals have as much right as humans to exist.	NEP4	The balance of nature is strong enough to cope with the impacts of modern industries.	HEP4
Despite our special abilities, humans are still subject to the laws of nature.	NEP5	The so-called "ecological crisis" facing humankind has been greatly exaggerated.	HEP5
Earth is like a spaceship with very limited room and resources.	NEP6	Humans were meant to rule over the rest of nature.	HEP6
The balance of nature is very delicate and easily upset.	NEP7	Humans will eventually learn enough about how nature works to be able to control it.	HEP7

Source: Dunlap et al., 2002

Table 3 shows the percentage of answers for partial statements. The mean value also serves to illustrate the degree of agreement or disagreement, as the Likert scale is used here. The mean value is calculated by converting the answers to a numeric value (Yes = 5, Rather yes = 4, I do

not know = 3, Rather no = 2, No = 1). A high degree of agreement with NEP's claims was recorded especially with the statement *"plants and animals have as much right as humans to exist"* (NEP4, the mean value = 4.39) and the statements *"despite our special abilities, humans are still a subject to the laws of nature"* (NEP5, the mean value = 4.37) and *"the balance of nature is very delicate and easily upset"* (NEP7, the mean value = 4.28). The following statements are listed according to the level of agreement: *"Earth is like a spaceship with very limited room and resources"* (NEP6, the mean value = 3.95), *"we are approaching the limit of the number of people Earth can support"* (NEP1, the mean value = 3.84), *"humans are severely abusing the environment"* (NEP3, the mean value = 3.43) and *"when humans interfere with nature, it often produces disastrous consequences"* (NEP2, the mean value = 3.06).

The highest level of disagreement with HEP's claims can be seen in the statement *"humans were meant to rule over the rest of nature"* (the mean value = 1.69), then the statement *"the balance of nature is strong enough to cope with the impacts of modern industries"* (the mean value = 1.93) and *"the so-called "ecological crisis" facing humankind has been greatly exaggerated"* (the mean value = 2.14). The following statements are listed according to the level of disagreement: *"humans have the right to modify the natural environment to suit their needs"* (HEP1, the mean value = 2.37), *"Earth has plenty of natural resources if we just learn how to develop them"* (HEP3, the mean value = 2.53), *"human ingenuity will ensure that we do not make Earth unliveable"* (HEP2, the mean value = 2.61) and *"humans will eventually learn enough about how nature works to be able to control it"* (HEP7, the mean value = 2.70).

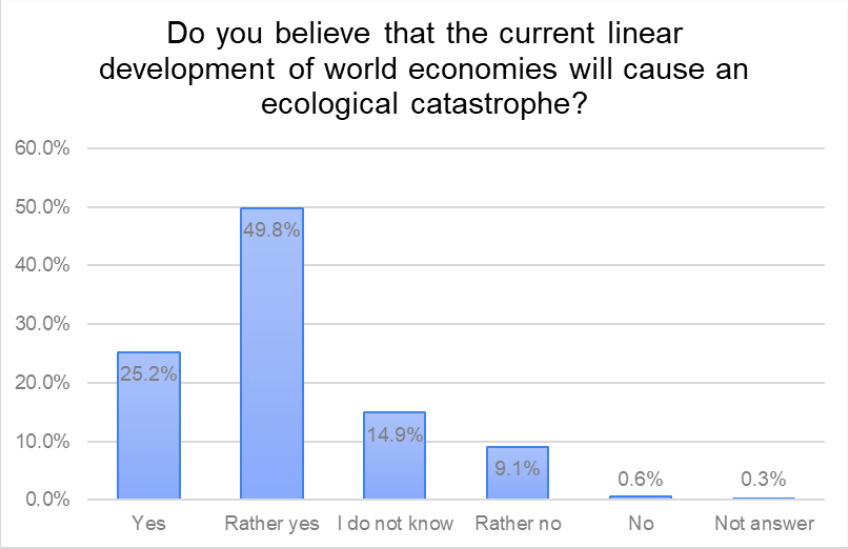
Table 3 Percentage of responses with respect to the NEP or HEP paradigm

Statement	Yes (%)	Rather yes (%)	I do not know (%)	Rather no (%)	No (%)	The mean value
NEP1	29.8	44.7	9.7	11.3	4.5	3.84
HEP1	4.5	17.8	9.4	46.3	22.0	2.37
NEP2	7.1	42.7	11.0	27.2	12.0	3.06
HEP2	2.9	21.8	27.3	29.2	18.8	2.61
NEP3	23.7	40.3	5.5	16.2	14.3	3.43
HEP3	10.4	20.4	9.7	31.4	28.2	2.53
NEP4	67.6	16.5	6.5	6.1	3.2	4.39
HEP4	1.6	8.4	10.4	40.1	39.5	1.93
NEP5	53.4	37.2	3.6	4.2	1.6	4.37
HEP5	3.2	8.4	18.4	39.2	30.7	2.14
NEP6	44.3	33.0	4.5	9.7	8.4	3.95
HEP6	3.6	4.9	9.1	21.7	60.8	1.69
NEP7	51.5	32.4	9.7	5.2	1.3	4.28
HEP7	4.9	19.7	31.4	28.5	15.5	2.70

Source: Information provided by the university students, n = 309

The question *"Do you believe that the current linear development of world economies will cause an ecological catastrophe?"* is placed to underline the very essence of why SD is implemented in education. The concept of SD was created as a response to the call for an alternative development paradigm, and its essence represents the fear of a possible ecological catastrophe and overcoming planetary limits. It is clear from the results (Figure 2) that students often state that the current development paradigm leads to the fulfilment of the scenario where the planet is threatened by a global ecological catastrophe. A total of 75% of students answered in the affirmative, with 49.8% showing a lower level of consent. The neutral response was represented by 14.9%. Disagreeing responses account for 9.7% overall, with a prevalence of slightly disagreeing responses, i.e. rather no, with a frequency of 9.1%.

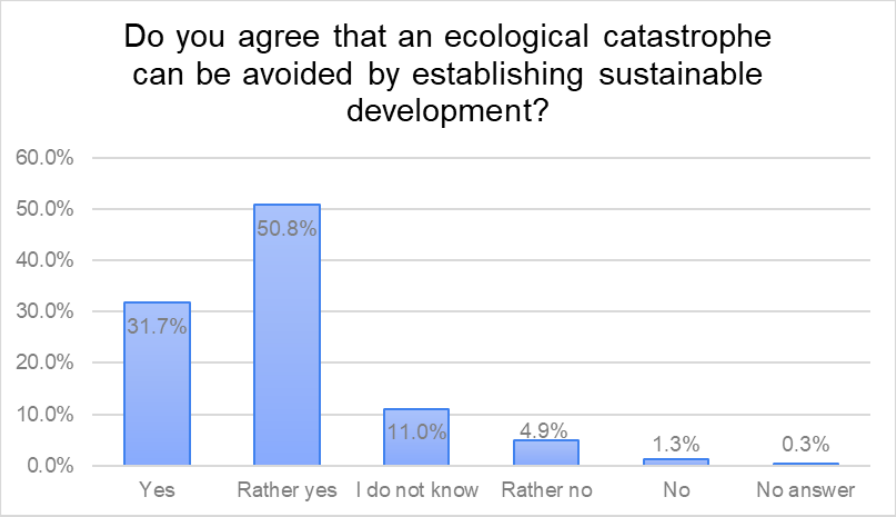
Figure 2 The possibility of an ecological catastrophe – response rate



Source: Information provided by the university students, n = 309

The question *"Do you agree that an environmental catastrophe can be avoided by establishing sustainable development, which can be defined as one that meets the needs of current generations without compromising the ability of future generations to meet their own needs?"* builds on the previous one. A similar representation of responses is assumed with respect to the assumption defined in the previous case. Compared to the previous question, a total of 82.5% of students agreed in this case. What remained the same is that the answer with a milder agreement was again more significantly represented, i.e. 50.8%. The neutral response was represented by 11% (Figure 3), similarly to the previous question. A total of 6.2% respondents stated a negative answer, with a prevalence of slightly disagreeing responses, i.e. rather no, with a frequency of 4.9%.

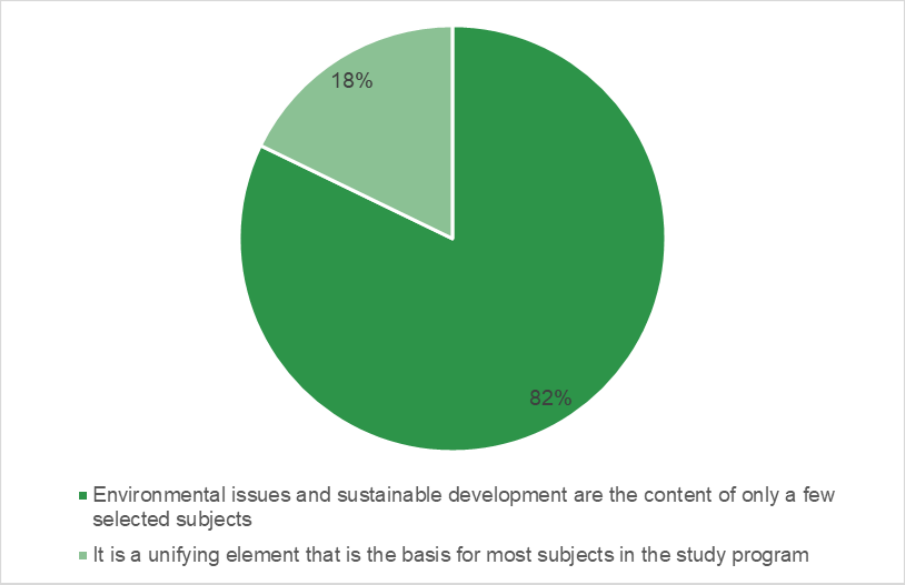
Figure 3 SD and the ecological catastrophe – response rate



Source: Information provided by the university students, n = 309

The process by which the concept of SD is applied to education can be set up in several stages. First, it can be expected that the issue will be part of only a few selected subjects, and then it should become a unifying element of the whole curriculum. Another question determines at what stage, according to the experience of students, the implementation of the concept of SD into education occurs. The majority, namely 82% of students, state that SD constitutes a part of only a few selected subjects. Only a minority of respondents, namely 18%, describe environmental education as a unifying element of the whole curriculum (Figure 4).

Figure 4 Position of teaching environmental topics and SD in higher education according to students

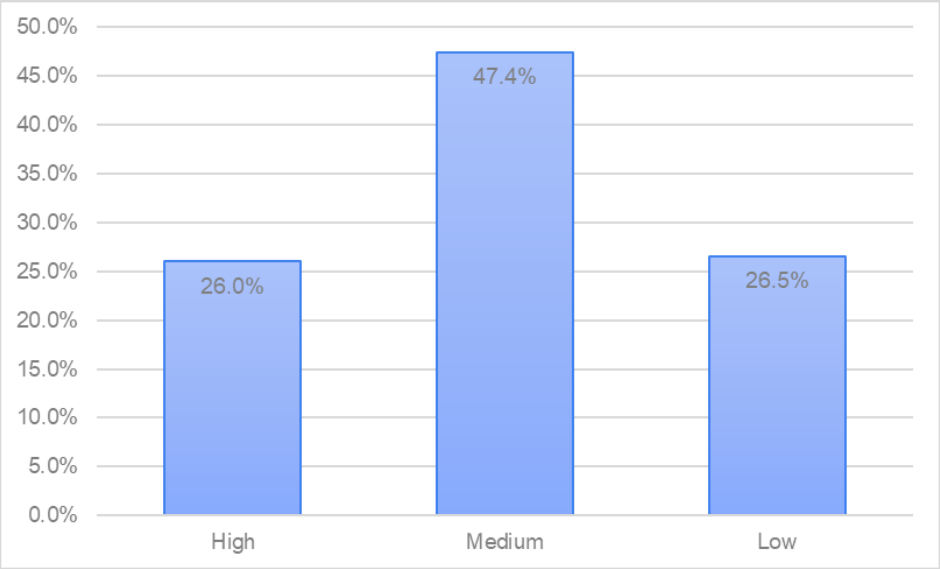


Source: Information provided by the university students, n = 309

Another important characteristic of the sample was their participation in environmental education at lower levels of the education system. More than half of the students answered in the affirmative, meaning that 61.2% of them encountered environmental topics already at lower levels of education.

An analysis of the importance that students assign to the teaching of environmental topics and SD at the lower level of education follows. This result will then be compared to the degree of importance given to the overall teaching of environmental topics and SD for the future economic development. Figure 5 indicates that most, 47.4% of students, indicate medium significance to teaching environmental topics and SD at the lower level of education. The higher level of significance and the lower level of significance have similar frequency values, i.e. 26% and 26.5% respectively.

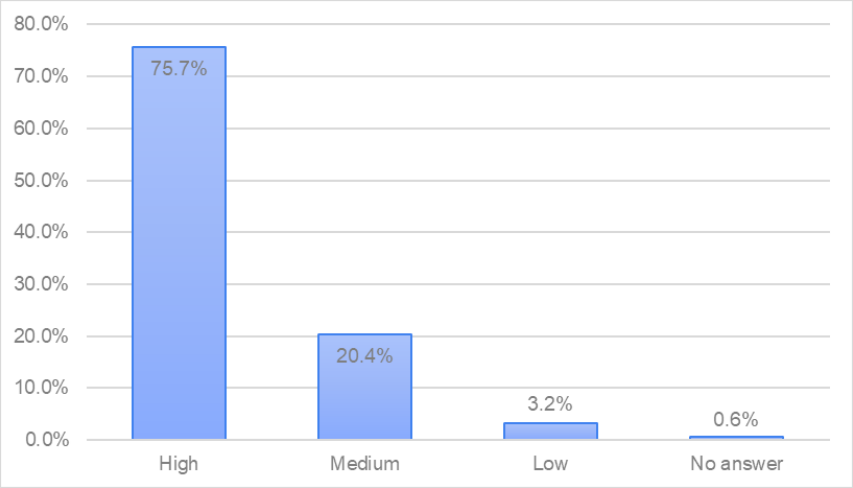
Figure 5 The importance of teaching environmental topics and SD at the lower level of education according to students – response rate



Source: Information provided by the university students, n = 309

The following Figure 6 shows the importance of teaching environmental topics and SD for the future development of the economy. The education at the university level is already included. Overall, the environmental education is perceived by students as important. A total of 75.7% students described it as highly important. A medium level of significance was assigned by 20.4% of respondents and the lowest level by only 3.2%. At first glance, a clear difference in the perceived relevance of environmental education between the sub-levels of education can be observed.

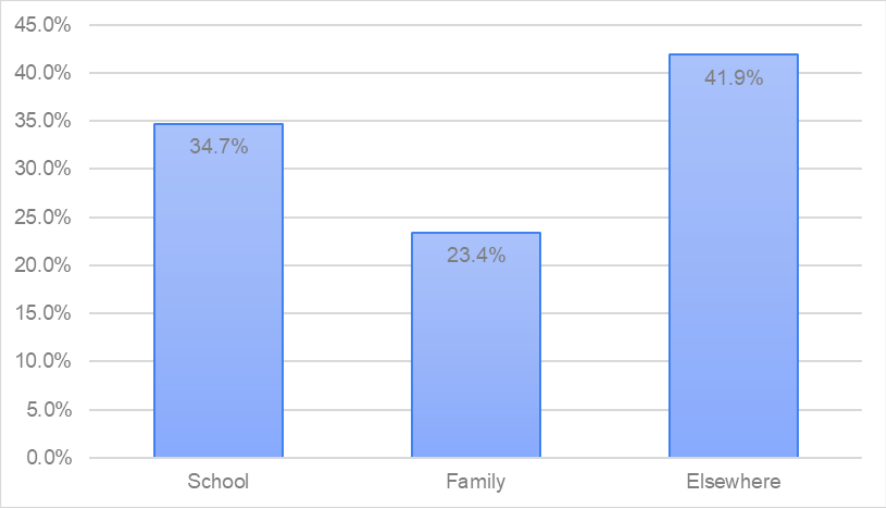
Figure 6 Importance of teaching environmental topics and SD for the future development of the economy – response rate



Source: Information provided by the university students, n = 309

Although students attach a high degree of importance to environmental education, schools do not represent the only source of environmental knowledge, as Figure 7 shows. Based on a qualitative pilot survey (Buchtele, 2020), it was found that in addition to the educational institution, the family also represents an important source of such knowledge. In addition, there is a strong influence of close friends, social networks, etc. This last group was called "Elsewhere" due to the frequent change of factors that can be included. The results show that the school is represented by 34.7% as a source of environmental knowledge. The family is represented by 23.4%. According to students, the most significant is the last source, which is marked as "Elsewhere", by a total of 41.9%. This last source of environmental knowledge is the one that changes very often, as it includes the influence of close friends, social networks, media, etc.

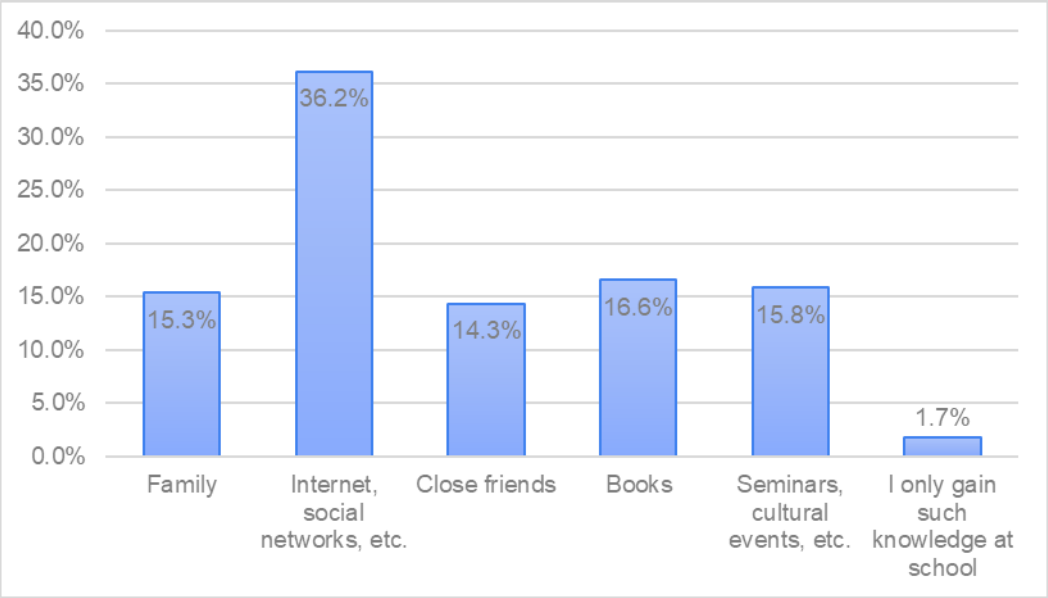
Figure 7 The sources of environmental knowledge according to students – response rate



Source: Information provided by the university students, n = 309

To further clarify the source of environmental knowledge which falls under the category "Elsewhere", one more question was asked. This question directly identified only out-of-school sources. Figure 8 shows the great importance of the Internet and social networks, with the frequency of 36.2%. Other sources such as family, close friends, books, seminars, cultural events have a similar frequency of around 14 – 16%. Only 1.7% of students stated that they acquire such knowledge only at school.

Figure 8 The sources of out-of-school environmental knowledge according to students

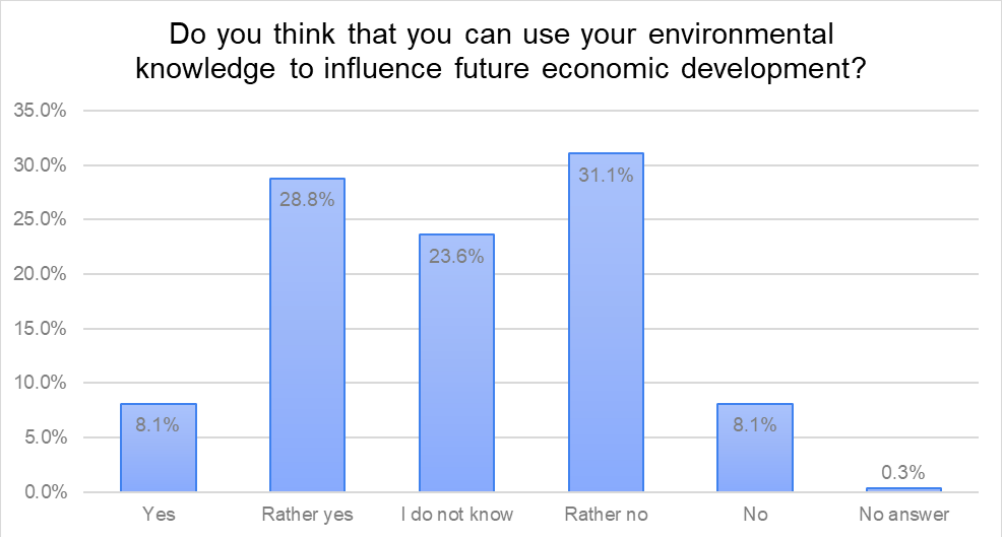


Source: Information provided by the university students, n = 309

The last two questions are directly related to students' environmental knowledge. Environmental knowledge should represent the main tool with which university graduates are

equipped and able to enter the labour market, but also to influence future economic development. Question *"Do you think you can use your environmental knowledge to influence future economic development?"* examines, whether students are aware of the role of environmental knowledge as one of the main tools for the change of thinking that is necessary for the subsequent change of the development paradigm. The results show that students do not assign such a role to environmental knowledge. There is a high frequency of neutral answers, 23.6%. The frequency of the positive answers (Yes, Rather yes) is lower than the non-positive answers (No, Rather no) as can be seen in Figure 9. A total of 8.1% of respondents answered "Yes" and 28.8% of respondents expressed a more moderate agreement. Conversely, disagreement, a "No" response, was stated by 8.1%. The frequency of milder disagreement is 31.1%.

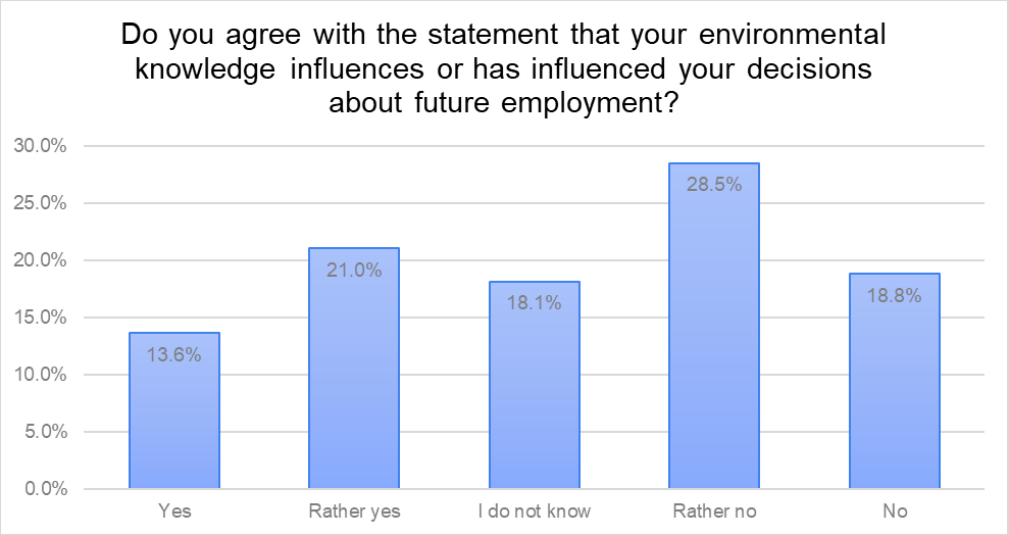
Figure 9 Environmental knowledge and the future economic development – response rate



Source: Information provided by the university students, n = 309

The next question *"Do you agree with the statement that your environmental knowledge influences or has influenced your decisions about future employment?"* already works with environmental knowledge as a factor that forms the environmental background of students and can theoretically influence their future career choice. The results show again that students do not assign such a role to environmental knowledge. There is a high frequency of neutral answers, 18.1%. Again, there is also a higher frequency of non-positive answers (No, Rather no) than positive answers (Yes, Rather yes) as shown in Figure 10. The frequency of the answer "Yes" is 13.6% and the more moderate answer "Rather yes" is 21%. The frequency of the negative responses is 18.8% for the "No" response and 28.5% for the milder "Rather no" response.

Figure 10 Environmental knowledge and its influence on the decision about future employment – response rate



Source: Information provided by the university students, n = 309

Although only descriptive statistics have been used so far, the question whether teaching environmental issues and SD does influence students' decisions about their future profession can be partially answered using correlation analysis. Analysis was performed in MS Excel and PSPP. For the purposes of the analysis, the partial questionnaire questions were converted into abbreviated designations, as shown in the Table 4. The data were converted to numerical values.

Table 4 Correlation analysis – list of questions

Have you ever studied a subject that included environmental issues and sustainable development during your university studies?	**Question3**
The importance of teaching environmental topics and sustainable development at the lower level of education according to students.	**Question9 - categories**
The importance of teaching of environmental topics and sustainable development for the future development of the economy.	**Question10 - categories**
Where do students gain the most environmental knowledge according to them? – School	**Question12 – School**
Do you think that you can use your environmental knowledge to influence future economic development?	**Question13**
Do you agree with the statement that your environmental knowledge influences or has influenced your decisions about future employment?	**Question14**

Source: Elaboration by author

The relationship between two variables has been proven in several cases. The first case (*Question13 – Question9 – categories*) shows that with the increasing importance assigned to the environmental education at lower levels of education, students' faith in their environmental

knowledge as a tool for changing the future economic development is also growing (p-value = 0.001). Another relationship between two variables (*Question13 – Question12 – School*) shows that with students gaining more environmental knowledge at school, they also believe more in their environmental knowledge as a tool for changing future economic development (p-value = 0.010). The observed relationship between variables *Question14 – Question3* shows that students who report that they have completed a subject that includes environmental issues and SD during their university studies also more often report that their environmental knowledge has influenced their decisions about future employment (p-value = 0.000). Students who state that their environmental knowledge has influenced their decisions about future employment also give greater importance to the environmental education at lower levels of education (*Question14 – Question9 – categories*, p-value = 0.016) and also give more importance to teaching environmental topics and SD for the future development of the economy (*Question14 – Question10 – categories*, p-value = 0.000). The last relationship between two variables will be manifested in the case of *Question14 – Question12 –* School. Based on Pearson's correlation coefficient, it is possible to deduce that students who gain more environmental knowledge at school may more often state that their environmental knowledge influences or has influenced their decisions about future employment (p-value = 0.001). Table 5 shows the contour values of Pearson correlation coefficient and p-value for each observed relationship of variables. The detailed results of the correlation analysis are presented in Annex 3.

Table 5 Correlation analysis

Variables	Pearson's correlation coefficient	p-value
Question13 – Question3	0.0773	0.175
Question13 – Question9 - categories	-0.1926	**0.001**
Question13 – Question10 - categories	-0.074	0.217
Question13 – Question12 – School	-0.1467	**0.010**
Question14 – Question3	0.2617	**0.000**
Question14 – Question9 - categories	-0.1365	0.016
Question14 – Question10 - categories	-0.2688	**0.000**
Question14 – Question12 – School	-0.1818	**0.001**

Source: Elaboration by author

5. Discussion

Two hypotheses were established for the quantitative research. Hypothesis 1: *"Students do not have pro-environmental attitudes"* concerned potential pro-environmental attitudes of students. The basis for hypothesis testing represented the NEP analysis, a tool of environmental sociology. Based on the revised NEP scale, it was found that pro-environmental attitudes are

characteristic of students with environmental background. The overall resulting frequencies of partial responses showed that, overall, the students agreed with the NEP statements and, conversely, rejected the statements towards HEP. Hypothesis 1: *"Students do not have pro-environmental attitudes"* can thus be rejected. The alternative hypothesis applies: *"Students do have pro-environmental attitudes".*

This conclusion can be confirmed by a number of foreign researches, which also used students as the subject of study, and the NEP analysis as a tool. Pro-environmental attitudes are quite common among students (e.g. Erdogan, 2009; Rosa et al., 2021).

Further examination of students' relationship to education for SD has shown that the link between a potential environmental disaster and the concept of SD as a possible tool to prevent this exists, as the concept of SD arose in response to society's growing concerns about the environmental impact of the current growth paradigm (e.g. Meadows & Club of Rome, 1972; World Commission on Environment and Development, 1987). This implies the need to apply the concept to teaching at universities (Zguir et al., 2021; Žalėnienė & Pereira, 2021). As can be seen from the results, students attach high importance to education for SD, especially at the university level. At lower levels of education, the importance attached by students is lower.

The gradual application of the concept to education still has a number of shortcomings and the process is far from complete (e.g. Sánchez-Carracedo et al., 2021; Ebaid, 2021). Based on students' answers, it was confirmed that environmental issues and SD are still integrated into the content of only a few subjects and only a small part of the respondents state that it is a unifying element of the curriculum. Although, as Lozano et al. (2013) point out, an ideal state would be the one in which the concept represents the unifying element of the entire university system.

Further investigation revealed that if we focus directly on environmental knowledge, then the school is not the only source. In addition, environmental knowledge is also affected by a number of other factors. With that in mind, we come to the last part, which analysed the significance of this environmental knowledge for university students. These sub-questions were asked to determine whether students see their environmental knowledge as a tool for a possible change in economic development and whether this environmental knowledge can influence their future employment choices. If we look at the sample of students as a whole, it can be said that students do not attach such importance to their environmental knowledge based on the analysis of their answers.

Correlation analysis further expanded the findings. The impact of university environmental education on some of the researched variables was identified. Most important in this case was the question which aimed to find out whether students' environmental knowledge influences their future choice of profession. The students, who report that their environmental knowledge influences their career choices, attach great importance to the teaching of environmental topics and SD but they also obtained the most of this knowledge from school.

Hypothesis 2: *"Teaching environmental issues and SD does not influence students' decisions about their future profession."* cannot be accepted or rejected. It is necessary to subject this part of the research to a more in-depth analysis. The lesser impact of the environmental education has been confirmed, for example, by Pereira Ribeiro et al. (2021), where Green Campus Initiatives, of which sustainability education is an integral part, explain only 27.5% of university students' environmental knowledge.

6. Conclusion

The objectives of the study were met based on quantitative research. Of the two stated hypotheses, only hypothesis 1 was accepted. Hypothesis 2 cannot be accepted or rejected. The study has described the impact of the teaching of environmental topics and sustainable development in the context of environmental knowledge. Unfortunately, we could not statistically confirm the impact of teaching environmental ussies and SD on students' decision-making about their future employment.

To continue the research, it is necessary to find out, through a more targeted statistical analysis, how these inclinations to NEP or HEP paradigms directly affect other characteristics of the sample of students. On the other hand, inclinations to NEP or HEP paradigms may also be influenced by socio-demographic variables, such as gender (e.g. Rosa et al., 2021; Dwyer, 2011). Potential pro-environmental attitudes based on NEP & HEP analysis may also result in respondents being more interested in out-of-school forms of environmental education, thus reducing the importance of formal education.

It is also evident that out-of-school forms of education play a more significant role than assumed, as found in the analysis. Also problematic for understanding the significance of this factor on overall environmental knowledge is the dynamics of change in its composition. This can be illustrated by the importance of the internet and social networking, which was confirmed by the frequency of responses. This can also be seen as an advantage for the future position of

these graduates in the labour market, as it may appear that the environmental knowledge is not only based on formal education, which may not be as dynamic in terms of change.

The study offered a basic view of the data obtained. As an author, I tried to interpret this data and further determine the starting point, on which another more complex analysis will be based in the future. This should be aimed at clarifying the role of out-of-school forms of education, but the results can also be compared with the views of the other side of the labour market, i.e. the requirements of enterprises in the context of graduates with environmental knowledge.

Acknowledgements

This paper was supported by the Grant Agency of the University of South Bohemia (grant no. GA JU 067/2021/S). Author would like to thank Karolína Voráčková for proofreading.

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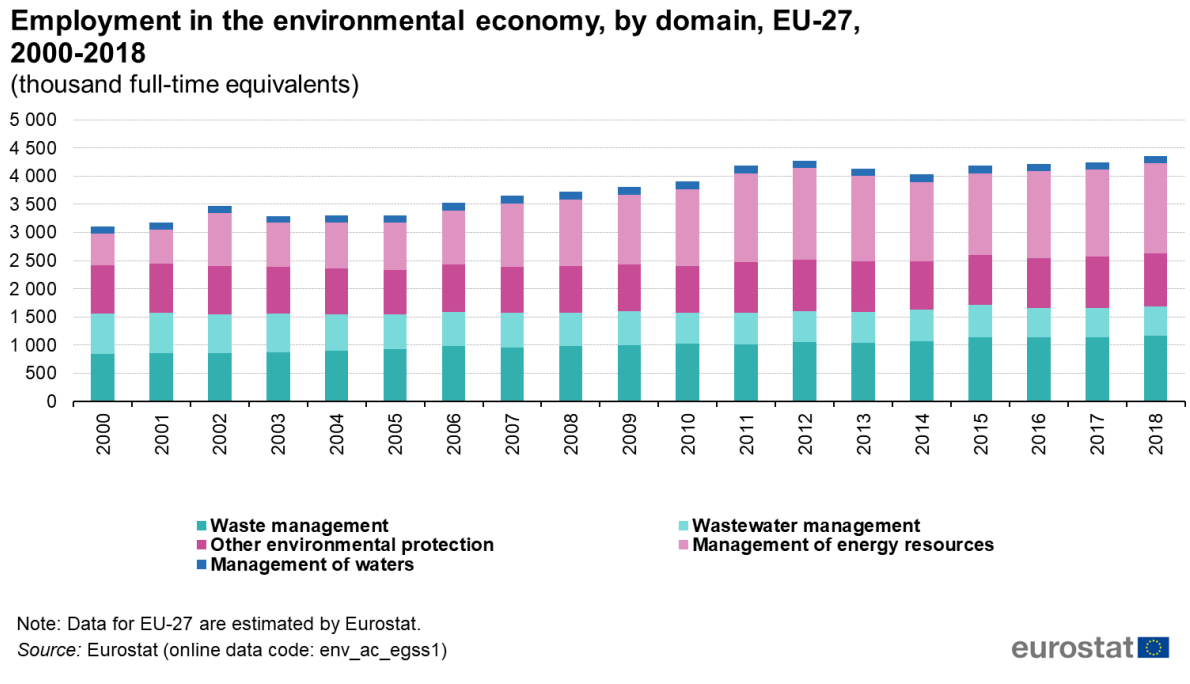
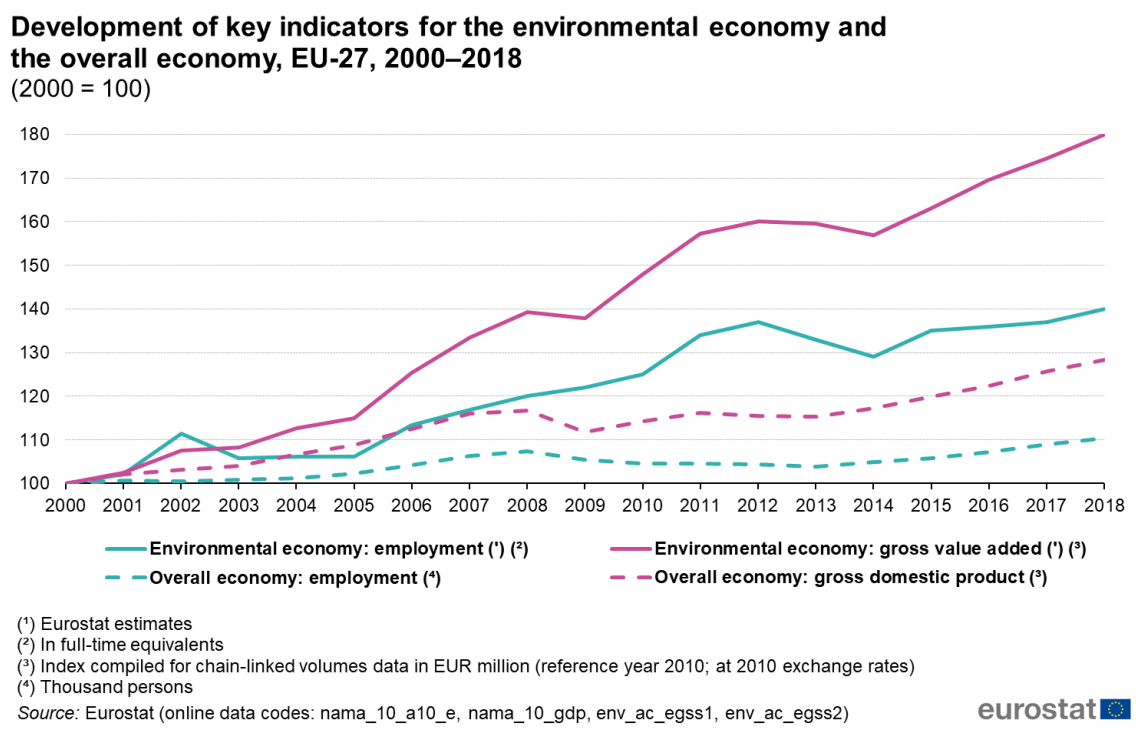
Annexes

Annex 1 Employment in the environmental economy, by domain, EU-27, 2000-2018



Source: Eurostat, 2021b

Annex 2 Employment in the environmental economy, by domain, EU-27, 2000-2018



Source: Eurostat, 2021b

Annex 3 Correlation analysis (PSPP)

```
CORRELATION
        /VARIABLES =  Question3 Question13
        /PRINT = TWOTAIL SIG.
```

Correlations

		Question3	Question13
Question3	Pearson Correlation	1,000	,077
	Sig. (2-tailed)		,177
	N	318	307
Question13	Pearson Correlation	,077	1,000
	Sig. (2-tailed)	,177	
	N	307	308

```
CORRELATION
        /VARIABLES =  Question13 Q9kat
        /PRINT = TWOTAIL SIG.
```

Correlations

		Question13	Q9kat
Question13	Pearson Correlation	1,000	-,193
	Sig. (2-tailed)		,007
	N	308	195
Q9kat	Pearson Correlation	-,193	1,000
	Sig. (2-tailed)	,007	
	N	195	206

```
CORRELATION
        /VARIABLES =  Question13 Q10kat
        /PRINT = TWOTAIL SIG.
```

Correlations

		Question13	Q10kat
Question13	Pearson Correlation	1,000	-,070
	Sig. (2-tailed)		,220
	N	308	306
Q10kat	Pearson Correlation	-,070	1,000
	Sig. (2-tailed)	,220	
	N	306	317

```
CORRELATION
        /VARIABLES =  Question13 School
        /PRINT = TWOTAIL SIG.
```

Correlations

		Question13	School
Question13	Pearson Correlation	1,000	-,147
	Sig. (2-tailed)		,010
	N	308	308
School	Pearson Correlation	-,147	1,000
	Sig. (2-tailed)	,010	
	N	308	319

```
CORRELATION
        /VARIABLES =  Question14 Question3
        /PRINT = TWOTAIL SIG.
```

Correlations

		Question14	Question3
Question14	Pearson Correlation	1,000	,262
	Sig. (2-tailed)		,000
	N	309	308
Question3	Pearson Correlation	,262	1,000
	Sig. (2-tailed)	,000	
	N	308	318

```
CORRELATION
        /VARIABLES =  Question14 Q9kat
        /PRINT = TWOTAIL SIG.
```

Correlations

		Question14	Q9kat
Question14	Pearson Correlation	1,000	-,137
	Sig. (2-tailed)		,056
	N	309	196
Q9kat	Pearson Correlation	-,137	1,000
	Sig. (2-tailed)	,056	
	N	196	206

```
CORRELATION
        /VARIABLES =  Question14 Q10kat
        /PRINT = TWOTAIL SIG.
```

Correlations

		Question14	Q10kat
Question14	Pearson Correlation	1,000	-,269
	Sig. (2-tailed)		,000
	N	309	307
Q10kat	Pearson Correlation	-,269	1,000
	Sig. (2-tailed)	,000	
	N	307	317

```
CORRELATION
        /VARIABLES =  Question14 School
        /PRINT = TWOTAIL SIG.
```

Correlations

		Question14	School
Question14	Pearson Correlation	1,000	-,182
	Sig. (2-tailed)		,001
	N	309	309
School	Pearson Correlation	-,182	1,000
	Sig. (2-tailed)	,001	
	N	309	319