Knowledge for the implementation of sustainable tourism development - students' attitudes

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KNOWLEDGE FOR THE IMPLEMENTATION OF SUSTAINABLE TOURISM DEVELOPMENT - STUDENTS' ATTITUDES

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Abstract
Purpose – The purpose of the paper is to analyse students' attitudes about the concept of sustainable development and knowledge significant for its implementation in tourism. More precisely, the aim was to determine which knowledge students perceive as particularly important for the application of sustainable development and whether there are significant differences in the attitudes of students of different years of study regarding gender, year and status (full time and part time students) of study.
Methodology – For the formation of the theoretical part, secondary data sources were used, based on the analysis of relevant literature in the field of sustainable tourism development, such are articles and reports. The research part includes quantitative data collection based on an online questionnaire distributed to students of the Faculty of Tourism and Hospitality Management of all years, enrolled in the study of Management of Sustainable Development, to assess the importance of relevant knowledge about the sustainable development and also their own knowledge in this field. Data processing was performed through the statistical program for social sciences - SPSS while descriptive statistics were used for the purposes of data processing and interpretation.
Findings – Based on the conducted research, the respondents evaluated the importance of knowledge for the implementation of sustainable development of tourism regarding environmental, social and economic aspects. In addition, the respondents expressed personal assessments of their level of knowledge/habits/actions in the mentioned areas. Also, differences will be determined with regarding the gender, field and year of study of the respondents. Respondents mostly show positive attitudes towards sustainable development and assess the importance of further education for sustainable development. The emphasis should be on acquiring knowledge related to sustainable development, developing abilities and skills that will help in facing the challenges of the 21st century, through organizing workshops, debates, learning to solve problems, promoting extracurricular activities such as volunteering or participating in local community projects, etc.
Contribution – Contribution of the paper is in identifying and ranking the importance of specific knowledge for sustainable development from the perspective of students. According to the results, new educational programs of student interest could be developed. This research presents an opportunity for students to develop a methodological approach to the self-assessment process through a questionnaire.
Keywords sustainable tourism development, student attitudes, knowledge evaluation, education

INTRODUCTION

The rapid development of industry and technology has brought with it a never seen before standard of wealth and well-being in numerous countries across the world. However, that development has also caused unprecedented damage to the environment. As Grofelnik

(2019) points out, the way humans use technology today is to satisfy their desire for profit and a comfortable lifestyle, while the issue of the long-term sustainability of such an endeavour remains an afterthought. People tend to instinctively use all the means available to satisfy their needs or gain a profit in today's consumer society, regardless of the collective effect of such actions. Still, the technology can harm the environment, but can also be used to protect it. As Grofelnik (2019) explains, the existing level of technological advancement suggests that sustainable development is a plausible goal, but its fulfilment is being hindered by certain interest groups whose actions are focused on obtaining as much profit as possible and retaining their position of power in the globalised world of the 21st century.

Despite that, sustainability is becoming a key concept in many aspects of economic development on multiple levels (Brennan and Cotgrave, 2014). Posavec (2016) claims that sustainability has become a strategic point of interest for almost all countries in the world, with the goal of affecting the collective conscience of the population and making people aware of the negative effects of contemporary life on the environment. As Paquette and Wiseman (2006) point out, there has been a global shift towards sustainable development in many industries in response to government legislature regarding safer environmental practices. It has even become commonplace for companies to go beyond legislative requirements in the implementation of sustainable development systems.

Tourism is also an industry concerned with sustainable development. One of the key elements of sustainable development in tourism according to Grofelnik (2019) is the preservation of natural attractions for the generations to come. The goal of sustainable tourism is to achieve a perfect balance of number and type of visitors and the services required to sustain them so that tourist activities have a minimal negative impact on the environment. Given tourism's reliability on natural attractions, finding the balance between material growth and environmental preservation is the key for the future development of the industry (Grofelnik, 2019). The role of education is central to achieving SDGs. According to a statement made by UNESCO, sustainable development requires quality education and learning at all levels and in all social contexts (Babarinde G.M. et al, 2017).

The purpose of the paper is to analyse students' attitudes about the concept of sustainable development and knowledge significant for its implementation in tourism. More precisely, the aim was to investigate the attitudes of students of different years at the Faculty of Management in Tourism and Hospitality in Opatija about the concept of sustainable development and knowledge significant for its implementation in tourism. All examined students are enrolled in the undergraduate program in Management of Sustainable Development and in the graduate program in Sustainable Development of Tourism. Students were selected as the subjects of this research because they are still in the education system. They are considered relevant respondents because they are on their way to graduating and becoming active players on the labour market. They are considered the leaders of the future and it is their role to promote the ideas of sustainability in business and social processes in the future.

Regarding the aim of the paper, central research question was: Is there a statistically significant differences in the attitudes of students of different years of study regarding gender, year and status (full time and part time students) of study? Other research questions defined for individual data analysis were: Is there a statistically significant difference in sustainable development knowledge related to gender? Is there a statistically significant difference in sustainable development knowledge related to study status? Is there a statistically significant difference in attitudes toward sustainable development and sustainable behaviour? Is there a statistically significant difference in knowledge about sustainable development and sustainable behaviour? Is there a statistically significant difference in sustainable development knowledge and years of study?

1. THE CONCEPT OF SUSTAINABLE DEVELOPMENT

Numerous professionals deal with various aspects of long-term sustainable development. Some of them deal with environmental protection in certain industries, societies, and interest groups, while others deal with sustainable development of the economy as a whole. The fundamental relationship which sustainable development is based on is the relationship between the economy, ecology, and society, and the central problem is whether a society can achieve material growth without endangering the sustainability of natural resources and the standard of living (Grofelnik, 2019). As Paquette and Wiseman (2006) point out, the three domains of ecology, economy, and society are closely interconnected and changes in one of them affect the other two, which suggests that achieving sustainability requires making major changes and improvements in all three of those domains.

While the interests of the economic domain lie purely in material growth, the other two domains remain more complex. As explained by Berglund et al (2018), the environmental, also called ecological, domain focuses on maintaining biodiversity and developing sustainable ecological processes. Its focus is on preserving natural resources from being overused and to align their use to both global and local eco-systems. Posavec (2016) adds that the environmental perspective is critical of industrialization and the exploitation of natural resources, but it tends to ignore the social issues connected with environmental preservation. That is explained by the fact that many developing countries struggle with a multitude of social issues, ranging from human rights issues, corruption, and infant mortality to the unavailability of population-wide education, which leave environmental protection as a secondary issue in comparison to developed countries, where the socio-economic standard is high enough for the governments to focus on issues of ecology.

Such a situation emphasizes the importance of the social dimension in sustainable development. The social dimension, which tends to also include cultural issues, focuses on equity between and within different populations and generations. Its emphasis is on the generation of growth and welfare for all, reduction of poverty and increase in employment, all the while maintaining corporate responsibility (Berglund et al, 2018). As Grofelnik (2019) points out, the goal of sustainability is to preserve natural resources for generations to come while achieving material and cultural development, sharing Earth's biocapacity fairly between different people and species.

As a global response to the increasing need for sustainable development practices the international independent organisation *International Union for Conservation of Nature and Natural Resources* (IUCN), with financial aid from the *United Nations Environmental Programs* (UNEP) and *World Wildlife Fund* (WWF) and in cooperation with two of UN's specialized agencies, UNESCO and FAO, created the *World Conservation Strategy* (WCS) which emphasizes the need for both development and environment preservation. The concept of sustainable development gained official recognition when it was included in the political agenda of the *World Commission on Environment and Development* (WCED) report in 1987 and it gained international recognition through the Agenda 21 action plan presented at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992 (Grofelnik, 2019). Some of the instructions concerning sustainable development given in Agenda 21 are, as summarized by Grofelnik (2019), that the right to development must be exercised with respect for the preservation of the environment for current and future generations and that environmental preservation must become a central part of the development process and cannot be excluded from it. Sustainability is also a key point in UN Charter 31, which speaks of the need for balanced development of all countries and regions of the world and outlines four major goals: international peace and security, friendly relationships between nations, international cooperation on key economic, social, cultural, and humanitarian issues, and coordination of actions taken by countries to achieve common goals (Drljača, 2012). The concept of sustainable development is not a unitary one. As Drljača (2012) points out, there are concepts of weak, moderate, and strong sustainability. Weak sustainability means growth that makes damages to the environment in such a way that it could affect the well-being of future generations, a loss that would have to be compensated somehow. Moderate sustainability is based on the notion that environmental preservation is a prerequisite for economic development, while proponents of strong sustainability propose fundamental changes in human's relationship towards nature, something which is also called ecological development.

Apart from its focus on the temporal and material elements of development, sustainability also involves a local component which is central to spatial planning documents and legal protection of certain territories, as Grofelnik (2019) discusses. The local component of sustainable development is especially important in sustainable tourism development. According to the *World Tourism Organisation* (UNWTO) sustainability in tourism means using tourist spaces in such a way that tourist, social and aesthetic needs can be satisfied without endangering the cultural integrity or the ecosystem and biodiversity of those spaces (Grofelnik, 2019). The relationship between tourism and legally protected areas is analysed by Grofelnik (2019) on the example of Croatia and said to have both positive and negative effects. The goals for the sustainable development of such areas should be the retention of the economic, social, demographic, and ecological integrity, as well as the development of the specific cultural identity of the area (Grofelnik, 2019).

2. KNOWLEDGE FOR SUSTAINABLE DEVELOPMENT

The awareness about the necessity of sustainable development as a consequence of the increasing complexity of environmental, social and economic issues has been growing in the past decade. Alongside the introduction of sustainability in all spheres of economic and social life, numerous declarations, action plans and initiatives on all levels include the notion of educating people on sustainable development. The already mentioned Agenda 21, a fundamental international document for the implementation of sustainable development, points out that education is central for achieving sustainability (Anđić and Tatalović Vorkapić, 2017). A sustainable future can only be created by raising awareness and educating people about sustainable development. Such education should allow all interested parties to better understand the challenges that sustainable development sets for them on both the local and the global level. It should provide people with the knowledge and skills needed to deal with contemporary economic, social, and environmental issues and is as such a necessary prerequisite of achieving sustainability. As Posavec (2016) points out, learning about sustainable development is not a one-time education, but rather includes constant engagement by both children and adults with information and knowledge that constantly shifts and need to be relearned. The same argument is given by Črnjar (2015), who claims that sustainable development is a way of life in which a balance between long-term economic development, clean environment, and social integrity for current and future generations needs to be established.

The importance of knowledge in today's world cannot be underestimated. As was pointed out at the International Environment Forum (2001), knowledge is the basis for the development of civilization and most environmental destruction today is caused by a lack of knowledge. In order to achieve a sustainable society, knowledge needs to be available both to decision-makers on the national and global level and to individuals on the local level. Such knowledge must be widely available and communicated in a language that is simple to understand and comprehend. Since today's young adults are often unequipped to deal with the challenges posed by a sustainable society, more focus should be put on parents, who are the first educators, to allow them to be able to educate new generations from a very early age about the necessity for sustainable development. Apart from the family, which remains the core transmitter of values in young children, the media have also become an important source of knowledge for the youth and should be encouraged to promote ideas of sustainability. In terms of formal education, schools ought to improve their curricula with knowledge of sustainable development and promote cooperation instead of competition among their students with the goal of helping children unlock their own potential instead of just preparing them for the job market (International Environmental Forum, 2001).

As Črnjar (2015) explains, knowledge and skills are the main components of development and knowledge is the only resource for economic development which has potential for unlimited expansion. Some of the key skills necessary for understanding sustainable development which should be taught to students include interdisciplinary elements, a cosmopolitan perception of the world, multicultural skills, teamwork, planning and implementation of plans, solidarity, self-motivation and motivation of others, etc (Črnjar,

2015). In order to promote the inclusion of sustainable development topics in formal education programmes, the UN presented a program called *Decade of Education for Sustainable Development* (DESD) for the period between 2004 and 2014. The goal of the program was to include the values and practices of sustainable development in all levels of education and to give everyone access to such an education (Boromisa et al, 2018). The aim of the program is to educate people to become active members in society and to be able to take on any challenges that the 21st century may bring. As Posavec (2016) explains, especially young people are in need of relevant knowledge and need to develop their critical thinking skills, their ability to separate important information, and their ability to discuss and calmly solve problems and conflicts.

The UNECE Strategy for Sustainable Development Education for the period between 2005 and 2015 focuses on similar points. The strategy, as summarized by Črnjar (2015), focuses on the following points:

- The necessity for education for sustainable development (ESD) in every country.
- The necessity to develop regulations that would support education for sustainable development.
- The necessity to promote education for sustainable development through both formal and informal forms of education.
- The necessity to educate teaching staff so they could include topics about education for sustainable development in class.
- The necessity to support research key to improving sustainable development.
- The focus should be on stronger cooperation in education for sustainable development among all layers of society.
- Education for sustainable development is a lifelong process that includes all levels of education.
- Education for sustainable development is a key element for the development of both urban and rural areas.
- It is essential to promote systematic, critical, and creative thinking.
- Higher education is crucial for education for sustainable development.

As can be understood from the above-mentioned points, sustainable development education is a complex set of skills and knowledge whose goal it is to teach people how to live a more sustainable life and deal with the challenges of the economic systems of the 21st century. The competencies developed by sustainable development education include cognitive abilities, as well as motivational, volitional, and social readiness to deal with issues of sustainability and to help create a sustainable world in private, social and institutional contexts (Črnjar, 2015). As Boeve-de Pauw et al (2021) claim, one of the key factors of such education is to motivate and empower people to obtain knowledge about environmental and social issues and to use that knowledge to actively engage in changing the society. While institutions can plan and legislate, individuals implement changes and they need the knowledge, values, and education to create a sustainable world. Education for sustainable development needs to be effective and goal-oriented to give people a sense of purpose and to help them work together towards a common goal (International Environment Forum, 2001). The final goal of education for sustainable development is to increase the accessibility and quality of good basic education, improve

teaching plans and programmes, and promote public awareness to allow for constructive and creative ways of solving contemporary and future global issues and the creation of sustainable societies (Boromisa et al, 2018).

Alongside the global attempts to promote education for sustainable development, many international scientific programmes, academies, and independent scientist networks have started promoting sustainability science. It is explained by Boromisa et al (2018) as a complex concept which combines different methodologies and disciplines, theories ranging from political to economic ones, and disciplines like biology, ecology, chemistry, and philosophy. Such a development in the scientific world further suggests the popularity and importance of sustainable development in the field of education. As explained by Afroz and Ilham (2020), universities and university campuses can be imagined as spaces and communities in which sustainable development experiments can be implemented and sustainability paradigms can be taught. Students can then practice environment sustainability and become aware of its consequences, which would help them expand their knowledge and horizons. Given the amount of time that students spend in faculty buildings, it is important to offer them a wide variety of activities, both curricular and extra-curricular, which would help them become more aware of sustainability principles and co-create faculty principles on such issues (Brečko Grubar and Žunec, 2019). The focus should be on students' knowledge, attitude, and action in regards to sustainable development practices (Afroz and Ilham, 2020), and students should be made aware of the consequences of their lifestyle and practices and encourage to accept personal responsibility for those actions (Anđić and Tatalović Vorkapić, 2017). As Corral-Lage et al (2020) explain, students need to be confronted with ethical issues in which they need to decide and understand which standards and codes should be implemented to achieve economic growth while maintaining the natural environment. Students should therefore gain knowledge, skills, but also a code of ethics whose centrepiece would be sustainability and which should help them combat the social, economic, and environmental challenges they might face during their lives.

3. IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT IN TOURISM

In the past several decades, sustainable development has become one of the key elements in global decision-making, especially in issues of development (Posavec, 2016). With an estimated 10% of global economic activity and a growth trend, tourism cannot stay outside of such developments. Considering the size of the tourism industry, it is sure to have both a positive and a negative impact on the environment, especially considering that the rapid economic development since the first industrial revolution has also rapidly increased the decline of the global environment (Grofelnik, 2019). As pointed out by the International Environment Forum (2001), it is the responsibility of both the government and private businesses to manage natural resources in a sustainable manner for the benefit of all people. Tourism as a branch of industry that is closely connected to both government controls and private endeavours is an industry in which the ideals of sustainability ought to be implemented. Grofelnik (2019) claims that tourism offers the possibility of meeting new peoples, cultures, and environments and as such has the potential to educate people

and increase awareness of the need for sustainable development.

As stated in Principle 1 of the Rio Declaration, humans are at the centre of sustainable development and it should be implemented in a way that allows everyone to live a healthy and productive life while not endangering the environment (International Environment Forum, 2001). Sustainable development is only achievable through the balance of three fundamental elements of development: material welfare, social development, and environmental protection. Combined with them should be the ethical dimension and the issue of what kind of world we want to leave to the future generations. All societies, nations, and communities need to find a balance between all those elements in order to successfully implement sustainability. That can only be achieved through the cooperation of governments, the civil society, the private sector, and NGOs (International Environment Forum, 2001). Tourism is an important branch of global industry and it is involved in such actions. The industry can only achieve sustainability through the cooperation between the government, private business, and the locals.

As far as the implementation of sustainable development practices and environmental protection in Croatia goes, Drljača (2012) explains that Croatia was one of the first countries in Europe to introduce a resolution on environmental protection in the country after the Stockholm Conference in 1972. Environmental protection NGOs and government bodies have been founded with the goal of raising awareness about environmental protection. Some of the key goals of the Croatian environmental protection program are rational soil, natural resource, and forest management, the preservation of air quality, especially in urban industrial areas, the protection of drinking water sources, the protection of the Adriatic coastal area, the protection and preservation of cultural inheritance, more advanced garbage management etc (Drljača, 2012). Apart from the environment protection declaration, a national strategy for environmental protection has also been introduced. The focus of the national strategy is economic and social development within an international, European context, which can only be achieved through realistic sustainable development. The priorities of the Croatian national strategy are protection of the environment, raising awareness about the need for such protection, prevention of pollution, sustainable natural resource management, reduction of non-renewable resource usage, and increase in quality of life and quality of the environment. Sustainable development is a global and long-term goal, which increases the population's quality of life and allows for permanent access to natural resources without endangering their existence (Drljača, 2012). That concept of sustainability is a key element of the tourism development strategy of Croatian tourism.

A very important strategic document in this field is the Strategy for Sustainable Development Education for the period between 2005 and 2015. That document emphasizes the importance of education in providing people with knowledge and skills to address a multitude of challenges (the degradation of land, water and air quality, the loss of species and ecosystem biodiversity). Education also promotes the values of respecting and acting responsibly towards others and towards our planet. The main goal is to equip people with knowledge and skills in sustainable development, making them more competent and confident while at the same time giving them the chance to lead healthy and prosperous life in harmony with their environment (United Nations, 2016).

Globally important document is *The 2030 Agenda for Sustainable Development* with aims such as ending poverty and hunger, ensuring all human beings can fulfil their potential with dignity in a healthy environment, protecting the planet from nature degradation, sustainable consumption and production, sustainable management of natural resources, taking urgent action on climate change etc (United Nations, 2015). The 2030 Agenda is universal, transformative, and rights-based. It is an ambitious plan of action for countries, the UN system, and all other actors. The Agenda is the most comprehensive blueprint to date for eliminating extreme poverty, reducing inequality, and protecting the planet. The 2030 Agenda is based on five dimensions, also known as the 5Ps:

- People - To end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment.
- Planet - To protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change.
- Prosperity - To ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature.
- Peace - To foster peaceful, just and inclusive societies which are free from fear and violence.
- Partnership - To mobilise the means required to implement the 2030 Agenda through a partnership based on a spirit of solidarity and focused, in particular, on the needs of the most vulnerable.

The Sustainable Development Goals (SDGs) constitute the core of the 2030 Agenda for Sustainable Development and guide all global, regional and national development endeavours for the next period. SDGs, also known as the Global Goals were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The 17 SDGs are integrated—they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability. Countries have committed to prioritize progress for those who're furthest behind. The SDGs are designed to end poverty, hunger, AIDS, and discrimination against women and girls. The creativity, knowhow, technology and financial resources from all of society is necessary to achieve the SDGs in every context (UNDP, undp.org).

Sustainability brings with it several positive outcomes which would help improve the economic and social standard of the tourism industry and of tourist areas. Those benefits are listed by Paquette and Wiseman (2006) as follows: a decrease in operational costs by successfully using environmental efficiencies, competitive advantage over others through the implementation of environmentally friendly and efficient business models, the improved public and corporate image of a socially responsible business, reduction of risks in the areas of resource depletion, energy prices, product lack or surplus, and waste management, and finally staying ahead of any future regulations which could put the business in a precarious position. Companies ought to aim to stay within the environment's carrying capacity and not use natural resources in a way that would deplete them and not allow them to regenerate. They should also form bonds with

local communities and stakeholders and openly communicate development strategies with them in order to achieve the highest possible level of sustainability and value (Paquette and Wiseman, 2006). As Bardal et al (2021) point out, regional and national authorities also have a say in the processes of sustainable development planning and can influence local planning through wider national or regional expectations, guidelines and provisions. It is therefore necessary to include businesses, local communities, and governments in a comprehensive, holistic approach to sustainable development planning. Given that tourism is highly dependent on natural attractions and local cultural goods, the cooperation between those three elements is crucial for a successful sustainability strategy on all levels of tourism development. Grofelnik (2019) concludes that there is a need for a systematic rethinking and research into sustainable tourism as a long-term strategy for the betterment of the local, national, and global community. While such a process can lead to misunderstandings and conflicts of interest, the already mentioned positive outcomes of sustainable development make it worthwhile for all parties involved.

4. RESEARCH METHODOLOGY AND RESULTS

In the research part of the paper, primary research was conducted using a questionnaire distributed online in May 2022. The aim was to investigate the attitudes of students of different years at the Faculty of Management in Tourism and Hospitality in Opatija, enrolled in the undergraduate program in Management of Sustainable Development and in the graduate program in Sustainable Development of Tourism. From a total population of 340 students and a sample of 26.76%, 91 valid questionnaires were collected.

The first part of the questionnaire refers to the socio-demographic profile of the respondents and their understanding of the concept of sustainable development (Posavec, 2016). The second part contains statements divided into the following constructs: Knowledge about sustainable development (Berglund et al., 2018), Role and daily habits (Ćulum et al., 2008), Attitudes towards sustainable development (Berglund et al., 2018), Sustainable behavior (Berglund et al., 2018), and Attitudes towards responsibility for sustainable development (Ćulum et al., 2008). Knowledge and attitudes toward sustainable development and sustainable behaviour are interpreted through environmental, social, and economic aspects. The environmental aspect included: preservation of nature and living beings, reduction of waste, use of natural resources, transition to renewable energy sources, environmental protection; the social aspect included: long and healthy life quality of life, gender equality, respect for human rights and other cultures, quality education; and the economic aspect analyzed by air, soil and water pollution, poverty reduction, functioning of the economy and fair distribution of goods and services between people. Role and daily habits include: concern for solving the problems of people with special needs, the poor and other marginalized groups; concern about the consequences of climate change; raising the standard of living; contribution of manifestations to the protection and promotion of natural and cultural heritage; rational consumption of water and electricity; paying attention to the country of origin and other information on the product declaration; allocation of a larger sum of money for ecological products; concern about the use of means of transport and the level of their environmental pollution. Attitudes towards sustainable development from the environmental aspect included:

using more natural resources than necessary does not endanger people's health and well-being in the future; the need for stricter laws and regulations for environmental protection; to take action against problems related to climate change; unlimited water consumption; from the social aspect: equal opportunity for everyone to acquire the knowledge, values and skills necessary for a sustainable life; the same quality of life for the people today and those in the future; securing financial assistance from the government, encouraging more people to use green cars; exercise of democratic rights and involvement in important issues; equality of women and men for education and employment; and from the economic aspect: responsibility of companies to reduce the use of packaging and disposable products; poverty reduction; ensuring equal business conditions for employees in rich and poor countries; payment for environmental damage. Construct sustainable behaviour consists of statements related to: sustainable modes of transport, reducing water consumption, collecting and sorting garbage, taking care of the environment, changing lifestyles, respecting others, serving on a committee, supporting a humanitarian organization or environmental group, helping the poor, buying used goods and watching the news or reading newspaper articles about the economy. And the last one, attitudes towards responsibility for sustainable development cover: making development decisions, making strategic decisions about the development of a particular region, solving the problem of global warming, recycling, the role of associations in environmental protection and the provision of social services, compliance with the law, concern for quality production and profit, responsibility for the systematic promotion and implementation of education for sustainable development. The level of agreement (1 - do not agree at all, 2 - do not agree, 3 - neither agree nor disagree, 4 - agree, 5 - fully agree) and importance (1 - totally important, 2 - not important, 3 - neither important nor unimportant, 4 - important, 5 - totally important) were determined using a Likert scale.
The following presents the research results obtained based on the application of descriptive statistics, independent samples t-test, correlation analysis, and simple analysis of variance. By descriptive statistics the interpretation the sociodemographic profile of the participants, which included questions on gender, year of study, and study status is prepared. In the total sample of 91 respondents, 25.3% were female and 74.7% were male. In terms of year of study, 2nd year students predominate (44.4%), while the fewest are from 4th year of undergraduate study and 1st year of graduate study. In addition, when student status is considered, 62.6% of the respondents are full-time students and 37.4% of them are part-time students.

Before data processing, it is necessary to determine the reliability of the constructs that will be included in the analysis.

Table 1: **Reliability analysis of sustainable development knowledge constructs**

The name of the construct	Cronbach's Alpha
Knowledge of the environmental aspect	0,744
Knowledge of the social aspect	0,802
Knowledge of the economic aspect	0,797

According to Hair (2007), Cronbach's alpha must be greater than 0.7, then it is a reliable construct. As we can see from the Table 1, reliability analysis showed that all three knowledge constructs (environmental, social, economic) have values bigger than 0.7, which means that they are reliable for further testing using other methods.

Next, the T-test for independent samples was used to test the assumption of a statistically significant difference between two arithmetic means of independent samples. Two research questions were defined: Is there a statistically significant difference in sustainable development knowledge related to gender? and Is there a statistically significant difference in sustainable development knowledge related to study status?

Table 2: **Independent-samples t-test for knowledge and gender t-test for equality of means**

	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Environment	-1.204	89	0.232	-.16506	.13708	-.43743	.10732
Society	-1.615	88	0.110	-.24401	.15105	-.54419	.05618
Economy	-1.781	87	0.078	-.30305	.17013	-.64120	.03511

Since the p-value in each individual aspect is greater than 0.05, it can be concluded that there is no statistically significant difference in knowledge about environmental, social, and economic aspects of sustainable development in relation to gender, which means that there are no gender differences in relation to the points of view of men and women.

Table 3: **T-test for independent samples for knowledge and student status**

	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Environment	2.095	89	.039	.25387	.12119	.01306	.49468
Society	-.156	88	.877	-.02116	.13585	-.29112	.24880
Economy	1.633	50.702	.109	.26702	.16351	-.06128	.59533

From the above table, there is a statistically significant difference in knowledge of environmental aspects of sustainable development ($p=0.039$, $t=2.095$) in relation to student status, while there is no statistically significant difference in social and economic aspects ($p > 0.05$). The analyzed data showed that there are no significant differences in the comparison of knowledge related to the status of students, from which it can be concluded that the opinions of full-time and part-time students do not differ significantly with respect to the perception of knowledge about social and economic aspects.

Before performing the correlation analysis, it was necessary to test assumptions such as normality to determine which of the two association coefficients should be used, Pearson's or Spearman's. Since the normality assumption was not met, i.e., the distribution was not normal, Spearman's correlation coefficient (r_s) is used in further analysis to study the degree of association between two variables.

Table 4: **The relationship between attitudes towards sustainable development and sustainable behaviour**

			Behaviour
Spearman's rho	Attitudes	r_s	.098
		Sig. (2-tailed)	.353
		N	91

The correlation analysis showed that there are no statistically significant differences when determining the degree of agreement with certain statements within the constructs "attitudes toward sustainable development" and "sustainable behaviour" ($p > 0.01$, $r_s=0.098$).

A similar situation is found in the following table, which shows a comparison of the constructs "knowledge about sustainable development" and "sustainable behaviour". Since the value of the Spearman coefficient (r_s) is below 0.05, it can be concluded that students' knowledge about sustainable development and their sustainable behaviour are not strongly related, i.e., interdependent.

Table 5: **The relationship between knowledge about sustainable development and sustainable behaviour**

			Behaviour
Spearman's rho	Knowledge	r_s	.047
		Sig. (2-tailed)	.658
		N	91

There is no statistically significant relationship between knowledge and behaviour ($p > 0.01$, $r_s=0.047$).

Knowledge about sustainable development was examined using the construct of the same name. A descriptive analysis and a more detailed explanation of this construct were added, considering the environmental, social and economic aspect. According to the obtained data, the knowledge of environmental aspects has the highest score (M=4.36, SD=0.56). Students attribute the highest importance to education about sustainable development (M=4.58), and the lowest to the preservation of the diversity of living beings (M=4.12). It can be concluded that within this construct, each aspect is equally important when it comes to the perception of knowledge about sustainable development, which can be seen from the fact that the other two aspects were rated very highly (for the social aspect, the highest mean is 4.09 and the arithmetic mean is 0.62, while for the economic aspect M=4.24 and SD =0.69).

To determine the relationship between the constructs "attitudes toward sustainable development" and "student habits," a correlation analysis was also conducted. The data showed that even in this case there is no statistically significant relationship, i.e., for example, positive attitudes towards sustainable development are not closely related to positive daily habits of the student and the role of the student in general, and vice versa.

Table 6: **The correlation between the attitudes towards sustainable development and the habits of students**

			Habits
Spearman's rho	Attitudes	r_s	-.209*
		Sig. (2-tailed)	.047
		N	91

There is a weak negative relationship between attitudes toward sustainable development and student habits (p=-.209, r_s=-0.209).

ONE- WAY ANOVA Analysis of variance for independent samples is used to determine if there is a statistically significant difference between the arithmetic means of at least three groups of subjects.

The table below is an example of such an analysis, summarizing data on the relationship between the constructs "sustainable development knowledge" and years of study.

Table 7: **The relationship between sustainable development knowledge and years of study**

		Sum of Squares	df	Mean Square	F	Sig.
Environment	Between Groups	5.287	4	1.322	4.709	.002
Society		2.673	4	.668	1.793	.138
Economy		11.823	4	2.956	8.261	.000

The analysis of ONE-WAY ANOVA shows that there is a statistically significant difference in knowledge about environmental (p=0.002, F=4.709) and economic aspects of sustainability (p < 0.001, F=8.261).

It is concluded that there are statistically significant differences in the perception of students, regardless of the year of study (1st to 5th year of study in undergraduate and 1st year of study in graduate), regarding the knowledge of environmental and economic aspects, which is confirmed by the p-value, which is greater than 0.05 in both aspects. Looking at the social aspect, we can see that there is not much difference in this aspect, which means that students, regardless of the year in which they were enrolled in the faculty, have a very similar opinion about the social aspect of sustainable development knowledge.

5. INTERPRETATION AND DISCUSSION

The results of this research can contribute to the students who have participated in the learning activities, so that they become aware of the potential differences that exist in their training in sustainability development education (SDE) through SGs. The results can also help teaching staff at universities to adapt their programs and methodology to the use of SGs. In order to carry out activities connected to sustainable development, people need to have necessary knowledge and understanding of the very concept of sustainable development. Understanding the relationship between ecology, economic development, and the well-being of all people allows for research activities in the field of sustainable development. Those activities can be implemented in different ways: through learning by doing, discussions, gaining experience, reaching mutual conclusions, etc.

The students are not yet sufficiently prepared for the upcoming changes and challenges, they do not have a deep understanding of ecological interrelationships. Only a small proportion of them are capable of making environmentally conscious decisions as they take their place in the world of work. It can be concluded that a new educational paradigm is needed, which should focus on the requirements of sustainable development and the promotion of cooperation rather than competition. The goal should be to help people discover their unique potential rather than focusing solely on acquiring skills to be competitive in the labour market. Such an approach to education would be participatory, interactive, inclusive, values-based, and knowledge-based. However, it is also important to note that action begins with the individual. While institutions plan, legislate and incentivize, it is the individual who acts. It is therefore necessary to bring together the elements of knowledge, values, and education together to influence the individual, who then also in cooperation with others influences collective decision making, behaviour, and action.

CONCLUSION

In conclusion, sustainability is a complex topic which involves ecological, social, and economic elements. Today's society faces numerous challenges which all require creative, adaptable and self-organised solutions by individuals who understand the complexities of the world and are capable to cooperate to achieve positive long-term results (Rončević et al, 2018). At the beginning of the 3rd millennium, questions ranging from ecology, energy, information technology, and genetic engineering to social and ethical values have become central to the notion of sustainability. The three overlying elements – ecological, social, and economic sustainability – all need to be accounted for and work in unison to achieve the sustainability needed for development aimed at leaving a better world for future generations. That is a long-term process which needs to include all natural and artificial resources and take into consideration all short and long-term advantages and disadvantages on both local and global levels. Should the balance between economy, society, and environment be disturbed, sustainable development cannot be achieved. The interconnection between those three key pillars of sustainability is therefore crucial and ignoring it can lead to negative consequences in the long run (Grofelnik, 2019).

In order to achieve a higher level of skills and awareness of sustainable development, education needs to take a central role in improve people knowledge about sustainability from an early age. The efforts to do so are generally called Education for Sustainable Development (EDS) (Mischo et al, 2019). Education is central because, as Mischo et al (2019) point out, the implementation of sustainable development depends largely on the competencies of the population. Anđić and Hadela (2021) conclude that sustainable development is a learning process which requires a holistic and participatory approach and whose goal is to raise awareness about the necessity for a sustainable culture by combining issues of ecology, economy, and society. Education for sustainable development is therefore a holistic type of education which helps people develop the skills and attitudes needed to participate in the decision-making processes about creating a sustainable society and preserving the environment for future generations. ESD should be an integral part of education from early childhood and should aim at not only teaching about sustainability, but also making sustainability a core part of people's values and lifestyle (Anđić and Hadela, 2021).

The necessary transition to a more sustainable model of development will require unprecedented efforts and sacrifices from governments, businesses, civil society groups, and individuals. It therefore requires mobilizing new and better knowledge among the population. While a lot of that knowledge already exists and only needs to be taught to the wider population, Clark et al (2016) also point out that new discoveries, practices, and knowledge are also needed in order to challenge existing conceptions and practices. It can be concluded that sustainable development is a necessary answer to the many difficulties facing humanity in the 21st century, and the only way to successfully implement it on a global scale is to educate people about the need for sustainability, to teach them skills needed to create a sustainable world, and to make values of sustainability become core to people's ethics. What is needed is not only an improvement in knowledge and skills, but also a change in worldview and in everyday practices of each individual.

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