THE EUROPE UNION GREEN DEAL AS A FACTOR FOR CHANGES IN BUSINESS: THE EDUCATIONAL PERSPECTIVE

***Ilona Beizitere[1], Ieva Brence[2], Baiba Rivza[1]**
[1]Latvia University of Life Sciences and Technologies, Latvia
[2]Turiba University, Latvia
*Corresponding author's e-mail: ilona.beizitere@gmail.com

Abstract
Sustainability, green growth and the European Union Green Deal principles are the cornerstones that should and will affect our lives. The aim of the paper is to provide possible improvements to higher education programmes to promote the implementation of the EU Green Deal as a factor for changes in business. The research is based on investigations into the entrepreneurship students' knowledge of the EU Green Deal. A theoretical analysis of literature and policy documents were investigated to develop an appropriate questionnaire for the survey of Latvian university students. The research methods involve measures of central tendency and location, T-test, ANOVA and correlation analysis. The research results indicate that business curricula involve courses on Sustainable Development and universities' role in teaching the Green Deal because the students who hold experience in entrepreneurship report similar results if compared with students without experience in entrepreneurship. Students' knowledge of the EU Green Deal should be improved since there are a number of aspects where the answers were not correct. This, in turn, prompts the need to strengthen and diversify education, so that business transformation towards the Green Deal is successful. The curricula should be further improved, as it allows students to better understand EU and global trends in saving the planet and put the knowledge into practice in their companies.
Keywords: education, entrepreneurs, EU Green Deal, higher education students, knowledge, sustainability.

Introduction

As part of the Green Deal (GD), the European Union Member States must implement various programmes and instruments that achieve the goal of ensuring net emissions of greenhouse gases by 2050. The Member States should not only reduce greenhouse gas emissions from agriculture but also increase carbon sequestration, increase the sustainability of agricultural production, improve biodiversity in rural areas and help to provide the population with nutritious and healthy food, including by promoting the development of the bioeconomy.

From the perspective of the European Commission, education plays a central role in global political efforts to promote sustainability and combat climate change. In its 2020 Communication 'On Achieving the European Education Area by 2025', the European Commission states that education and training policies and investments aimed at an inclusive green and digital transition are recognized as essential for Europe's future resilience and prosperity. This aspect points to the urgency of improving curricula that incorporate the theme of the GD and train young people as potential green converters in the practical implementation of its principles.

The author (Zotti, 2022) emphasizes that the strategic goal of the EU education reform is much broader than small adjustments to existing curricula, that is, it places sustainability at the centre of the European education policy reform programme. This means (Zotti, 2022) that better education and training should support not only environmental sustainability but also a general concept of sustainability, which also drives the politicians' agenda for better, more qualitative and inclusive education in Europe.

A holistic approach to the implementation of bioeconomy strategies for improving business economic performance involves several factors, including knowledge generation and dissemination. The importance of transformative business activity is recognized in the bioeconomy strategies of many countries around the world (Kuckertz, 2020). This shows the need to improve business education at all levels – professional, higher education and research.

Some research studies demonstrate (e.g. Lamenta & Grzybowska, 2023) that for entrepreneurs from several European countries, the awareness of the GD goals is still a challenge for achieving these goals in practice. Consequently, the role of awareness and especially formal education in the creation and implementation of the green economy in business in the future is increasing. The results of a research study (Krajnc *et al.*, 2022), which surveyed young people in five EU countries, showed a lack of knowledge about the GD priorities and circular economy principles and their connection to business activities in most areas. Moreover, formal education did not provide enough knowledge for young people to successfully operate in the green transformation of business (Krajnc *et al.*, 2022). Another research study (Tooman & Piirman, 2019) on micro-enterprises in Estonia, Finland, Latvia and Sweden determined the skills and knowledge most needed for green entrepreneurship and business development. The research revealed that although micro-entrepreneurs had enough natural business ideas, they lacked the skills to turn them into a profitable green business and the supply of products and services. For many entrepreneurs, it is important to get practical skills, as they need to know 'how to do' rather than 'what to do'.

In Latvia, some researchers have focused on researching the linkage of the content of tertiary education programmes with the topics of the GD framework. Thus, the authors (Kalnbalkite, Pubule, & Blumberga, 2022), examining the master's programme 'Environmental Engineering' established at the

Institute of Energy Systems and Environment of Riga Technical University, the field of study 'Bioeconomics', emphasize the complex nature of the training. This research study highlights the critical role of higher education in achieving the goals of the GD and the bioeconomy, including competence-based learning.

Education adapted to the Green Deal not only contributes to the country's green transformation and sustainability but also plays a crucial role in preventing the economic consequences of climate change, especially in terms of its impact on the labour market and adapting the necessary skills and competencies to the future workforce (Zotti, 2022).

Thus, it is important to find out whether Latvian university students have an understanding of the GD and whether the programmes offered contain sufficient green knowledge for business transformation.

The aim of the research is to provide possible improvements to higher education programmes to promote students' knowledge of the GD. An understanding of this topic enhances the ability of budding entrepreneurs to implement green change. Therefore, improved education is one of the change factors for implementing the GD principles in business.

Materials and Methods

The task set forth in the research is to identify the level of knowledge of the students in universities as potential implementers of the green transformation of the national economy in the areas of the GD. For this task, a survey was conducted among the students, so that the data obtained could be used for in-depth research.

The research was initiated in several steps, see 'Figure 1'.

In order to conduct the survey, literature sources and the EU and Latvian strategies and policy documents related to the topic of the GD were reviewed. The survey questions were formulated using several sources, the main of which was the GD strategy adopted by the European Commission in 2019, as well as the Latvian Common Agricultural Policy Strategic Plan 2023-2027. This Latvian strategy, in turn, includes EU 2030 goals and measures set in the EU strategy 'Farm-to-Fork' and the EU Biodiversity Strategy 2030.

The survey questionnaire was distributed anonymously among students of master's and doctoral programmes in paper and electronic format at four Latvian universities: Latvia University of Life Sciences and Technologies, Liepaja University, Turiba University and the University of Latvia. The programmes of the selected universities include courses that cover the topics of the GD and the economy.

The survey was conducted from 07/12/2023 to 15/02/2024. A total of 179 responses were received, of which four were deemed inappropriate.

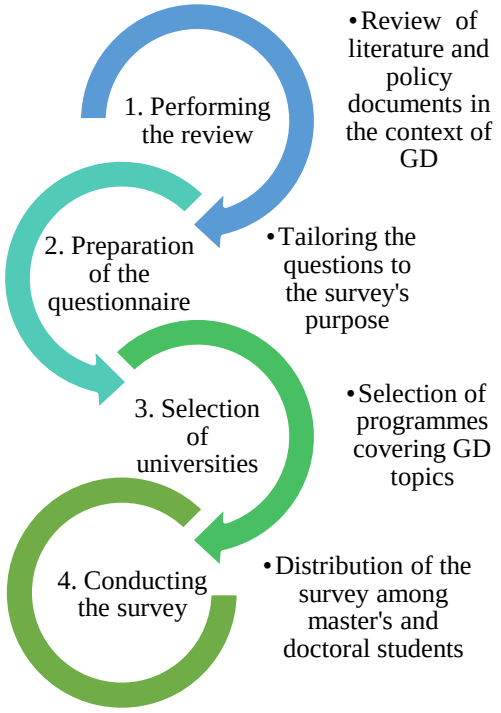

Figure 1. Scheme of conducting the research.

Results and Discussion

The SPSS software platform was used for statistical analysis. There were students with and without experience in entrepreneurship who participated in the survey. Taking into account that students who worked might have attended some seminars on green growth, the two groups were compared. Yet, at the same time, following the data that the average experience for students in business was 1 – 2 years, the H_0 was set that the means of the two groups were equal. Alternatively, the H_1 was set – the difference between the groups was significant (see Table 1 and Table 2).

Table 1

Group Statistics

	Yes – 1; No - 2	N	Mean	Std. Deviation	Std. Error Mean
How important is the implementation of the Green Deal in Latvia?	1	72	0.10	0.298	0.035
	2	103	0.05	0.216	0.021

Taking into account the test results, we failed to reject the null hypothesis. We did not have sufficient evidence to say that the true mean was different between students holding experience in entrepreneurship and students without experience in the field.

Table 2

Independent Samples T-Test

		Levene's test for equality of variances		t-test for equality of means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% confidence interval of the difference	
									Lower	Upper
Experience in entrepreneurship	Equal variances assumed	6.355	0.013	1.252	173	0.212	0.049	0.039	-0.028	0.125
	Equal variances not assumed			1.184	121.219	0.239	0.049	0.041	-0.033	0.130

The main purpose of the questionnaire was to find out the students' awareness of what the overarching goal of the GD was. The results showed that, in general, the students knew the GD (see 'Table 3'). The answers showed that most of the respondents (72%) had an idea of the main goal of the GD – for Europe to become a climate-neutral part of the world and to achieve zero greenhouse gas (GHG) emissions by 2050. The majority (60%) were aware that the Green Deal also has an intermediate target of reducing GHGs by at least 55% by 2030 compared with 1990 levels. It is noteworthy that 70% of students with experience in business management and 55% without such experience were aware of this specific target, which resulted in the EU regulatory package 'Fit for 55' in 2021.

Table 3

Student responses regarding the main objective of the European Union's Green Deal

Answer	Percent of all
Achieve climate neutrality in the EU by 2050	72
Reduce GHG emissions by at least 55% compared with 1990 levels in the EU by 2030.	60
Restrict global warming and ensure that GHG emissions are significantly reduced	58
Other	3

The GD has been introduced to reorient the EU's economic development in line with the United Nations' 2030 Agenda and Sustainable Development Goals. With this in mind, the survey included a question about the sustainable development strategies of the GD. The responses showed that majority of the students were aware of the most important strategies of the GD framework, see 'Figure 2'. The GD integrates several strategies and develops diverse policies, in particular on biodiversity, the circular economy, climate change, food systems, forest protection and restoration, and renewable energy. The answers reflected the areas about which the students were most likely to have acquired knowledge. The fact that the majority pointed to a strategy related to energy and the use of renewable energy resources is reasonable. The EU Climate Action Plan and subsequent regulatory documents on renewable energy were introduced earlier than the GD initiative. The aspect of energy efficiency is included in several Latvian policy documents, starting with the Sustainable Development Strategy of Latvia until 2030, adopted in 2010. It is no surprise that universities have developed curricula in this field.

In Latvia, the directions to the Green Deal are included in several strategies important for the development of the national economy, and the need for educated human resources is emphasized in them. For example, the Latvian Bioeconomy Strategy 2030 (adopted on 19/12/2017) envisages the provision of excellent educational services for the needs of bioeconomy industries. The strategy states that high-quality knowledge that meets the demand of the bioeconomy sectors can be developed at three levels - professional, higher education and lifelong learning. It was emphasized that excellence should be achieved in higher education by supplementing the acquired knowledge in the specific speciality with entrepreneurial skills and knowledge. The Latvian Common Agricultural Policy Strategic Plan 2023-2027 (adopted on 18/01/2022) is an important instrument aimed at measures and investments to achieve the goals of the GD, including reducing GHG emissions, reducing the use of plant protection products and fertilizers and increasing the area of organic agriculture. This plan particularly emphasizes the need for quality education and knowledge, and therefore access to education, upskilling and retraining should be promoted. Unfortunately, the need to include knowledge about the Green Deal, its goals and strategies and to acquire relevant skills in the

implementation of the Green Deal in the national economy in the Latvian Education Development Guidelines 2021-2027, which were adopted in 2021, has not been emphasized in training at universities.
These examples show that the education development strategy is not aligned with the implementation of strategies vital to Latvia's economy. In practice, the content of courses and their improvement are actually the responsibility of the management and scientific staff of each higher education institution.

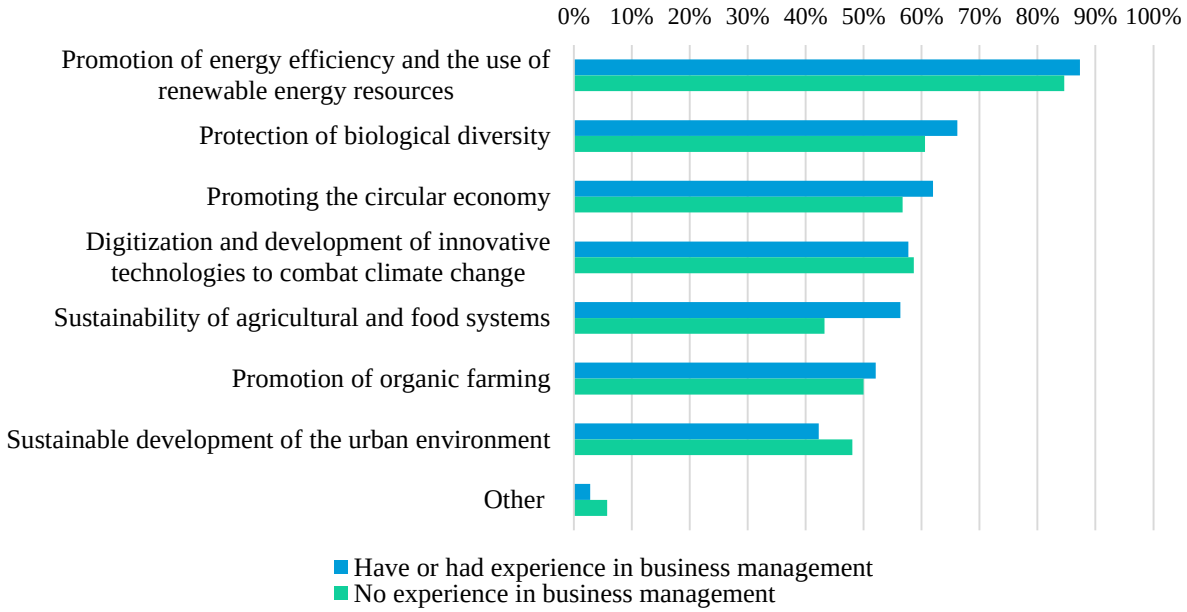

Figure 2. Student responses on sustainable development strategies within the framework of the European Union's Green Deal (n=175).

The research goals of EU researchers in the field of education go beyond simply improving the level of awareness of learners. To promote learning about environmental sustainability in the EU and the GD, the European Sustainability Competence Framework was developed in 2022. It aims to provide guidelines for the development of sustainability competencies to be incorporated into educational programmes across the EU. According to this Framework, the green transformation requires not only specific knowledge and skills but also 12 sustainability competencies, which the authors have divided into four clusters: 'embodying sustainability values', 'embracing complexity in sustainability', 'envisioning sustainable futures' and 'acting for sustainability' (Zotti, 2022).
Not all the students were sufficiently clear about the values of sustainability and had a vision of implementing the GD for the sustainable development of the national economy. To assess the students' perceptions of how important the implementation of the EU Green Deal in Latvia was, a scale from one to five was used, where one means 'not important' and five means 'very important'. Comparing the answers of the group of students with experience in business management and those without such experience, it could be seen that the distribution of answers differed little. Ten percent of students with business management experience and 7% without it considered the implementation of the Green Deal as generally unimportant or less important. However, the majority of respondents believed that the green transition was generally important for Latvia – 75% of both groups indicated it. In response to the question how important was the implementation of the EU Green Deal in Latvia, one of the answers was: '...currently research is of great importance because it is necessary to take into account the factors in global climate and environmental changes that can affect the development of the business environment in the coming periods. Researchers need to work more closely with representatives of practical business and policymakers to promote the development of a sustainable business environment'. However, another respondent had a worrying belief: 'When talking to politicians in Latvia, sustainability is not mentioned as a priority'. Another important answer was: 'If a person him/herself does not think or does not want to think about not destroying his/her home (the Earth), then this Green Deal will force him/her to do it'. The responses showed a diversity of opinions, which was likely based on differences in awareness of the GD and the positions or activities of its policymakers.
An analysis of variance (ANOVA) showed whether there were statistically significant differences between groups of respondents in their separate answers to two questions: 'Which of the sustainable strategies are part of the Green Deal?' and 'In your opinion, how important is the introduction of the EU Green Deal?' (Table 4). The data showed that there were only two questions where significant differences could be found in terms of opinions about sustainable strategies as part of the GD.

The students were asked to indicate the strategies that formed a part of the GD. Although it was possible to click all the answer options, it happened in no cases. This fact leads to an indication that the students needed a deeper understanding of the GD.

A correlation analysis was performed to investigate relationships among the answers indicated (Table 5). There were a number of significant correlations, yet the numbers were expected to be higher. Moreover, it should be considered that there was a negative (although not significant) correlation between the indicators 'Energy efficiency' and 'Sustainability of the urban environment'.

Table 4

Main statistical indicators for testing a statistical hypothesis with analysis of variance (ANOVA) for the difference between the sustainable strategies as a part of the EU Green Deal and the opinions on the introduction of the EU Green Deal in Latvia

Analysed aspect	Indicator	Sum of Squares	df	Mean Square	F	Sig.
Energy efficiency	Between groups	0.001	1	0.001	0.109	0.742
	Within groups	1.976	172	0.011		
	Total	1.977	173			
Circular economy	Between groups	0.124	1	0.124	0.961	0.328
	Within groups	22.780	176	0.129		
	Total	22.904	177			
Biological diversity	Between groups	1.486	1	1.486	6.293	**0.013**
	Within groups	41.575	176	0.236		
	Total	43.062	177			
Sustainability of the urban environment	Between groups	0.581	1	0.581	2.499	0.116
	Within groups	40.947	176	0.233		
	Total	41.528	177			
Sustainability of agricultural and food systems	Between groups	0.191	1	0.191	0.763	0.383
	Within groups	43.950	176	0.250		
	Total	44.140	177			
Organic farming	Between groups	0.699	1	0.699	2.814	0.095
	Within groups	43.750	176	0.249		
	Total	44.449	177			
Digitization and innovation	Between groups	0.089	1	0.089	0.354	0.553
	Within groups	44.411	176	0.252		
	Total	44.500	177			
Other strategy	Between groups	1.343	1	1.343	5.599	**0.019**
	Within groups	42.208	176	0.240		
	Total	43.551	177			

Table 5

Main statistical indicators of correlations between responses on the sustainable strategy under the Green Deal

Analysed aspect	Statistical indicators	Energy efficiency	Circular economy	Biological diversity	Sustainability of the urban environment	Sustainability of agricultural and food systems	Organic farming	Digitization and innovation	Other strategy
Energy efficiency	Pearson Correlation	1	-0.113	0.088	-0.030	0.009	0.003	-0.002	-0.018
	Sig. (2-tailed)		0.135	0.248	0.694	0.903	0.968	0.981	0.812
	N	175	175	175	175	175	175	175	175
Circular economy	Pearson Correlation	-0.113	1	-0.032	0.222**	0.164*	0.030	0.143	0.112
	Sig. (2-tailed)	0.135		0.670	0.003	0.029	0.687	0.056	0.137
	N	175	179	179	179	179	179	179	179
Biological diversity	Pearson Correlation	0.088	-0.032	1	0.157*	0.046	0.366**	0.175*	0.161*
	Sig. (2-tailed)	0.248	0.670		0.036	0.537	0.000	0.019	0.031
	N	175	179	179	179	179	179	179	179

Continuation of the Table 5

Sustainability of the urban environment	Pearson Correlation	-0.030	0.222**	0.157*	1	0.239**	0.374**	0.339**	0.130
	Sig. (2-tailed)	0.694	0.003	0.036		0.001	0.000	0.000	0.084
	N	175	179	179	179	179	179	179	179
Sustainability of agricultural and food systems	Pearson Correlation	0.009	0.164*	0.046	0.239**	1	0.294**	0.298**	0.281**
	Sig. (2-tailed)	0.903	0.029	0.537	0.001		0.000	0.000	0.000
	N	175	179	179	179	179	179	179	179
Organic farming	Pearson Correlation	0.003	0.030	0.366**	0.374**	0.294**	1	0.464**	0.283**
	Sig. (2-tailed)	0.968	0.687	0.000	0.000	0.000		0.000	0.000
	N	175	179	179	179	179	179	179	179
Digitization and innovation	Pearson Correlation	-0.002	0.143	0.175*	0.339**	0.298**	0.464**	1	0.163*
	Sig. (2-tailed)	0.981	0.056	0.019	0.000	0.000	0.000		0.029
	N	175	179	179	179	179	179	179	179
Other strategy	Pearson Correlation	-0.018	0.112	0.161*	0.130	0.281**	0.283**	0.163*	1
	Sig. (2-tailed)	0.812	0.137	0.031	0.084	0.000	0.000	0.029	
	N	175	179	179	179	179	179	179	179
** Correlation is significant at the 0.01 level (2-tailed).									
* Correlation is significant at the 0.05 level (2-tailed).									

The international research study (Krajnc *et al*., 2022) has identified a lack of knowledge among young students about the circular economy to achieve the goals set by the GD. The researchers draw attention to the fact that, despite young people's support for the circular economy concept, they were not sufficiently trained to create new solutions for the implementation of the circular economy. The authors of this research study recommend introducing systemic measures in the field of education to more intensively involve young people in the implementation of the GD and the circular economy. Some of them are also suitable for improving the Latvian education system, including:

- creation of awareness of the circular economy, the GD and sustainability in business at all levels of education;
- creation of interdisciplinary, responsive environmental education curricula that meet the goals of sustainable development;
- development of diverse skills, providing opportunities for the use of knowledge in practice;
- use of forums in education for cooperation with young people, where they can be more motivated to ensure circular economy principles (Krajnc *et al*., 2022).

An interdisciplinary approach in the bioeconomy entrepreneurial ecosystem is supported by researchers (Kuckertz, Berger, & Brändle, 2020) who emphasize the alliance between bioeconomy start-ups and universities. Regarding the improvement of education in the field of the bioeconomy, the researchers recommend that universities focus on increasing the individual motivation of students and providing educational activities that strengthen the entrepreneurial behaviour of students and faculty (Borge & Bröring, 2020).

Some research studies reveal that the lack of business support services is a major obstacle to the growth and competitiveness of SMEs. For example, a research study (Daoudi *et al*., 2023) emphasizes that SMEs need coordinated support to implement green and circular economy innovations. Critical support services include, but are not limited to, business management capacity-building services based on successful business experience. Services would help SMEs to acquire the knowledge and skills to better manage their businesses and adopt circular and green economy practices. The authors recommend that such services should combine advanced training programmes with mentoring and consulting services on various aspects of strategic management. In order to create future-ready entrepreneurs and workforces, curricula should be designed to develop entrepreneurial skills, including topics in strategic business planning, financial analysis and supply chain management.

A limitation of this research study was that the survey was restricted to students from some bachelor, master and doctoral programmes that have varying levels of knowledge, perceptions and experience. Therefore, the results of the research only shed light on the problems in education, which aim to provide knowledge about the areas of the GD.

Most likely, only professionals equipped with relevant knowledge, skills and competencies will be able to make a green transition in the national economy.

Conclusions

1. The majority of the surveyed higher education students cared about a climate-neutral and sustainable future and had general knowledge about the GD and sustainability. However, this knowledge did not indicate a complete readiness to accomplish a green transformation in business, and thus to implement the principles of the GD in the national economy.
2. There is an urgent need to develop a special curriculum adapted to each university, for example, ‘Ecology and environmental protection’, including a special section on the GD, green thinking, and the possible impact of climate change on the environment and society. The urgency of improving the programmes stems from the need in the coming

years – to achieve the goals of climate neutrality in 2050 and 55% reduction in GHG emissions in 2030.

3. Higher education institutions should consider that education programs should be created using an interdisciplinary approach, emphasizing the acquisition of skills for the practical implementation of GD principles for the development of future professionals' knowledge and sustainability competencies.
4. Awareness of sustainability values, supplemented with specific knowledge and special skills, is a priority that should be further developed in educational programmes in the field of Green Deal. It is also essential to focus on business management capacity-building skills to bring the green transformation to life.

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