TALLINN UNIVERSITY OF TECHNOLOGY
School of Business and Governance

Toluwalase Johnson

STUDENTS' AWARENESS OF SUSTAINABLE DEVELOPMENT GOALS AND ENVIRONMENTAL, SOCIAL AND GOVERNANCE PRINCIPLES IN ESTONIA

Master's thesis

International Business Administration, International Business

Supervisor: Merle Ojasoo, PhD

Tallinn 2024

I hereby declare that I have compiled the thesis independently
and all works, important standpoints and data by other authors
have been properly referenced and the same paper
has not been previously presented for grading.

The document length is 14,736 words from the introduction to the end of the conclusion.

Toluwalase Johnson ……

(date)

TABLE OF CONTENTS

ABSTRACT

This thesis examines the level of awareness and perception of Sustainable Development Goals (SDGs) and Environmental, Social and Governance (ESG) principles among university students in Estonia. With an increased level of global attention towards the impact of sustainability practices, understanding the relevance of these two concepts and their perception among university students is crucial. This thesis concentrates on two sustainability concepts – SDGs and ESG and answers research questions relating to students' level of awareness, level of perception and the most significant gap in their knowledge of these two concepts.

Quantitative methodology was used for this study, and it involved the distribution of a questionnaire to university students to gather their awareness level, knowledge and perspectives on SDGs/ESG principles. The questionnaire was not only administered to Estonian students but also international students in Estonia as the only criterion for participation was being a student in an Estonian university. The results from the responses of 172 students were analysed and the analysis of the findings revealed a generally positive level of awareness and perception of SDGs/ESG principles, however, there was a knowledge gap identified for some specific SDGs/ESG principles. This knowledge gap could be bridged via more initiatives by the university to improve students' awareness, knowledge and perception of these concepts. The findings of this research are serviceable to universities, policymakers, decision makers and stakeholders in the sustainability development field who aim to increase the SDGs/ESG literacy, awareness, and perception of future business leaders both locally and globally.

Keywords: Sustainability, Students, Awareness, Environmental, Social and Governance principles, Sustainable Development Goals, Assessment for sustainability knowledge.

INTRODUCTION

Sustainable development – a critical global necessity in the 21st century – is one of today's most prominent topics of interest (Saqib *et al.*, 2020). Global warming, climate change and extreme poverty are some of the pressing concerns that need to be addressed for the world to achieve sustainable development and in a bid to address these and many more economic, social and environmental challenges, the United Nations (UN) articulated a set of measurable objectives popularly known as the 17 Sustainable Development Goals (SDGs) in its 2030 Agenda for sustainable development (Firoiu *et al.*, 2022; United Nations, 2015). Unlike the Millenium Development Goals, these goals are not only targeted at less developed countries but all countries of the world.

The UN Agenda 2030 recognises not only governments but also businesses as catalysts to attaining the 17 SDGs and 169 targets (Szennay *et al.*, 2019). This is described in the "Partnership for the Goals" aspect of Agenda 2030 which calls for the involvement of all stakeholders (Berrone *et al.,* 2019; United Nations, 2015). Specifically, some scholars have opined that private companies and educational institutions are instrumental to achieving the 17 SDGs and 169 targets (Avrampou *et al.*, 2019; Weybrecht, 2021; García-Sánchez *et al.*, 2020; Holmes *et al.*, 2022; Sullivan *et al.*, 2018).

One way to assess businesses contribution to SDGs is via their Environmental, Social and Governance (ESG) reporting. Today, an increasing number of companies are engaging in some form of ESG reporting which includes climate action, employee wellbeing and board diversity (Cormac & Haney, 2012; United Nations, 2021). ESG practices tend to benefit companies, as some studies have shown that companies with better ESG performance have better financial performance compared to their counterparts (Eccles *et al.*, 2014; Avrampou *et al.*, 2019; Dalal & Thaker, 2019).

According to Serafini *et al.* (2022), universities have a strategic role to play towards achieving SDGs and better ESG practices as they are shaping the lives of the future decision makers of tomorrow. Leiva-Brondo *et al.* (2022) also highlights that universities are instrumental in transforming the knowledge, shaping the perceptions, and building the mindset of future employees towards sustainability practices. Some universities have taken this a step further by becoming signatories to the principles for management education (PRME) which focuses on

advancing the education of SDGs among university students (Avelar *et al.*, 2021; UN PRME, 2023). However, the PRME signatories are only about 4% of the total universities in the world (over 22,000 as at 2018) (Williams & Usher, 2022). Given the importance of their key position of influence, all universities including PRME signatories, need to pay more attention to implementing strategies for improving the sustainability knowledge of students, for example by teaching SDGs/ESG principles as part of the university curriculum.

Zhou *et al.* (2022) believes that incorporating SDGs into the university curriculum will encourage university students to strive towards achieving them. Furthermore, according to Briens *et al.* (2023), after honours students complete a structured sustainability curriculum, they begin to show more advanced knowledge on this topic. There is therefore a need to research the level of awareness and perception of students about SDGs/ESG as a foundation for implementing strategies in universities to improve on their existing knowledge.

The importance of SDGs/ESG education for students cannot be over emphasised as they are the future business leaders who would influence ethical practices in the corporate world (Kozma, 2021). There have been a few research studies (Briens *et al.*, 2023; Ho *et al.*, 2022; Omisore *et al.*, 2017; Zhou *et al.*, 2022) on the topic of awareness and perception of SDGs amongst university students. However, they have predominantly been outside of Europe. Research on this topic is extremely lacking, especially in the Baltics. To the author's knowledge, there has been a lack of scientific research on this topic in Estonia. Gaining such knowledge will be valuable for students as it will provide the foundation and necessary educational background for them to make business decisions as future business leaders. Therefore, the research problem is lack of knowledge about the level of awareness and perception about SDGs/ESG principles among university students who are going to be business decision makers in future. Once university teachers and program managers understand the level of awareness of students about SDGs/ESG principles, they could begin to develop the appropriate curricula to emphasise on the aspects of SDGs/ESG principles where the knowledge is lacking.

As an addition to the body of knowledge on this topic, this thesis includes ESG, which is the other side of the coin for businesses in terms of their accountability to stakeholders by reporting on their environmental, social and governance practices. It also considers the program being studied in the university by students and gender which were limitations from a previous study by Alsaati *et al.* (2020).

In view of the foregoing, the aim of this masters' thesis is to find out the level of university students' awareness and perceptions about SDGs/ESG principles in Estonia. In order to achieve this aim, the author has put forward some research questions.

The research questions are as follows:

1. What is the level of university students' awareness about SDGs/ESG principles?
2. What is the level of university students' perception about SDGs/ESG principles?
3. What principles are most knowledgeable by students?
4. Where is the biggest gap in their knowledge of the principles?
5. What is the correlation between SDGs relevant for students and their awareness about those goals?

In order to collect data for this research, questionnaires were distributed in an online survey to both international and domestic students in seven Estonian universities – five public universities and two private universities.

Structure of the thesis:

This masters' thesis contains an introduction, four chapters of the body and a conclusion. The introduction contains a brief overview of the research topic, the research gap, research questions and the main aim of the study. In the first chapter, a review of relevant existing literature on the topic is carried out. It also includes an overview of sustainability and responsibility in the 21st century. The second chapter is about the research methodology. It includes information on the sample size, methods, and research design. The third and fourth chapters include analysis of the data collected, findings, discussions from the findings of the study and limitations of the study. The conclusion includes a summary of the research and recommendations for future studies.

1. THEORETICAL BACKGROUND TO THE STUDY

This chapter presents three subsections that review theories and concepts related to this thesis. The first section presents the philosophy of responsible, ethical businesses, closely followed by the role of sustainability and responsibility in the 21st century. The final section touches on SDGs/ESG principles.

1.1. The philosophy of ethical businesses

Researchers have considered the ethical dimension of business and commerce since the Code of Hammurabi (c. 1750 BC). All actors involved in business activities are bound by codes of conduct enforced by professional societies or ethics teams. Within these boundaries are moral obligations for these agents; however, the complexity of this responsibility varies as one moves from individuals to firms and supranational enterprises (Beauchamp & Bowie, 2014; Hoffman & Frederick, 1995). This section considers several questions revolving around the philosophy of ethical business and the role of businesses in shaping the world in which we live. There are layers to the discussion as it affects consumers, workers in the firm, and society at large.

Gilbert (1992) mentions in his review of other researchers' work that the nature of business ethics needs a clear-cut definition. However, like philosophical and religious ethics, business ethics also touches on principles and actions (*ibid.*). In his research, Lewis, 1985 alluded to the fact that there is no clear-cut definition of what is morally right or wrong because everyone does not agree on a specific set of principles to be applied to different actions or ethical dilemmas. He then proceeded to review over 100 textbooks, the results of which led to the formation of a broad definition which states that - business ethics comprises moral rules, standards, codes or principles that serve as a guide for behaviours that are morally right and truthful in specific circumstances (*ibid.*).

Many definitions of business ethics agree that there is some moral element of right or wrong with respect to business activities (Crane & Matten, 2023; Lewis, 1985; Gilbert, 1992). In other words, ethical businesses abide by some ethical principles in managerial decision-making. Business ethics is theoretical and practical, hence the need to encourage awareness of its principles among university students who will become business leaders and managers (Gilbert, 1992). If these students do not know business ethics, then the possibility of practising it becomes slimmer.

There are several cases where unethical practices have cost companies more than 50% of their sales, for example, GlaxoSmithKline and even led to complete closure in some cases due to the inability to recover from the losses – both financial and reputational for example, Enron and Lehman Brothers (Parboteeah & Cullen, 2018; Peterson & Ferell, 2005; Cernuşca, 2002; Steele, 2014). Empirical research shows that companies that promote ethical practices, such as corporate social responsibility and social and governance practices, have better financial performance (Beurden & Gossling, 2008; Affes & Jarboui, 2023; ÇEK, 2023; Onifade *et al.*, 2022). However, the environmental impact is not as strong as the corporate social impact on financial performance (ÇEK, 2023). Nonetheless, ethical practices remain beneficial to the company and its employees, as employees tend to reflect higher levels of loyalty and commitment when the companies they work for are ethical (Parboteeah & Cullen, 2018).

1.2. Role of sustainable and responsible businesses in the 21st century

The 21st century has ushered in a transformative era regarding how businesses perceive their societal role, redefining their purpose beyond profit margins (Porter & Kramer, 2011; Elkington, 1998; Omazić, 2023). No longer confined solely to economic considerations, companies recognise the importance of contributing to a sustainable and responsible future. This shift signifies more than just a trend; it represents a fundamental evolution in the corporate mindset (Margolis & Walsh, 2003; Bansal & Roth, 2000).

With the widespread use of social media, the rapid spread of information it brings about, and consumers becoming increasingly conscious about the products and services they consume and their environmental effects, businesses awaken to how their operations impact the environment and society. This has caused businesses to begin to view sustainability and responsibility as indispensable elements that safeguard the planet and fortify long-term success in an ever-evolving global landscape (Schaltegger & Wagner, 2011; Hennig-Thurau *et al.*, 2013).

Climate change and the unfavourable impacts of unsustainable practices on the society has made it important for companies to shift from their traditional profit-oriented view to one that incorporates environmental and social strategies. This shift in the traditional view is not only happening in response to external pressures but also because of sustainability attitudes of

businesses that recognise the relationship between their operations and the planet's well-being. In essence, sustainability has become a business strategy, not only for mitigating environmental damage but also for ensuring the resilience and longevity of enterprises (Porter & Kramer, 2011; Elkington, 1998).

On the other hand, Imperiale *et al.*, 2023 highlights that the increase in attention on sustainability could prove to be a disadvantage to the companies that report on sustainability related activities. For example, companies in controversial sectors could be left at a disadvantage when their SDGs/ESG reports are not well received by stakeholders. It could also put the reputation of the company at risk when their business activities result in a very low sustainability performance. One of such controversial sectors is the utilities sector (which includes providers of electricity, water or gas) where their negative footprints could range from pollution and deforestation to reduction or disappearance of some naturally occurring plant species (Pizzi *et al.*, 2021).

The increase in the attention to sustainability reporting tends to entice organisations to cherry pick the information included in their sustainability report. In such scenarios, the sustainability report of such companies could cause stakeholders to form incomplete or misleading views. In order for businesses to maximise their contribution to achieving the SDGs, they need to report on all sustainability related practices, to give a full picture on their progress towards achieving the goals (OECD, 2017).

In spite of the costs of SDGs/ESG reporting for companies with negative ecological footprint, generally speaking, the benefits of sustainability reporting and sustainability activities tend to outweigh the costs as it encourages companies to pursue more sustainable options and unlocks innovation which could increase the longevity of the plant and resources.

1.2.1. Business as a force for good

As briefly mentioned in section 1.2, businesses are now urged to acknowledge that their success is intricately linked to the well-being of the communities they serve. The concept of creating shared value, introduced by Porter & Kramer (2011), emphasises that businesses can simultaneously generate economic value for shareholders while addressing social and environmental challenges. This evolving perspective positions businesses as dynamic forces capable of fostering positive change within the confines of their boardrooms and throughout the broader society.

Several studies highlight this evolving perspective that positions businesses as dynamic forces fostering positive change. Notably, works on corporate social responsibility (CSR) emphasise the expanding role of businesses beyond profit maximisation, highlighting their potential to contribute positively to social and environmental outcomes (Elkington, 1998). This shift in perspective reflects a growing recognition of the interconnectedness between business operations and societal well-being.

Moreover, recent research has explored the tangible benefits that businesses can obtain by embracing responsible and sustainable practices. Businesses can enhance their competitive advantage by aligning their strategies with societal needs (Porter & Kramer, 2011). This strategy works as a pull to their clientele base as many modern-day consumers are drawn to supporting and purchasing from eco-friendly businesses. A positive correlation is shown between corporate and social performance and financial performance, reinforcing that businesses can thrive by addressing economic, social, and environmental concerns (Margolis & Walsh, 2003).

Hart's seminal work in 1997 highlighted the need for organisations to extend their vision beyond short-term financial gains, as was seen in the previous years, urging them to consider the long-term implications of their actions on both local and global scales (Hart, 1997). This involves a departure from traditional business models that prioritise profit maximisation without due regard for the broader impact on the environment, communities, and future generations.

Central to the evolving perspective is a commitment to environmental stewardship. Businesses recognise their role as custodians of the planet and actively seek ways to minimise their ecological footprint. This involves adopting sustainable sourcing practices, investing in renewable energy by switching from cheaper non-renewable sources and implementing circular economy principles. By aligning their operations with environmentally conscious strategies, businesses become catalysts for ecological preservation and resilience (Jenkins & Yakovleva, 2006).

The evolving perspective also places a strong emphasis on social responsibility. Companies are increasingly aware of their influence on societal well-being, prompting them to invest in initiatives that improve communities and promote social inclusion. This may involve supporting education programs, contributing to healthcare infrastructure, or actively engaging in initiatives to improve diversity and equality within their workforce. Through these actions, businesses enhance their

public image and actively advocate for social responsibility (McWilliams & Siegel, 2001; Porter & Kramer, 2006).

Recognising that societal and environmental challenges are broad in scope, companies are expected to collaborate with stakeholders, including governments, non-governmental organisations, and other businesses, to increase their influence in addressing these challenges. This collaborative approach fosters innovation, resource-sharing, and a collective commitment to addressing complex issues that no entity can resolve alone.

In conclusion, by embracing the role of a force for good, businesses are not just meeting ethical expectations but proactively shaping a future where commerce and societal well-being are equally promoted.

1.2.2. Triple bottom line approach

The contemporary business landscape is witnessing a transformative shift in performance evaluation frameworks, with an increasing acknowledgement that financial performance alone does not capture a company's social and environment footprint. Adopting a Triple Bottom Line (TBL) approach is a gradual development, as businesses recognise the necessity of measuring success across economic, social, and environmental dimensions (Elkington, 1998). Elkington proposed a framework that goes beyond financial considerations, incorporating social and environmental factors into evaluating organisational success. This conceptualisation acknowledges the broader responsibilities of businesses in the contemporary socio-ecological context.

At its core, the TBL approach emphasises the interconnectedness of economic, social, and environmental factors in determining overall business performance (Savitz & Weber, 2014). Rather than viewing these dimensions in isolation, the TBL framework adopts the stance that they are interdependent and should be assessed collectively to comprehensively understand a company's impact on society and the planet. Within the social dimension, the TBL encourages businesses to go beyond financial indicators and assess their contributions to societal well-being. This includes considerations such as ethical business practices, community engagement, and the impact on human rights. Scholars argue that businesses can no longer be solely evaluated based on profitability; their role in fostering positive social outcomes is equally crucial (Savitz & Weber, 2014).

In the environmental realm, the TBL prompts organisations to evaluate and mitigate their ecological footprint. This involves scrutinising resource consumption, waste generation, and overall environmental sustainability. As climate change and environmental degradation become more pressing concerns, integrating environmentally responsible practices into business operations is not only ethically sound but also aligns with long-term economic interests (Elkington, 1998). While financial performance remains critical, the TBL challenges the notion that profitability should be pursued at the expense of social and environmental considerations. It advocates for a balanced and holistic approach where economic success is achieved harmoniously with ethical business practices and environmental sustainability (Elkington, 1998).

In conclusion, the TBL approach signifies a shift in perspective on how businesses measure success. By recognising the inseparable nature of economic, social, and environmental factors, organisations adopting the TBL approach position themselves as responsible firms contributing positively to society and the environment. As businesses increasingly embrace this comprehensive framework, it is evident that the TBL approach is not merely theoretical but a practical guide for fostering sustainable and socially responsible business practices.

1.2.3. Innovation and sustainable practices

Integrating sustainability and responsibility into business models prompts innovation. Nidumolu *et al.* (2009) highlights that a commitment to sustainable practices compels organisations to explore new business methods. This includes the development of eco-friendly products, the implementation of energy-efficient processes, and the creation of services that align with environmental and social considerations. By fostering a culture of innovation, businesses position themselves at the forefront of addressing contemporary challenges.

In the quest for sustainability, businesses discover that innovation is not just a means of meeting ethical standards but a key driver of competitiveness. Adapting and introducing sustainable practices enhances a company's market position and responsiveness to evolving consumer expectations (Hoffman & Bazerman, 2005). Through innovation, businesses can differentiate themselves, attract environmentally conscious consumers, and achieve a competitive edge in markets increasingly shaped by sustainability considerations.

The emphasis on sustainable innovation directly addresses environmental concerns by reducing ecological footprints. Businesses, driven by a commitment to responsibility, seek alternatives that minimise resource consumption, waste generation, and environmental degradation. Companies can achieve operational efficiency through innovative solutions while striving to reduce their impact on the planet (Nidumolu *et al.*, 2009).

Sustainable innovation extends beyond environmental considerations to also include social well-being. Hoffman & Bazerman (2005) argue that responsible business practices, driven by innovation, have the potential to influence communities, employees, and stakeholders positively. This includes initiatives such as fair labour practices, community engagement programs, and the development of products that address societal needs. The innovative pursuit of social responsibility benefits communities and enhances a company's reputation and brand value.

The interconnection between sustainability, responsibility, and innovation establishes a cycle where each element reinforces the others. Corporate responsibility drives innovation, prompting businesses to continually reassess and improve their practices in response to societal and environmental challenges. This repetitive process positions businesses as economic entities and dynamic contributors to a sustainable and socially responsible future.

Committing to developing sustainable products, services, and processes is an ethical imperative and a strategic choice that drives competitiveness, reduces ecological footprints, and enhances social well-being. In this evolving landscape, merging innovation with sustainable practices becomes a powerful force that propels businesses towards a future where economic success is closely linked to environmental and social stewardship.

1.3. Sustainable development goals and environmental, social and governance principles

Eccles *et al.* (2014) noted that neoclassical economics and several management theories assume that a corporation aims to maximise profits within capacity constraints. In these models, the shareholder is seen as the ultimate financial supporter, supplying the capital required to keep the business running. However, many differences exist in how businesses compete and aim to maximise profits. Different corporations exhibit varying degrees of emphasis on the long-term

instead of the short-term; they also exhibit varying degrees of concern regarding the impact of their operations' activities on other stakeholders, and they concentrate more or less on the moral basis for their choices.

In their study of 180 US companies (using data exhibited from 2009), Eccles *et al.* (2014) categorised companies into two: high sustainability companies (those who had voluntarily adopted sustainability policies) and low sustainability companies (those who adopted nearly none of those policies). According to them, the differences between these two categories of companies was that high sustainability companies had formal procedures for stakeholder interaction, longer-term focus and frequent disclosure of non-financial information. They noted that these differences contributed positively to these organisations' financial performance as high sustainability companies performed significantly better than low sustainability companies.

1.3.1. Environmental, social and governance and sustainable development goals background

ESG stands for Environmental, Social and Governance. Each letter (and associated term) represents pillars in the ESG framework and covers sustainability topics that businesses, companies, and corporations are to report on.

Environmental (E) examines how an organisation's activities impacts the environment. Specific indicators such as compliance with environmental regulations, waste management protocols, energy efficiency, deforestation and carbon footprints are considered. The degree of compliance with these sustainable practices is the basis of evaluation. Social (S) deals with the organisation's relationship with its employees, customers and stakeholders. Specific indicators such as product safety, labour practises, diversity and inclusion are evaluated to determine how ethically a company contributes to the well-being of employees, customers, stakeholders and society. Governance (G) refers to the internal structure and processes that direct the organisation's decision-making and direction. Some evaluated metrics are the structure and independence of internal boards, shareholder rights, and corporate transparency. ESG then constitutes a composite framework that investors, businesses and other stakeholders use to determine an organisation's operations' sustainability and ethical impact (Mathis & Stedman, 2023; Struck, 2023).

ESG as a term was popularised in 2004 in the "Who Cares Wins" UN report that included a group of 18 banks and investment firms who provided suggestions for improving the integration of ESG

concerns to brokerage services, asset management and other research activities (United Nations, 2004). The report arose from a new set of challenges (with financial implications and consequences) that organisations face in today's business universe. They noted the importance of corporations "actively managing risks and opportunities related to emerging environmental and social trends, in combination with rising public expectations for better accountability and corporate governance" (*ibid.*).

Esty & Cort (2020) noted that the increased interest in ESG and rapid capital flow towards building a sustainable future can be traced to two agreements made in 2015 - the UN SDGs and the Paris Climate Change Agreement (to hold the "increase in the global average temperature to well below 2°C above pre-industrial levels" and "to limit the temperature increase to 1.5°C above pre-industrial levels" (United Nations, 2024). The UN 2030 agenda for sustainable development – encompassed in the 17 SDGs – provide governments worldwide with a clear agenda of priorities for policy, emphasising the need for better outcomes on various pressing issues, such as hunger, poverty, access to clean water, economic development, human rights, and climate change. Beneath the 17 goals are 169 quantitative targets to increase the focus of governments, business communities, and non-governmental organisations on how to accomplish the 17 SDGs (Esty & Cort, 2020; United Nations, 2015). In contrast to the Millenium development goals 2000 - 2015 which were targeted at developing economies, the SDGs are more expanded in scope and targeted at all countries of the world. Together, the two agreements made in 2015 show the insufficiency of leaving sustainability goals to traditional governmental assistance and funds and advocate for including private capital.

Figure 1. The 17 SDGs

Source: (United Nations, 2015)

The ESG principles have some similarities with SDGs as they are both sustainability focused and ESG practices help achieve some of the 17 goals. However, the two concepts are also different because ESG principles are targeted towards being implemented by companies whereas the SDGs are more all-encompassing and targeted for implementation by governments, state owned and non-state-owned enterprises and society at large (Struck, 2023; Kostić & Hujdur, 2023). ESG ratings are ascribed to companies to measure their ESG performance, whereas SDGs rankings help measure how well a country has achieved the goals. Another difference is that ESG principles do not have a global structure unlike SDGs which have a globally adopted framework for implementation. Finally, ESG have no target date for implementation and is more open-ended to be measured periodically by rating agencies such as Sustainalytics, Moody's and Morgan Stanley Capital International, whereas SDGs have a target date of 2030 (Kostić & Hujdur, 2023; Bender *et al.*, 2023; United Nations, 2024a).

1.3.2. The relevance of environmental, social and governance principles in Estonia

Estonia has experienced significant economic transformation since its independence in 1991. Transitioning to a market-oriented economy from a centrally planned one opened avenues for more foreign investment and economic prosperity (Gerndorf *et al.*, 1999). With an open economy

largely dependent on trade relations with the European Union (EU), this small nation has a robust fiscal framework for industries such as manufacturing, services, and information technology (*ibid.*).

Estonia sets itself apart from other EU nations by emphasising digitalisation, demonstrated by its cutting-edge e-government services, e-residency initiatives, and e-voting platform. In addition to increasing administrative effectiveness, Estonia's dedication to technological innovation has established it as a world leader in the digital space. In recent times, there have been attempts to broaden the range of energy sources, prioritise sustainable energy, and increase research and development for a knowledge-driven economy (OECD, 2024).

Regarding Estonia's economic and social development, there is an increased alignment in the nation's business activities towards ESG policies and principles. On the Environmental side, there is an increased focus for energy diversification and reduction of environmental impact, for example: transitioning to renewable energy sources and efficient waste handling. In an article on the Estonian Oil Shale sector, Roos & Soosaar (2005) discussed the effects and impact of the energy sector on the environment. They examined indicators from greenhouse gas (GHG) emissions, energy consumption and economic activity data. They noted that the state is trying to reduce energy consumption (in adherence to the EU's 1998 energy charter), and Estonia will reach this prescribed level in 2025. The 2021 European Commission Energy Snapshot on Estonia also recommended reducing dependence on fossil fuels and diversifying energy imports.

Social indicators in Estonia promote diversity, as noted in the Estonian Diversity Charter (created in 2012) – an endeavour that the Estonian Human Rights Centre coordinates. According to a report by Rünne (2022) Managing Director of the centre, 172 employers in Estonia have signed and are committed to the diversity agreement. In the same vein, Estonia pays attention to companies' working environment risks under the Labour Inspectorate's directive, a subsidiary of the Ministry of Social Affairs. The Estonian Labour Inspectorate ensures adherence to labour laws and regulations, especially regarding working hours, wages, and work ethics (Riigiportaal, 2024). In the future, they will release reports of companies that should improve their employees' occupational health and safety.

Governance indicators in Estonia are also strong. As noted earlier, Estonia strongly emphasises technological innovation, which is one of the many drivers of foreign investments. One of the

ways that Estonia adheres to the Governance part of the ESG framework is in its alignment with data privacy, security, and transparency, as noted by the Estonian e-governance academy. The academy is an e-governance-related research, instruction, and advisory services centre. It provides a wide range of programs and initiatives in order to enable governments, public institutions, and policymakers to fully utilise the potential of digital technologies for more effective, transparent, and citizen-centred governance. (E-governance academy, 2024).

1.3.3. Perception and awareness about sustainable development goals and environmental, social and governance principles

SDGs/ESG principles are recognised as key drivers of sustainability initiatives and sustainable business practices. Gaining insight into people/students/stakeholders' various perceptions and interplay with SDGs/ESG can help shape sustainability development agendas.

A recent study by Saari *et al.* (2024) on engineering students' attitudes towards ethical and sustainable thinking, conducted in two countries (Estonia and Finland) found that some students have a consciousness of sustainability closely related to their background and previous education rather than their institutions' engineering educational curricula. The authors highlighted the importance of higher educational institutions integrating more sustainability courses into students' curricula. They also emphasised that an investigation should be done regarding how students' university activities and attitudes/perceptions towards sustainability are instrumental in their career choices.

An article by Seva-Larrosa *et al.* (2023) examines students' perceptions of SDGs and how this perception and awareness can benefit companies. They analysed how university business students view the role of business in accomplishing the SDGs and then looked at how they view the connection between increased business benefits and a stronger commitment to achieving the SDGs. Their article considers that business students are the next future business leaders, however, little research has been done on how students perceive the SDGs.

Seva-Larrosa *et al.* (2023) emphasise that training in the SDGs will undoubtedly increase the commitment of upcoming business leaders and the organisations they oversee to achieving the SDGs. They tried to tackle five areas of SDG perceptions (people, planet, prosperity, peace, partnership) and how they could be linked to business success and benefits. Their study showed that university students who aim for a position of business responsibility in the future, view

business commitment to SDG goals in terms of wealth development objectives. These students perceived that businesses do not view the SDGs about people, planet, peace, and partnerships as potential sources of opportunity - they only perceive the benefits of SDGs in relation to prosperity goals. The findings of the Seva-Larrosa *et al.* (2023) study indicate that students continue to have a low level of understanding regarding the possible advantages for businesses operating in settings where each criterion is met. The authors highlighted that higher education institutions (HEIs) could help students understand the significance of these areas for business performance if they addressed these issues.

In their research, (Niemczyk *et al.*, 2023) emphasised the importance of perception and attitudes of students when it comes to tangible sustainability actions and development. They noted that a positive or negative perception could serve as motivation/demotivation for implementing ESG as future business leaders. Academic institutions/universities are seen by the authors as a good source of sustainability knowledge; hence, it is worth investigating how much of the SDGs/ESG knowledge of students come from the academic institution.

In the process of investigating the level of awareness of students about sustainability, Leiva-Brondo *et al.* (2022), Alsaati *et al.*, (2020) and Smaniotto *et al.* (2020) discovered that students have heard about sustainability terms but when their sustainability knowledge was tested, results showed that the students do not fully understand sustainability concepts. For example, in Alsaati *et al.*, (2020)'s research, when students were asked to choose a sustainable action for environmental sustainability, majority chose burning of fossil fuels as opposed to better sustainable practices such as crop rotation and using recycled materials for production.

In terms of their lifestyle, Leiva-Brondo *et al.* (2022)'s research in Europe showed a positive attitude of students towards sustainability related lifestyle choices. However, Alsaati *et al.* (2020) in Saudi Arabia discovered that almost half of the students were found not be interested in some sustainable lifestyle choices such as water and energy conservation. This indicates room for more work to be done to improve students' sustainability awareness and perception. Notably, research from previous studies (Alsaati *et al.*, 2020; Leiva-Brondo *et al.*, 2022; Niemczyk *et al.*, 2023; Smaniotto *et al.*, 2020; Shehu & Shehu, 2018) recognised universities as one of the best places to improve the level of students' awareness on SDGs/ESG and sustainability.

1.3.4. Sustainable development goals and environmental, social and governance principles in higher education

In their article, Barth *et al.* (2007) investigated how higher education can facilitate the development of critical competencies for sustainable development. They discussed how sustainability is becoming increasingly important and how HEIs should help develop the skills necessary for sustainable development. The authors identified four categories of critical competencies: normative, analytical, cognitive, and interpersonal. Understanding sustainability's principles and concepts is a component of cognitive competencies; analysing complex sustainability challenges is the focus of analytical competencies; collaborating and communicating effectively is a component of interpersonal competencies; and developing ethical and normative perspectives on sustainability is a component of normative competencies. The authors contend that these competencies should be incorporated into the curriculum to guarantee that students are thoroughly aware of sustainability issues and the abilities required to address them. The study also covers the difficulties in implementing these competencies, including faculty development requirements and institutional resistance to change.

The study of institutional sustainability in higher education by Filho *et al.* (2020) focuses on advancements in the European context. The authors stress HEIs' role in advancing sustainability goals and the growing significance of institutional sustainability in response to global challenges. Their paper looked at curriculum development, organisational culture, governance structures, and community engagement, among other aspects of institutional sustainability. The authors noted that incorporating sustainability principles into the curriculum is one notable initiatives of HEIs, as many European HEIs constantly update their current courses, create new ones with a sustainability focus and highlight interdisciplinary approaches. They noted that promoting sustainability in HEIs requires institutional policies and curriculum integration. Integrating sustainability into different parts of university operations is made possible by institutional commitments and clear guidelines.

Furthermore, they observed that sustainability initiatives also heavily emphasise research and innovation. HEIs are creating research institutes or centres devoted to sustainability, assisting with interdisciplinary projects, and providing incentives for faculty members to conduct research with a sustainability focus. This advances the more general objectives of sustainability by aiding in creating sustainable practices and solutions. Community involvement is also a crucial component of sustainability initiatives. Through partnerships with organisations, community outreach

initiatives, and the inclusion of community-based projects in the curriculum, HEIs are actively engaging with both local and global communities.

Lozano *et al.* (2013) examine how sustainability declarations function in higher education and how they might support transformative leadership in the university system. This study looks into how sustainability declarations can be used as instruments to support sustainability leadership, aiming to improve higher education institutions' overall sustainability performance. The study highlights how sustainability declarations have two functions: practical tools for enacting organisational change within the structure and symbolic representations of the institutional commitment to sustainability.

According to the authors, declarations can influence decision-making procedures, mould institutional culture, and make incorporating sustainability principles into various university operations easier. They further noted that commitments to social responsibility, environmental stewardship, and ethical governance are essential to sustainability declarations. The study also emphasises the necessity of a structured approach to sustainability leadership, arguing in favour of a move away from isolated and dispersed projects towards comprehensive and integrated plans. The authors contend that rather than being viewed as stand-alone documents, sustainability declarations should be catalysts that encourage academic institutions to take a structured approach to addressing sustainability-related issues.

2. RESEARCH METHODOLOGY

This section covers the research design, population sample selection, sample size, data collection and analysis techniques. In the following subsections, each component of the research methodology is described in detail.

2.1. Research design

This study examines the level of students' awareness of SDGs/ESG principles within Estonian educational institutions. A quantitative research approach was adopted to answer the research questions of the study. This approach is justified as it is often practical in educational research settings, particularly when aiming for a broad student representation (Wersun *et al.*, 2019; Niemczyk *et al.*, 2023). This also aligns with the methodologies adopted by previous researchers for similar studies (Smaniotto *et al.*, 2020; Alghamdi & El-Hassan, 2020; Sonetti *et al.*, 2021; Valderrama-Hernández *et al.*, 2019).

Quantitative methods systematically gathers and examines numerical data to understand situations and verify theories. It displays a deductive understanding of the relationship between theory and research. Its main benefit is that it can produce accurate, quantitative results that are simple to duplicate and extrapolate to more significant populations (Bryman, 2016). This makes it helpful in research contexts for finding patterns, establishing correlations, and finding out causality. Quantitative methods offer advantages in efficiency, allowing for data collection from a larger sample size within a reasonable timeframe (Clark *et al.*, 2021).

The author of this thesis used an online questionnaire distributed among a representative sample of students from different educational institutions throughout Estonia to obtain primary data on the degree to which university students are aware of SDGs/ESG principles as well as their perception of these principles. The questionnaire was divided into three main sections: questions on the awareness of students about SDGs/ESG principles, questions on the perception of students about SDGs/ESG principles and finally a section on sustainability literacy assessment.

The questions within the first section of the questionnaire on awareness of SDGs/ESG principles was adapted from previous studies by Afroz & Ilham (2020) and Briens *et al.* (2022). The questions

on the perception of SDGs/ESG principles by students were adapted from previous studies by Sachs *et al.* (2022), Leiva-Brondo *et al.* (2022) and Ando *et al.* (2019). Finally, the questions on the sustainability knowledge of students was assessed using the assessment for sustainability knowledge (ASK) tool developed by Zwickle *et al.* (2014) and updated in the Zwickle & Jones (2018) study.

2.2. Sampling technique

Convenience sampling, also known as opportunity sampling, is selecting the closest people to the researcher to participate as respondents and keep going until the necessary sample size is reached or until those who happen to be available and accessible at the time have been reached (Cohen *et al.*, 2007). Convenience sampling was used in this thesis to collect data from easily accessible student populations in an efficient manner. Although the non-random selection of convenience sampling may introduce potential biases, it is a practical method that enables researchers to obtain information about students' awareness of sustainability issues quickly (Bryman, 2016).

It was beneficial for the research to use convenience sampling to gather data from students who were willing to participate and were easily accessible, as this type of sampling is not only cost-effective but also useful for studies where readily available participants like students are needed. It is also useful for studies assessing the perception of respondents on a given topic (Golzar *et al.*, 2022; Nikolopoulou, 2023). Furthermore, convenience sampling proved to be a useful choice for this study as it was also adopted in similar studies by previous authors (Shehu & Shehu, 2018; Smaniotto *et al.*, 2020). Subsequently, statistical analyses was used to determine the overall awareness level and perception, identify disparities between Tallinn University of Technology (Taltech) and other universities, and investigate possible factors influencing students' awareness and perception levels.

A total of 177 students participated in the survey and they were affiliated with the following universities: Estonian Business School (EBS), Tallinn University (TLU), Taltech, University of Tartu, Estonian Entrepreneurship University of Applied Sciences (Mainor), Tallinn Health Care College and Estonian University of Life Sciences. However, only 172 responses were utilised in the analysis as five of the respondents were not attending Estonian universities – indicated with the “Other” option in the survey.

The Taltech participants of the survey were also asked to indicate which school that they belonged to out of the five schools in the university: Taltech School of Business and Governance (SBG), School of Information technologies, School of Engineering, School of Science and Estonian Maritime Academy. This was important in order to understand if the sample population was mainly from SBG which is the school targeted at grooming future business leaders. Analysis of Taltech students' data that comes majorly from SBG would help provide a foundation for the next steps to improve the awareness level of future business leaders about these concepts – one of the initiatives of the SBG Ethics, Responsibility and Sustainability (ERS) working group in Taltech (Taltech, 2024). It was also important to provide separate analysis on Taltech in order to provide a basis for formulating next steps to help achieve the Taltech Green Strategy (2023 – 2035) which involves providing sustainability education to Taltech students with the aim of equipping them with the prerequisite knowledge for building sustainable businesses in future (Taltech, 2024a).

2.3. Data collection and analysis

Data collection is the systematic process of obtaining information or observations for study or analysis. It entails gathering unprocessed data—measurements, observations, or responses—from people, papers, or other sources to answer research questions, test theories, or guide choices (Cohen *et al.*, 2007).

This study used the Likert Scale when collecting data to measure students' awareness of SDGs/ESG principles. The Likert scale—named for its creator, Rensis Likert—is a widely used method for this kind of research. The Likert scale is a multiple-item or multiple-indicator measure of attitudes about a specific topic. The Likert scale is used to gauge how strongly one feels about a particular topic (Bryman, 2016); in this case, students' awareness regarding SDGs/ESG principles. Both 5-point and 3-point Likert scales were used for the purpose of this study.

During the study, the researcher sent out a Google forms link with the questionnaire on social media and to colleagues and friends. The researcher also contacted the student bodies and lecturers in the seven Estonian universities directly to provide support in distributing the questionnaire. The Google form collected all sample opinions, which were then downloaded in Excel format, and imported into Statistical Package for the Social Sciences (SPSS) for analysis. The questionnaire

was open initially for two weeks but due to lack of sufficient responses (only about 50 respondents), it was reopened for an additional three weeks.

The method of data collection was anonymous which encouraged respondents to participate voluntarily. There was also a consent question at the beginning of the questionnaire to verify participants' consent before they proceeded to answering the questions within the questionnaire. Descriptive statistics - mean and standard deviation (SD) were used to examine the level of awareness and perception of students on SDGs/ESG principles in Estonia. Frequency distribution explored respondent demographics (age, gender, school affiliation within Taltech, academic program, nationality, and place of awareness) to understand the sample composition. Independent samples t-test was used determine if the differences across subgroups were statistically significant. Exploratory factor analysis was conducted to determine the SDGs/ESG principles that were most knowledgeable and least knowledgeable by students. Finally, correlation analysis was conducted to assess the correlation between SDGs relevant for students and their awareness about those goals.

3. EMPIRICAL ANALYSIS

This section delves into the statistical analysis of university students' awareness on SDGs/ESG in Estonia. In this study, a significant difference in awareness of SDGs/ESG was observed between Taltech school and other schools. Further details of the analyses are presented below.

3.1. Respondents' demographics

Descriptive statistics, specifically frequency distribution, was utilised to analyse the general information about the students' profiles.

Table 1. Sample demographic characteristics (n = 172)

Characteristic	Ranges	Frequency	Percent
Gender	Female	108	62.80
	Male	62	36.00
	Prefer not to answer	2	1.20
Age Group	15 - 24 years	84	48.80
	25 - 34 years	66	38.40
	35 - 44 years	19	11.00
	45 years and above	3	1.70
Where are you studying?	Estonian University of Life Sciences	2	1.2
	EBS	1	0.6
	Mainor	8	4.7
	Tallinn Health Care college	1	0.6
	TLU	33	19.2
	Taltech	101	58.7
	University of Tartu	26	15.1
Taltech School	Estonian Maritime Academy	1	0.6
	I am not a student of Taltech	71	41.3
	School of Business and Governance	84	48.8
	School of Engineering	7	4.1
	School of Information Technologies	9	5.2

Academic Degree	Bachelors	89	51.70
	Masters	80	46.50
	PhD	3	1.70
Nationality	Foreign	87	50.60
	Domestic	85	49.40
Place of Awareness	Other sources outside Estonia	5	2.90
	My current university	85	49.40
	Not Applicable	24	14.00
	Online	35	20.30
	Other sources in Estonia	14	8.10
	School attended outside Estonia	9	5.20

Source: Author's calculations

Majority of the respondents were female, while male respondents accounted for 36% of the participants. Only two respondents preferred not to reveal their gender. Majority of the respondents (48.8%) fell within the 15-24 years age group, 38.40% of respondents fell within the 25–34-year range, 11.0% fell within the 35–44-year range, and 1.7% fell within the 45 years and above age group.

The distribution of respondents by university affiliation revealed a clear majority attending Taltech, TLU followed, accounting for 19.2% of respondents, University of Tartu accounted for 15.1%, respondents from Mainor accounted for 4.7%, respondents from the Estonian University of Life Sciences accounted for 1.2% while minimal representation was observed from Tallinn Health Care College (0.6%) and EBS (0.6%). Analysis revealed that majority of the students were enrolled in bachelor's program, followed by those enrolled in master's program, while 1.7% were pursuing doctoral (PhD) degrees. Finally, an analysis of the respondents' nationality revealed a foreign majority.

The respondents' awareness sources regarding SDGs/ESG highlights the critical role of universities. From the analysis, nearly half of informed respondents identified their current university as the primary source of knowledge on these topics. Online platforms followed, with 35 respondents (20.3%) utilising them while 14% of respondents indicated that the provided options did not apply to their awareness source. Among the remaining options, "Other sources outside

Estonia" and "School attended outside Estonia" had the lowest representation, with five respondents (2.9%) and nine respondents (5.2%), respectively.

3.2. Descriptive statistics

3.2.1. Students' awareness about sustainable development goals and environmental, social and governance principles

Descriptive statistics of students' awareness about SDGs/ESG principles using mean and SD are presented in Table 2. A five-point Likert scale measured awareness, with one representing the lowest level (Strongly Disagree) and five indicating the highest (Strongly Agree). The analysis revealed an average awareness score of 3.70.

Table 2. Descriptive statistics on awareness

Construct	Mean	SD
I recognise the term "Sustainable Development Goals"	4.08	1.05
I recognise the term "Environmental, Social and Governance"	3.73	1.15
I believe that there is a positive relationship between a firm's ESG performance and its financial performance	3.65	0.95
I have taken at least one course in the university that has SDGs or ESG related topics	3.36	1.43
Overall Awareness	3.70	0.86

Source: Author's calculations

Interestingly, individual statements within the survey provided a range of mean scores from 3.36 to 4.08. The highest mean (4.08) corresponded to the statement "I recognise the term SDGs", suggesting a generally good level of familiarity. Conversely, the lowest mean score (3.36) related to the statement "I have taken at least one course in the university that has SDGs or ESG related topics".

The overall measure of awareness showed an SD of 0.86, indicating a relatively tight cluster of responses. However, individual statements revealed a wider range, with SDs varying from 0.95 to 1.43. The statement with the lowest SD (0.95) was "I believe there is a positive relationship between a firm's ESG performance and its financial performance". This suggests a strong level of consensus among respondents on this particular topic. Conversely, the highest SD (1.43)

corresponded to the statement “I have taken at least one course in the university that has SDGs or ESG related topics”. This wider spread in responses indicates that exposure to SDGs/ESG related coursework varies significantly among students.

The gender mean scores revealed that male students (M = 3.589) scored slightly lower than female students (M = 3.782) on SDGs/ESG principles awareness. However, statistical tests (p-value of 0.156 ($p > 0.005$)) indicated that this difference was not statistically significant (see Table 6). This indicates that there is no significant gender gap in SDGs/ESG principles awareness among students in Estonia.

3.2.2. Students’ perception about sustainable development goals and environmental, social and governance principles

Descriptive statistics, namely mean and SD were used to analyse the perception of SDGs/ESG principles by students in Estonia. A five-point Likert scale measured student responses, with one indicating “Strongly Disagree” and five signifying “Strongly Agree” (see Table 3).

Table 3. The perception of students towards SDGs/ESG

Construct	Mean	SD
Business dedication to ESG and the SDGs is important for the achievement of the SDGs	4.09	0.82
Employees should be given an additional one day leave to participate in charity work such as: giving of clothes, money and food items to the homeless	3.83	0.99
The success of an organisation is more important than the success of its surrounding community	2.50	1.17
I believe that companies have a vital role to play for the achievement of the SDGs	4.26	0.85
I consciously try to reduce my environmental footprint on a regular basis	3.70	0.98
Access to clean water is a universal human right	4.50	0.86
I work with a company that practices ESG and actively works towards achieving SDGs.	3.34	1.21

I would like to work with a company that practices ESG and actively works towards achieving SDGs.	4.08	0.91
Clean air is part of a good life	4.65	0.72
Generally speaking consumerism is not sustainable	4.00	0.98
An unsustainable economy values personal wealth at the expense of others	4.03	1.04
Overall Perception	3.91	0.59

Source: Author's calculations

The analysis revealed an average perception score of 3.91, suggesting a generally positive perception of SDGs/ESG concepts. However, individual survey statements yielded a range of mean scores (2.50 to 4.65), highlighting variations in specific areas. For instance, the highest mean score (4.08) corresponded to the statement "Clean air is part of a good life", indicating broad students' agreement on environmental well-being. Conversely, the lowest score (2.50) corresponded to the statement "The success of an organisation is more important than the success of its surrounding community".

The overall SD (0.59) for perception reflects a relatively homogenous understanding of core SDGs/ESG principles. However, SD for individual statements ranged from 0.85 to 1.21, revealing more variation in specific areas. The statement with the lowest SD (0.85) was "I believe that companies have a vital role to play for the achievement of the SDGs", suggesting a strong consensus on the role of businesses towards sustainability practices. Conversely, the highest SD (1.21) was for the statement "I work with a company that practices ESG and actively works towards achieving SDGs".

This study also employed descriptive statistics to assess student perceptions of the extent to which individual SDGs have been achieved in Estonia (see Table 4).

Table 4. Descriptive statistics on perception

Construct	Mean	SD
No poverty	3.19	1.14
Zero hunger	3.55	1.14
Good health and wellbeing	3.79	1.00

Quality education	4.18	0.81
Gender equality	3.58	1.10
Clean water and sanitation	4.33	0.91
Affordable and clean energy	3.50	1.12
Decent work and economic growth	3.55	0.99
Industry, Innovation and Infrastructure	3.87	0.93
Reduced inequalities	3.26	1.06
Sustainable cities and communities	3.59	1.07
Responsible consumption and production	3.37	1.07
Climate action	3.37	1.10
Life below water	3.20	1.04
Life on land	3.74	0.89
Peace, justice and strong institutions	3.58	1.07
Partnerships for the goals	3.73	0.94
Overall Perception	3.61	0.70

Source: Author's calculations

The outcome revealed an average perception score of 3.61. Delving deeper, individual SDGs within the survey yielded a range of mean scores from 3.19 to 4.33. Students perceived "Clean water and sanitation" (mean score: 4.33) to be the most achieved SDG, while "No poverty" (mean score: 3.19) received the lowest score. This suggests that students believe Estonia has made the most progress on ensuring clean water and sanitation but perceive less progress on tackling poverty.

Beyond the average perception score, the analysis examined the SD of responses for each SDG. The overall measure of perception showed a SD of 0.70, indicating that on average, student responses were relatively clustered. However, individual SDGs revealed a wider range of variability, with SDs varying from 0.81 to 1.14. The SDG with the lowest SD (0.81) was "Quality education". This suggests a strong level of consensus among respondents on the extent to which Estonia has achieved this particular goal. Conversely, the highest SD (1.14) corresponded to the SDG "Zero hunger". This wider spread in responses indicates that student perceptions regarding Estonia's progress on eliminating hunger are more varied.

Finally, a five-point Likert scale measured students SDGs perception from a more personal standpoint on how important SDGs are to students' personal daily lives with one representing the lowest level (Not important) and five indicating the highest level (Very important). An overall mean of 4.36 indicates that students in Estonia ascribe a high level of importance to SDGs as it relates to their personal lives (see Table 5). Notably, the most important SDG to students in Estonia personal life was SDG 6 – "Clean water and sanitation" (mean: 4.65) while the least important SDG to their personal life was "Life below water" (mean: 3.95).

Table 5. Descriptive statistics on SDGs perception

Construct: To what extent are the SDGs important to your personal daily life and values?	Mean	SD
No poverty	4.27	0.84
Zero hunger	4.34	0.83
Good health and wellbeing	4.62	0.68
Quality education	4.58	0.72
Gender equality	4.30	0.90
Clean water and sanitation	4.65	0.72
Affordable and clean energy	4.53	0.73
Decent work and economic growth	4.45	0.74
Industry, Innovation and Infrastructure	4.19	0.84
Reduced inequalities	4.31	0.86
Sustainable cities and communities	4.40	0.75
Responsible consumption and production	4.45	0.74
Climate action	4.23	0.89
Life below water	3.95	0.95
Life on land	4.20	0.85
Peace, justice and strong institutions	4.43	0.80
Partnerships for the goals	4.20	0.93
Overall perception	4.36	0.81

Source: Author's calculations

With respect to variability in responses, the overall measure showed a SD of 0.81, indicating that on average, student responses were relatively clustered. This indicates general consensus about how much individual students value SDGs in their personal lives. Specifically, responses were more clustered for SDG 3 "Good health and wellbeing" (SD: 0.68) and less clustered for SDG 14

"Life below water" (SD: 0.95). This indicates less variability in their responses for "Good health and wellbeing" and more variability for "Life below water".

An analysis of mean scores on perception in revealed that male students (M = 3.606) and female students (M = 3.616) exhibited very similar average perceptions of SDGs achievement (see Table 6).

Table 6. Gender differences on students' awareness and perception of SDGs/ESG principles

Particulars	Gender	Mean	SD	T	p
Awareness	Male	3.589	0.939	1.426	0.156
	Female	3.782	0.799		
Perception	Male	3.606	0.738	0.087	0.931
	Female	3.616	0.687		

Source: Author's calculations

Independent samples t-tests (see Table 6) also revealed that the difference in SD for male and female respondents was not statistically significant (t = 1.426, p = 0.156), (p > 0.005). This suggests that there is no significant gender gap in SDGs/ESG principles perception among students in Estonia.

3.3. Differences in sustainable development goals and environmental, social and governance awareness and perception between Taltech students and other students

3.3.1. Differences in sustainable development goals and environmental, social and governance awareness between Taltech students and other students

Independent samples t-tests was used to assess potential differences in students' awareness of SDGs/ESG principles among Taltech students and other students in Estonia (see Table 7). The mean scores revealed that Taltech students (Mean = 3.861) scored slightly higher than other students (Mean = 3.475) on SDGs/ESG principles awareness and statistical tests indicated that this difference was statistically significant. This suggests that there are differences in students' awareness of SDGs/ESG principles between Taltech students and other students in Estonia.

The analysis of SD scores revealed that Taltech students (SD = 0.700) had slightly lower variability in awareness scores compared to other students (SD = 1.015). Independent samples t-tests were conducted to determine if this difference was statistically significant. The t-test results indicated a value of 2.952 and a p-value of 0.004 ($p < 0.005$). Since the p-value is lower than the level of significance (0.005), we can conclude that the observed difference in awareness scores between Taltech students and other students is statistically significant. In other words, there is clear and strong evidence to suggest significant differences in student awareness of SDGs/ESG principles between Taltech students and other students in Estonia.

3.3.2. Differences in sustainable development goals perception between Taltech students and other students

Independent samples t-tests were employed to assess potential differences in students' perceptions of the extent to which SDGs have been achieved in Estonia, comparing Taltech students to other students (see Table 7).

Table 7. Differences in awareness and perception between Taltech and other students

	School	Mean	SD	t-statistic	p-value
Awareness	Taltech	3.861	0.700	2.952	0.004
	Other	3.475	1.015		
Perception	Taltech	3.606	0.644	-0.078	0.938
	Other	3.615	0.781		

Source: Author's calculations

An analysis of mean scores revealed that Taltech students (M = 3.606) and other students (M = 3.615) exhibited very similar average perceptions of SDGs achievement. Statistical tests (see Table 7) confirmed this observation, indicating no statistically significant difference between the two groups. In conclusion, this study found no clear evidence of a significant difference in students' perceptions of SDGs achievement between Taltech students and other students in Estonia.

The analysis of SD scores revealed that Taltech students (SD = 0.644) displayed slightly lower variability in their perceptions of SDGs achievement compared to other students (SD = 0.781). However, independent samples t-tests (see Table 7) indicated that this difference was not statistically significant ($t = -0.078$, $p = 0.938$), ($p > 0.005$).

3.4. Factor analysis

3.4.1. Exploratory factor analysis on sustainable development goals

Exploratory Factor Analysis (EFA) was used to identify the underlying structure within the data related to SDGs. EFA helps reduce the number of variables by grouping them into a smaller set of latent factors that explain most of the variance in the data. To ensure the suitability of EFA for this analysis, the Kaiser-Meyer-Olkin's (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were conducted. KMO assesses sampling adequacy for factor analysis, with values closer to 1 indicating better suitability. The KMO value in this study was 0.926, suggesting a very good sample size for EFA.

Bartlett's Test of Sphericity is a hypothesis test that assesses whether the data is suitable for factor analysis by assuming no significant correlations between the variables. A statistically significant result (p-value < 0.05) indicates that the data is likely appropriate for factor analysis. In this case, the Bartlett's Test of Sphericity (see Table 8) yielded a highly significant result (p-value < 0.05) with a value of 2842.86. This confirms that the data meets the assumptions of EFA and justifies proceeding with the analysis.

Table 8. KMO and Bartlett's test on SDGs

Kaiser-Meyer-Olkin		0.926
Bartlett's test of sphericity	Approx. Chi-square	2842.86
	Df	136.00
	Sig.	0.00

Source: Author's calculations

Principal components analysis (PCA) was employed in this study to identify underlying factors explaining the variation within a set of 17 variables related to SDGs in Estonia. PCA extracts components that capture the most significant sources of variation in the data. Higher communality values (closer to 1) indicate a stronger association with the extracted components. The average communality for the 17 variables was found to be 71.035%, exceeding the recommended minimum threshold of 0.70. This suggests a good level of reliability for the extracted components in capturing the overall variation. The total variance explained table in appendix 4 (see Table 19) reveals that the first two extracted components account for 71.035% of the total variance in the SDGs data. The first component explains the most significant portion (44.526%), followed by the

second component (26.509%). This suggests that these two components capture the most important underlying factors influencing SDGs variation in Estonia.

A scree plot visually represents the eigenvalues (variance explained) of each extracted component. The analysis indicates a “nearly continuous” curve after the second factor, suggesting that subsequent factors explain progressively smaller portions of the remaining variance (see Figure 1). Additionally, the curve plateaus after the third factor, further supporting the conclusion that the first two components (SDG 1 and 2) capture the most significant sources of variation while the last two components were the least on the curve, suggesting the least significant sources of variation. In conclusion, the PCA analysis successfully identified two key underlying factors that explain a substantial portion (71.035%) of the variation within the 17 SDG-related variables in Estonia.

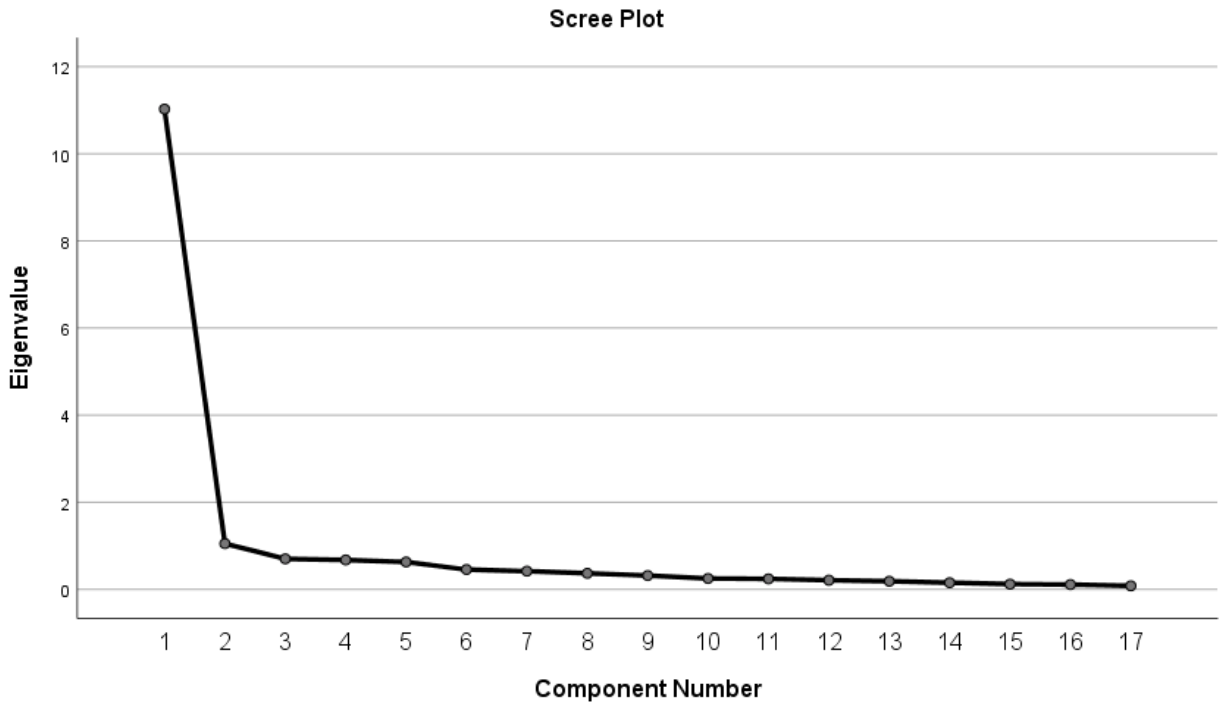

Figure 1. Scree plot on SDGs factors

Source: Author’s calculations

3.4.2. Exploratory factor analysis on environmental, social and governance principles

The Bartlett's Test of Sphericity (see Table 9) yielded a highly significant result with p-value of 0.00 (p-value < 0.05) with a value of 306.60. This confirms that the data meets the assumptions of EFA and justifies proceeding with the analysis.

Table 9. KMO and Bartlett's test on ESG principles

Kaiser-Meyer-Olkin measure of sampling adequacy		0.74
Bartlett's test of sphericity	Approx. chi-square	306.60
	df	3.00
	Sig.	0.00

Source: Author's calculations

The average communality for the three constructs on ESG was found to be 71.035%, exceeding the recommended minimum threshold of 0.70. This suggests a good level of reliability for the extracted components in capturing the overall variation. The total variance reveals that the first extracted components account for 82.504% of the total variance in the ESG principles (see Table 20 in Appendix 4). Furthermore, the scree plot indicates a "nearly continuous" curve after the first principle, suggesting that subsequent principles explain progressively smaller portions of the remaining variance. Additionally, the curve plateaus after the first factor, further supporting the conclusion that the first component captures the most significant sources of variation.

In conclusion, the PCA analysis successfully identified one key underlying principle that explains a substantial portion (81.504%) of the variation within the three ESG-related constructs in Estonia. The high average communality (71.035%) suggests a reliable representation of the data by these components. The scree plot visually confirms that only the first component (environmental sustainability) captures the most significant sources of variation (see Figure 2).

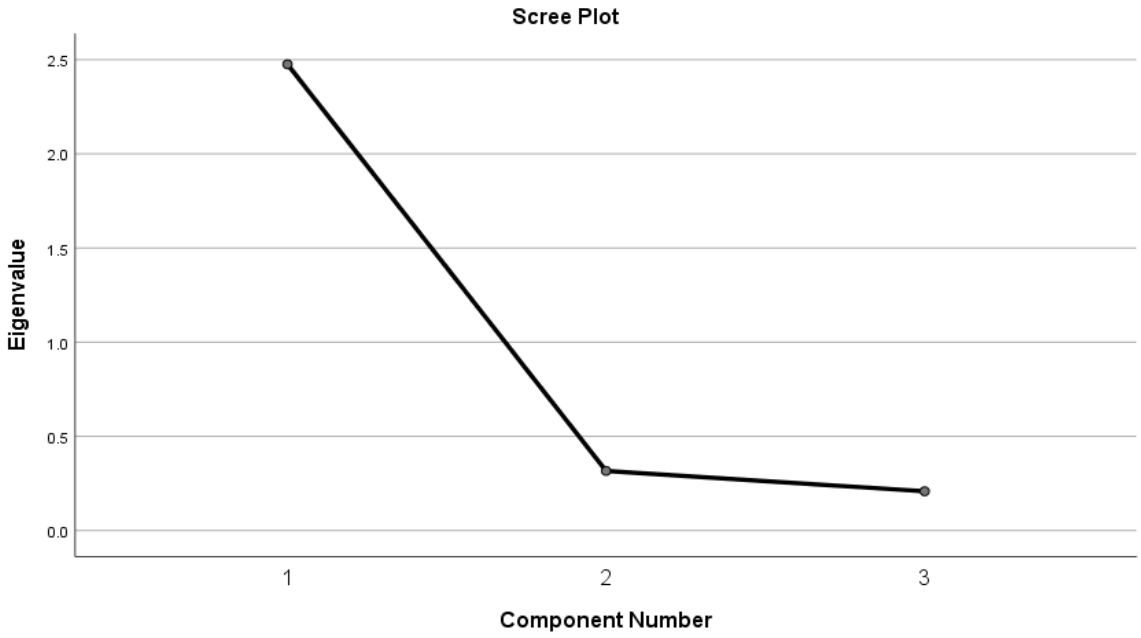

Figure 2. Scree Plot on ESG principles

Source: Author's calculations

3.5. Correlation analysis: students' awareness of their priority sustainable development goals

This study utilises correlation analysis to evaluate the strength of the relationship between the SDGs relevant to students and their awareness of those goals. The correlation analysis in Table 10 revealed a statistically significant positive correlation ($r = 0.226$, $p < 0.05$) between student awareness and the relevance of SDGs.

Table 10. Pearson method of moment correlation results

Particular	Test	Relevance	Awareness
Relevance	Pearson Correlation	1	.226**
	Sig. (2-tailed)		0.003
Awareness	Pearson Correlation	.226**	1
	Sig. (2-tailed)	0.003	

** Correlation is significant at the 0.01 level (2-tailed).

Source: Author's calculations

This indicates a weak but positive relationship between the two variables. By implication, students who demonstrated higher awareness of certain SDGs also tended to agree that those SDGs are

important to their personal daily life and values. However, the correlation coefficient (r) is relatively low (0.226), indicating a weak positive association**.**

3.6. Sustainability assessment among students in Estonia

A frequency distribution table was used to analyse the level of understanding of sustainability by students in Estonia, detailing the number and proportion of students who accurately understood the concept (see Appendix 1).

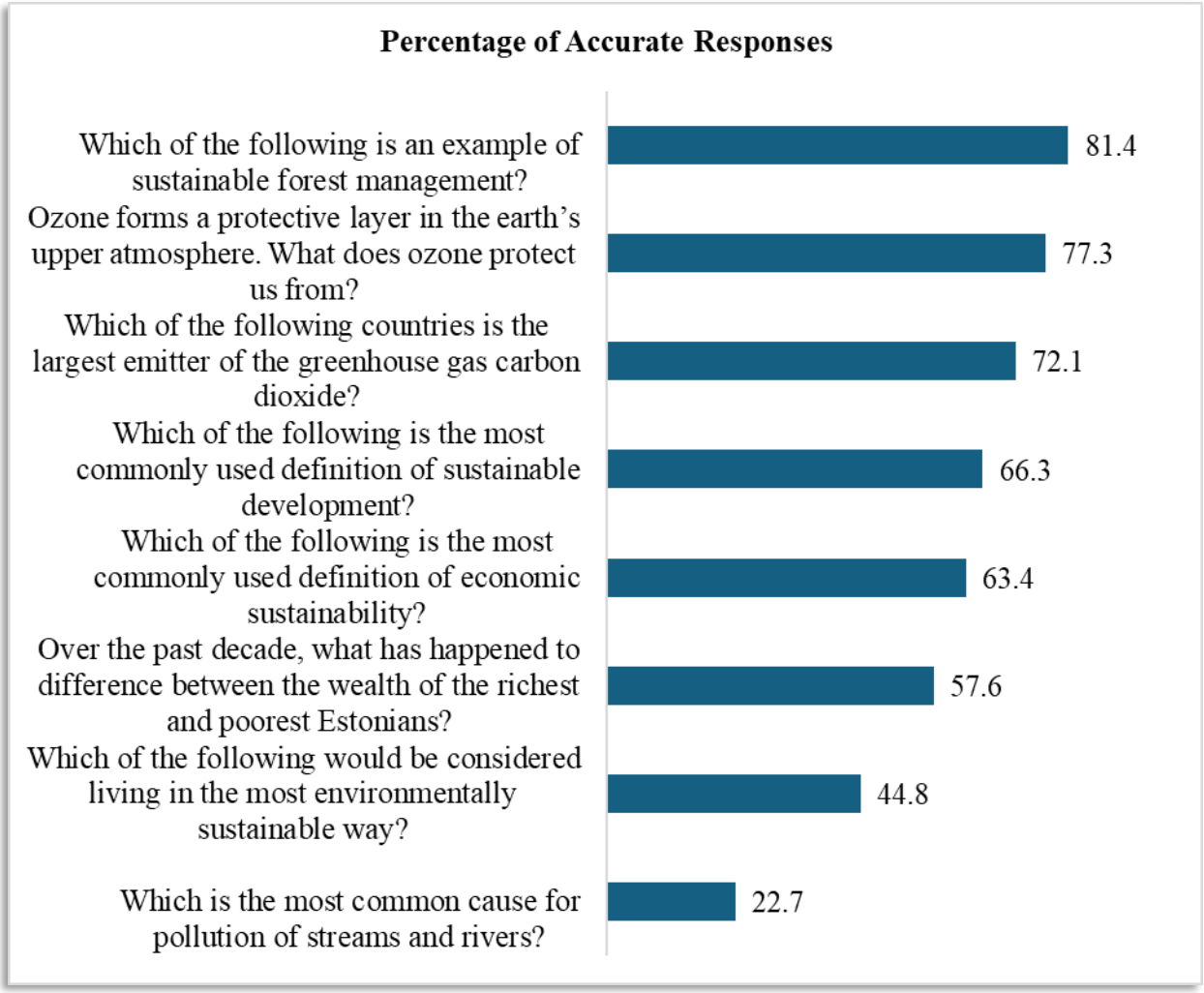

Figure 3. Sustainability assessment

Source: Author's calculations

The analysis revealed a positive outcome. A majority of respondents (n=51, over 50%) correctly answered the question about the core principles of sustainability. This suggests that most participants within the sample possessed a basic understanding of the concept. However, a closer look at individual questions reveals variations in knowledge across specific aspects of

sustainability. The response rate for correctly identifying the most environmentally sustainable lifestyle ranged from 63.4% to 81.4%. Interestingly, the question with the highest accuracy (81%, n=140) involved identifying an example of sustainable forest management. Conversely, the lowest knowledge area was evident in responses regarding the “most used definition of economic sustainability”, with only 63.4% (n=109) answering correctly.

4. TALTECH SUBSAMPLE RESULTS

This section delves into a statistical analysis of Taltech students' level of awareness and perception of SDGs/ESG principles in Estonia.

4.1. Taltech respondents' demographics

Descriptive statistics, specifically frequency distribution, was utilised to analyse the general information about the students' profiles (see Table 11).

Table 11. Sample demographic characteristics (n = 101)

	Range	Frequency	Percent
Gender	Female	68	67.30
	Male	33	32.70
Age Group	15 - 24 years	64	63.40
	25 - 34 years	21	20.80
	35 - 44 years	14	13.90
	45 years and above	2	2.00
Taltech School	Estonian Maritime Academy	1	1.00
	School of Business and Governance	84	83.20
	School of Engineering	7	6.90
	School of Information Technologies	9	8.90
Academic Degree	Bachelors	57	56.40
	Masters	43	42.60
	PhD	1	1.00
Nationality	Foreign	33	32.7
	Domestic	68	67.3
Place of Awareness	Other sources outside Estonia	3	2.73
	My current university	50	45.45
	Not Applicable	14	12.73
	Online	21	19.09
	Other sources in Estonia	8	7.27

	School attended outside Estonia	5	4.55

Source: Author's calculations

Majority of the respondents were female, while male respondents accounted for 32.7% of the participants. Most respondents fell within the 15-24 years age group (63.4%), 20.8% of respondents fell within the 25–34-year range, 13.9% fell within the 35–44-year range, and 2.0% fell within the 45 years and above age group.

Analysis of respondents' affiliated schools within Taltech revealed a clear concentration in SBG. The School of Information Technologies followed (8.9%), while the Estonian Maritime Academy had the fewest respondents with only one individual (1.0%). Analysis revealed that majority of the students were enrolled in bachelor's program, followed by those enrolled in master's program, while 1% were pursuing doctoral (PhD) degrees. An analysis of the respondents' nationality revealed a domestic majority.

The respondents' awareness sources regarding SDGs/ESG highlights the critical role of universities. From the analysis, most of the informed respondents identified their current university as the primary source of knowledge on these topics. Online platforms followed (19.1%), 12.7% of respondents indicated that the provided options did not apply to their awareness source. Among the remaining options, "Other sources outside Estonia" had the lowest representation (2.7%).

4.2. Taltech descriptive statistics

4.2.1. Taltech students' awareness about sustainable development goals and environmental, social and governance principles

Table 12 presents descriptive statistics (mean and SD) on students' awareness of SDGs/ESG principles at Taltech. A five-point Likert scale measured students' awareness level, with one indicating "Strongly Disagree" and five signifying "Strongly Agree".

Table 12. Descriptive statistics on awareness among students

Construct	Mean	SD
I recognize the term "Sustainable Development Goals"	4.21	0.90

I recognise the term "Environmental, Social and Governance"	3.81	1.06
I believe that there is a positive relationship between a firm's ESG performance and its financial performance	3.73	0.84
I have taken at least one course in the university that has SDGs or ESG related topics	3.69	1.21
Overall Awareness	3.90	0.70

Source: Author's calculations

The analysis revealed an average awareness score of 3.90, indicating a generally good level of familiarity with SDGs/ESG principles among Taltech students. Interestingly, individual statements yielded a range of mean scores from 3.69 to 4.21. The highest mean score (4.21) was associated with the statement "I recognise the term SDGs", suggesting broad student recognition of SDGs terminology. Conversely, the lowest mean score (3.69) related to the statement "I have taken at least one course in the university that has SDGs or ESG related topics".

To gain a deeper understanding of students' awareness beyond the average score, the analysis examined the SD of responses for each statement on the Likert scale. The overall awareness measure exhibited a SD of 0.70, indicating that most student responses clustered relatively close to the average score (3.90). However, individual statements revealed a wider range of SDs, varying from 0.84 to 1.21. The statement with the lowest SD (0.84) "I believe there is a positive relationship between a firm's ESG performance and its financial performance" suggests a strong level of consensus among respondents on this particular topic. Conversely, the highest SD (1.21) corresponded to the statement "I have taken at least one course in the university that has SDGs or ESG related topics". This wider spread in responses highlights a significant variation in students' exposure to coursework related to SDGs/ESG principles.

4.2.2. Taltech students' perception about sustainable development goals and environmental, social and governance principles

This study employed descriptive statistics, namely mean and SD, to analyse Taltech students' awareness and perception of SDGs/ESG principles. A five-point Likert scale (one = strongly disagree, five = strongly agree) measured students' responses.

The analysis revealed an average perception score of 3.88, suggesting a generally positive perception of SDGs/ESG concepts (see Table 13). However, individual survey statements yielded a range of mean scores (2.39 to 4.68), highlighting variations across specific areas. The highest mean score (4.68) for the statement "Clean air is part of a good life" indicates broad student agreement on the importance of environmental well-being. Conversely, the lowest score (2.39) for the statement "The success of an organization is more important than the success of its surrounding community" suggests potential areas for education regarding the interconnectedness of business and society.

Table 13. The perception of Taltech students towards SDGs/ESG principles

Particulars	Mean	SD
Business dedication to ESG and the SDGs is important for the achievement of the SDGs	4.19	0.86
Employees should be given an additional one day leave to participate in charity work such as: giving of clothes, money and food items to the homeless	3.71	1.00
The success of an organization is more important than the success of its surrounding community	2.39	1.03
I believe that companies have a vital role to play for the achievement of the SDGs	4.25	0.89
I consciously try to reduce my environmental footprint on a regular basis	3.58	1.07
Access to clean water is a universal human right	4.49	0.86
I work with a company that practices ESG and actively works towards achieving SDGs	3.38	1.22
I would like to work with a company that practices ESG and actively works towards achieving SDGs	4.09	0.93
Clean air is part of a good life	4.68	0.71
Generally speaking, consumerism is not sustainable	3.95	1.01
An unsustainable economy values personal wealth at the expense of others	3.93	1.01
Overall Perception	3.88	0.69

Source: Author's calculations

SD analysis provided further insights. The overall SD (0.69) for perception reflects a relatively homogenous understanding of core SDGs/ESG principles. However, SDs for individual statements ranged from 0.71 to 1.22, revealing more variation in specific areas. The statement with the lowest SD (0.71) was "Clean air is part of a good life", suggesting a strong consensus on environmental sustainability. Conversely, the highest SD (1.22) for the statement "I work with a company that practices ESG and actively works towards achieving SDGs" indicates a wider range of experiences and potential lack of awareness regarding employer sustainability practices which is understandable as some students may have not yet had corporate experience.

This study also investigated Taltech students' perceptions of SDGs achievement in Estonia using descriptive statistics (mean and SD). A five-point Likert scale measured perception, with one representing "Not achieved" and five signifying "Highly achieved" (Table 14). The analysis revealed an average perception score of 3.70, indicating a generally moderate view among Taltech students on Estonia's progress towards achieving the SDGs. However, individual SDGs varied considerably, with mean scores ranging from 3.10 to 4.38. Students perceived "Clean water and sanitation" (mean: 4.38) to be the most achieved SDG in Estonia, suggesting they believe significant progress has been made in this area. Conversely, "No poverty" received the lowest score (mean: 3.10), implying a perception of less progress on tackling poverty.

Table 14. Descriptive Statistics on SDGs perception

Construct	Mean	Std. Deviation
No poverty	3.10	1.12
Zero hunger	3.66	1.12
Good health and wellbeing	3.87	0.92
Quality education	4.22	0.82
Gender equality	3.46	1.07
Clean water and sanitation	4.38	0.89
Affordable and clean energy	3.39	1.17
Decent work and economic growth	3.60	0.95
Industry, Innovation and Infrastructure	3.89	0.85
Reduced inequalities	3.26	0.99
Sustainable cities and communities	3.52	1.05

Responsible consumption and production	3.31	1.00
Climate action	3.28	1.03
Life below water	3.14	0.97
Life on land	3.76	0.79
Peace, justice and strong institutions	3.68	0.99
Partnerships for the goals	3.79	0.83
Overall Perception	3.70	0.68

Source: Johnson (2024); author's calculations

Beyond the average score, the analysis examined the SD of responses for each SDG. The overall measure exhibited a SD of 0.70, indicating that student responses clustered relatively close to the average score (3.70) on most SDGs. Individual SDGs, however, showed a wider range of SDs (0.79 to 1.17). "Life on land" had the lowest SD (0.81), suggesting a strong level of consensus among students on Estonia's achievement in this area. Conversely, "Affordable and clean energy" had the highest SD (1.14), highlighting more varied student perceptions regarding Estonia's progress on this particular SDG.

Finally, a five-point Likert scale measured students' SDGs perception from a more personal standpoint on how important SDGs are to students' personal daily lives with one representing the lowest level ("Not important") and 5 indicating the highest level ("Very important"). An overall mean of 4.27 indicates that students in Estonia ascribe a high level of importance to SDGs as it relates to their personal lives (see Table 15). Notably, the most important SDG to the students' personal life was "Clean water and sanitation" (mean: 4.59) while the least important SDG to their personal life was "Life below water" (mean: 3.88).

Table 15. Descriptive statistics on SDGs perception

Construct: To what extent are the SDGs important to your personal daily life and values?	Mean	SD
No poverty	4.10	0.94
Zero hunger	4.22	0.93
Good health and wellbeing	4.54	0.77
Quality education	4.53	0.78
Gender equality	4.21	0.97
Clean water and sanitation	4.59	0.79

Affordable and clean energy	4.45	0.79
Decent work and economic growth	4.37	0.80
Industry, Innovation and Infrastructure	4.13	0.90
Reduced inequalities	4.11	0.97
Sustainable cities and communities	4.33	0.80
Responsible consumption and production	4.35	0.81
Climate action	4.18	0.93
Life below water	3.88	1.01
Life on land	4.13	0.89
Peace, justice and strong institutions	4.32	0.88
Partnerships for the goals	4.14	0.96
Overall perception	4.27	0.88

Source: Author's calculations

With respect to variability in responses, the overall measure showed a SD of 0.88, indicating that on average, students' responses were relatively clustered. This indicates general consensus about how much individual students value SDGs in their personal lives. Specifically, responses were more clustered for SDG 3 "Good health and wellbeing" (SD: 0.77) and less clustered for SDG 14 "Life below water" (SD: 1.01). This indicates less variability in their responses for "Good health and wellbeing" and more variability for "Life below water".

4.3. Factor analysis

4.3.1. Exploratory factor analysis on sustainable development goals

This study's investigation to know the underlying structure of students' responses regarding SDGs was done employing EFA. EFA is a technique for identifying latent factors, or unobserved constructs, that explain the relationships between multiple observed variables. By grouping these variables into a smaller number of underlying factors, EFA can help us gain a more concise understanding of the data.

Table 16. KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.891
Bartlett's test of sphericity	Approx. chi-square	1651.502
	df	136

	Sig.	0.000

Source: Author's calculations

The Bartlett's Test of Sphericity (see Table 16) yielded a highly significant result (p-value < 0.05) with a chi-square value of 1651.502. Based on these results, this study confidently proceeds with EFA. The KMO value indicates a good sample size, and the highly significant Bartlett's Test suggests the presence of underlying factors within the data. These findings provide strong justification for employing EFA to explore the latent structure of student responses related to SDGs. The results clearly indicate "Zero hunger", and "No poverty" are the two SDGs with the most knowledge by Taltech students in Estonia.

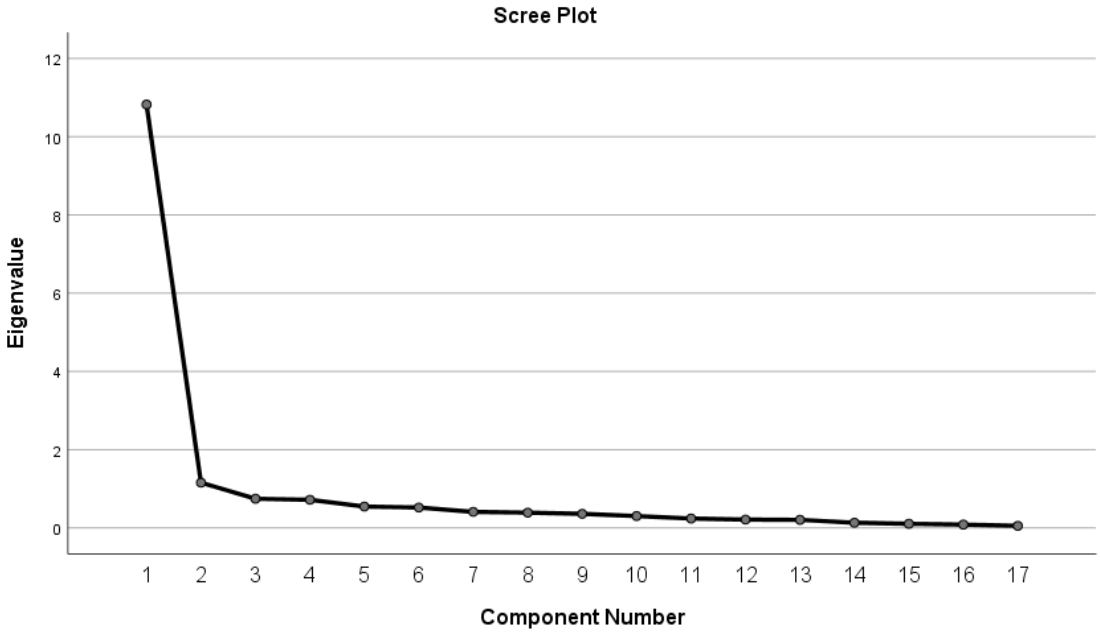

Figure 4. Scree plot on SDG factors

Source: Author's calculations

In addition, the first two components on the curve in the scree plot (SDG 1 – No poverty and SDG 2 - Zero hunger) capture the most significant sources of variation while the last two components were the least on the curve, suggesting the least significant sources of variation i.e., SDG 16 – "Peace, justice and strong institutions" and SDG 17 – "Partnerships for the goals". This confirms that "Zero hunger", and "No poverty" are the two SDG factors with the most knowledge by Taltech students in Estonia (see Figure 4).

4.3.2. Exploratory factor analysis on environmental, social and governance principles

The research question regarding which ESG principles are most knowledgeable to Taltech students was analysed using EFA, and the results can be found in Table 17 and Figure 5.

Table 17. KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.734
Bartlett's test of sphericity	Approx. chi-square	175.485
	df	3
	Sig.	0.000

Source: Author's calculations

The Bartlett's Test of Sphericity (see Table 17) yielded a highly significant result (p-value < 0.05) with a chi-square value of 175.185. Based on these results, this study confidently proceeds with EFA. The KMO value indicates a good sample size, and the highly significant Bartlett's Test suggests the presence of underlying factors within the data.

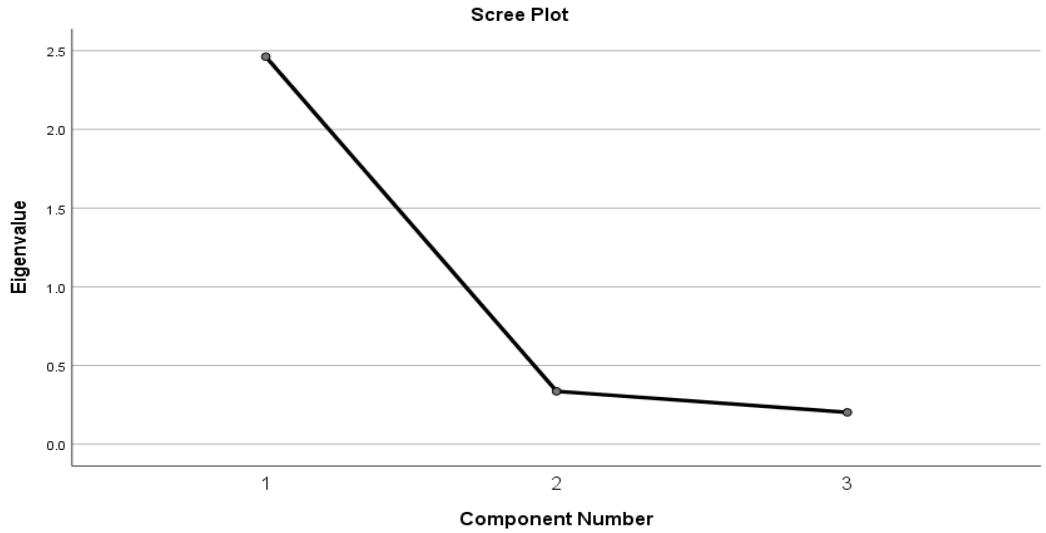

Figure 5. Scree plot on ESG principles

Source: Author's calculations

The results of Eigenvalues (see Figure 5) clearly indicate that environmental sustainability of ESG principles is the most recognised by Taltech students in Estonia. This suggest wider gaps on social and governance principles among Taltech students in Estonia.

4.4. Correlation analysis on Taltech students' awareness of priority sustainable development goals

Correlation analysis was conducted to assess the strength of the relationship between the SDGs relevant to students and their awareness of those goals.

Table 18. Correlation analysis on Taltech students' awareness and relevance of SDGs

		Awareness	Perception
Awareness	Pearson Correlation	1	.268**
	Sig. (2-tailed)		0.007
Perception	Pearson Correlation	.268**	1
	Sig. (2-tailed)	0.007	

** Correlation is significant at the 0.01 level (2-tailed).

Source: Author's calculations

The correlation analysis presented in Table 18 revealed a statistically significant positive correlation ($r = 0.268$, $p < 0.05$) between students' awareness and the relevance of SDGs. This indicates a weak but positive relationship between the two variables. Consequently, Taltech students who demonstrated higher awareness of certain SDGs also tended to agree that those SDGs are important to their personal daily life and values.

4.5. Sustainability assessment among Taltech students in Estonia

A frequency distribution table was used to assess Taltech students' understanding of sustainability based on those who answered the questions correctly (see Appendix 2).

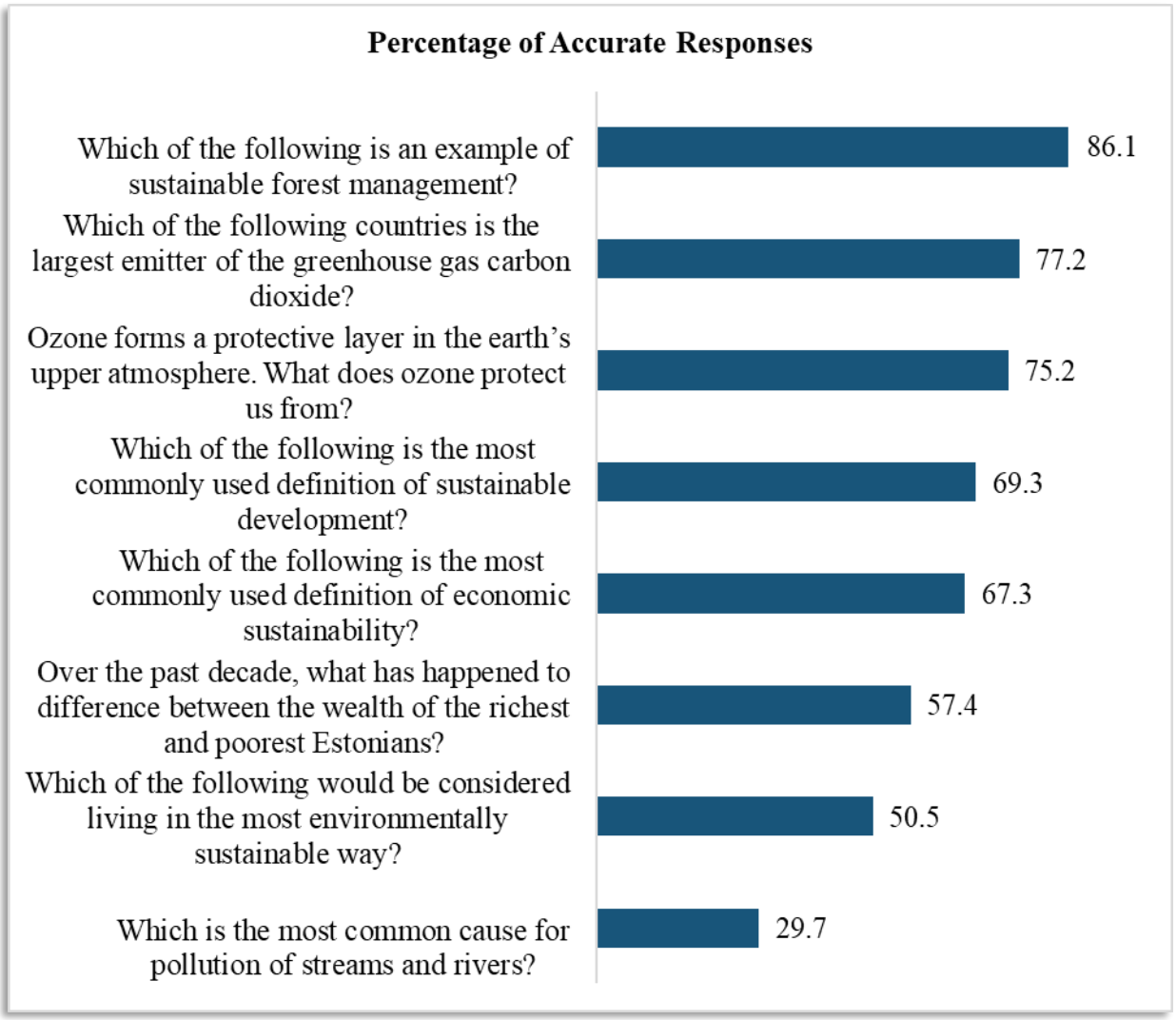

Figure 6. Sustainability assessment for Taltech students

Source: Author's calculations

The analysis revealed that a majority of respondents (n=51, representing over 50%) correctly answered the questions on the core principles of sustainability. Examining individual questions, the response rate for correctly identifying the most environmentally sustainable lifestyle ranged from 50.5% to 77.2%. The question with the highest accuracy (77.2%, n=101) involved identifying the country with the largest greenhouse gas emissions. The lowest knowledge area related to the most sustainable way of living with 50.5% (n=51) accuracy.

4.6. Discussion and limitations to the study

The author has attempted to fill the gap in existing literature by investigating the level of student awareness of SDGs/ESG principles in Estonia. An interesting finding was that most of the respondents reported learning about SDGs/ESG through their current academic institution. This

suggests that Estonian universities play a significant role in raising awareness about SDGs/ESG principles among students. Overall, the survey indicates a relatively high level of SDGs/ESG awareness among respondents.

The first research question explored the level of university students' awareness of SDGs/ESG principles in Estonia. Descriptive statistics was employed to analyse responses on the Likert scale questionnaire, a common approach adopted in similar studies (Alghamdi & El-Hassan, 2020; Smaniotto *et al.*, 2020). The findings revealed a relatively high level of awareness among students, with an average score of 3.70 for the full sample and 3.90 for students from Taltech specifically. This finding is similar to the conclusion of Leiva-Brondo *et al.,* (2022) who found that students' awareness of the SDGs was high at Universitat Politècnica de València (UPV) in Spain. However, sustainability assessment using the ASK questionnaire showed an intermediate awareness level of 6.1/10 for the full sample and 6.4/10 for Taltech students, suggesting lack of knowledge, similar to previous studies (Leiva-Brondo *et al.*, 2022; Smaniotto *et al.*, 2020; Alsaati *et al.*, 2020). Further analysis from the ASK questionnaire revealed that students had more correct answers for questions related to environmental sustainability and least frequency of correct answers for questions related to economic sustainability. Notably, there was no significant difference in students' awareness about SDGs/ESG based on gender. This finding aligned with previous research by Leiva-Brondo *et al.* (2022) and Yuan *et al.* (2021)

The second research question explored the level of university students' perception about SDGs/ESG in Estonia. The perception of the students at both the full sample and at Taltech were moderately high (above 2.5 on a scale of 1 to 5). This finding is in line with Leiva-Brondo *et al.* (2022)'s research which found similar results. Students also indicated that they perceive that the most fulfilled SDG in Estonia is "Clean water and sanitation" which is in line with the results from Leiva-Brondo *et al.*, (2022)'s study. However, there was no significant difference in the perception of SDGs/ESG principles based on gender. The perception of students is an important indicator of sustainability actions that could be taken by students in future businesses where they hold leadership positions (Niemczyk *et al.*, 2023). As perception is moderately high, it means that there is room for improving students' perception of SDGs/ESG principles to facilitate chances of more sustainability actions to be taken by them when they become business leaders in future.

The third research question was on the SDGs/ESG principles where students demonstrated the greatest knowledge. EFA was employed to analyse the Likert scale questionnaire data, a technique

aligned with similar studies by Smaniotto *et al.* (2020). The results revealed two SDGs – "No Poverty" and "Zero Hunger"– as areas of greatest knowledge among students, consistent across both the full sample and the Taltech students' sample. Regarding ESG principles, only environmental principles emerged as well-known among students in both the full sample and the Taltech sample. These findings diverge from studies (Shehu & Shehu, 2018; Leiva-Brondo *et al.*, 2022), who reported that students demonstrated higher knowledge of SDGs related to "Quality Education" and "Gender Equality".

The fourth research question investigated the biggest gap in the knowledge of SDGs/ESG principles among students in Estonia. Also, EFA was applied to answer this research question. The outcome from the findings revealed that "Partnership for the goals" and "Peace, justice and strong institutions" are least known among students both in the full sample and in Taltech. Furthermore, governance and social principles are least known among students both in the full sample and in Taltech. This contradicts existing studies (Shehu & Shehu, 2018; Niemczyk *et al.*, 2023) as their finding revealed that there is a rising trend in students' awareness of all three ESG principles and that business students demonstrated a growing understanding of the importance of all three ESG dimensions for sustainable business practices (Niemczyk *et al.*, 2023).

The final research question examined the correlation between students' awareness of relevant SDGs and their perceived importance. Pearson correlation analysis was utilised to address this question, aligning with established methods employed in prior research (Alsaati *et al.*, 2020; Shehu & Shehu, 2018; Niemczyk *et al.*, 2023). The findings revealed a statistically significant positive correlation between students' awareness and the relevance of SDGs in their personal daily lives. However, the correlation coefficient was relatively low, indicating a weak association between awareness and perceived relevance. This observation aligns with findings from previous studies (Alsaati *et al.*, 2020; Niemczyk *et al.*, 2023).

Students, both in the full sample and at Taltech, exhibited varying levels of awareness regarding the extent to which SDGs have been achieved in Estonia. This suggests that students may hold diverse perspectives on national progress towards sustainability goals. Additionally, a significant difference was found between Taltech students' awareness of SDGs/ESG principles compared to students from other universities. This variation may be attributed to potential differences in curriculum focus or sustainability initiatives across various universities in Estonia.

In terms of limitations, it was noted that this study was based on the responses that the participants gave in the online distributed questionnaire. This means that there was no way to fact check that accurate responses were provided per individual. Also, the sample was based on convenience sampling thus, majority of the participants were from Tallinn universities while a smaller portion were from outside Tallinn, which is one of the drawbacks of convenience sampling, even though this sampling approach is considered appropriate for this kind of study (Golzar *et al.*, 2022). Finally, some universities had extremely low responses e.g., only one respondent from EBS and Tallinn Health Care College. This means that the raw data was not evenly distributed across the schools. The author recommends that future studies should take account of these shortcomings for improvement when conducting future research on this topic.

CONCLUSION

This study aimed to find out the level of awareness and perception of students of SDGs/ESG principles in Estonia. Amidst the growing body of research on SDGs/ESG principles across various sectors, this study stands out for its unique approach. Unlike the usual trend of studying students' awareness of SDGs only, this research includes ESG which is more business centric and helps to understand how businesses implement sustainability practices, and how future business leaders perceive ESG practices. Furthermore, the research focused on Estonia, unlike many other studies which were conducted in other European and Asian countries like Malaysia, Saudi Arabia, China and Spain. Conducting the research in Estonia is useful as research on this topic for Estonia is lacking. Furthermore, the study separately analyses Taltech students' level of awareness and perception, as a basis for providing next steps to achieve both the Green strategy of Taltech as well as the initiatives of the ERS working group in Taltech's SBG. A comprehensive literature review was conducted to investigate the level of awareness of students about SDGs/ESG principles in our society.

The findings of this thesis show that although students have heard about these concepts, their awareness level and knowledge of the concepts still have room for improvement as there was a lack of knowledge depicted from the sustainability assessment questionnaire. Furthermore, there were only two goals – SDG 1 "No poverty" and SDG 2 "Zero hunger" which the students were significantly most knowledgeable about while scores indicated significantly lower level of knowledge about all the other goals. However, there was a positive correlation between the SDGs that students were aware about and their perceived importance of those goals in their personal daily lives.

The author noted the importance of universities as a source of knowledge for improving the level of awareness and perception about SDGs/ESG principles before the students are released into the work environment to implement sustainable practices in business. The author thus recommends the following to improve the level of students' awareness and perception of SDGs/ESG principles:

1. Students could be more exposed to projects, seminars and workshop sessions on SDGs/ESG principles at the university to improve their awareness level and perception about these concepts.

2. Universities could offer more coursework in relation to SDGs 3 – 17 and also social and governance principles where students have been discovered to have lower level of knowledge and awareness.
3. Energy saving practices could be implemented by universities such as motion detectors for automatic switching off of lights, automatic switching on and off of taps and waste recycling options both within and in the surrounding premises of the university.

Further research can also be carried out after these recommendations have been implemented to find out the new level of awareness and perception of students about SDGs/ESG principles so as to understand which methods work best and should be continued to improve the level of students' awareness and perception about these concepts. Future research could also include more participants from other Estonian universities to have a larger and more evenly distributed sample size for the new level of assessment.

LIST OF REFERENCES

Abate, G., Basile, I., & Ferrari, P. (2021, September). The level of sustainability and mutual fund performance in Europe: An empirical analysis using ESG ratings. *Corporate Social Responsibility & Environmental Management, 28*(5), 1446-1455. Retrieved from https://onlinelibrary.wiley.com/doi/abs/10.1002/csr.2175

Affes, W., & Jarboui, A. (2023). The impact of corporate governance on financial performance: a cross-sector study. *International Journal of Disclosure and Governance*. Retrieved from https://link.springer.com/article/10.1057/s41310-023-00182-8

Afroz, N., & Ilham, Z. (2020). Assessment of Knowledge, Attitude and Practice of University Students towards Sustainable Development Goals (SDGs). *The Journal of Indonesia Sustainable Development Planning, 1*, 31 - 44. doi:https://doi.org/10.46456/jisdep.v1i1.12

Alghamdi, A., & El-Hassan, W. (2020). Interdisciplinary inquiry-based teaching and learning of sustainability in Saudi Arabia. *Journal of Teacher Education for Sustainability, 22*(2), 121-139.

Alsaati, T., El-Nakla, S., & El-Nakla, D. (2020). Level of sustainability awareness among university students in the Eastern province of Saudi Arabia. *Sustainability, 12*(8), 3159. Retrieved from https://www.mdpi.com/2071-1050/12/8/3159

Ando, Y., Baars, R. C., & Asari, M. (2019). Questionnaire Surey on Conciousnessand Behaviour of Students to Achieve SDGs in Kyoto University. *Journal of Environment and Safety*, 21 - 25.

Annan-Diab, F., & Molinari, C. (2017). Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals. *The International Journal of Management Education*, 73 - 83. doi:http://dx.doi.org/10.1016/j.ijme.2017.03.006

Avelar, A., Dayane da Silva-Oliveira, K., Farina, M., & Pereira, R. (2021). Contribution of PRME in education, research, and outreach in Brazilian higher education institutions. *International Journal of Sustainability in Higher Education, 23*(2). Retrieved from https://www.emerald.com/insight/content/doi/10.1108/IJSHE-09-2020-0350/full/html

Avrampou, A., Skouloudis, A., Iliopoulos, G., & Khan, N. (2019). Advancing the Sustainable Development Goals: Evidence from leading European banks. *Sustainable Development, 27*(4), 743-757. doi:https://doi.org/10.1002/sd.1938

Aydogmus, M., Gulay, G., & Ergun, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review, 22*, S119 - S127. doi:https://doi.org/10.1016/j.bir.2022.11.006

Bansal, P., & Roth, K. (2000). Why Companies Go Green: A Model of Ecological Responsiveness. *The Academy of Management Journal*, 717-736. doi:https://doi.org/10.2307/1556363

Barth, M., Godemann, J., Rieckmann, M., & Stoltenberg, U. (2007). Developing key competencies for sustainable development in higher education. *International Journal of Sustainability in Higher Education, 8*(4), 416-430. Retrieved from http://ssrn.com/abstract=1978290

Beauchamp, T. L., Bowie, N. E., & Arnold, D. G. (2014). *Ethical Theory and Business* (Ninth ed.).

Bender, J., He, C., Maffina, S., & Sun, X. (2023). Peeling Back the Onion: Understanding What Goes into an ESG Rating. *The Journal of Impact and ESG Investing*.

Berrone, P., Ricart, J. E., Duch, A. I., Bernardo , V., Salvador, J., Peña, J. P., & Planas, M. R. (2019). EASIER: An Evaluation Model for Public–Private Partnerships Contributing to the Sustainable Development Goals. *Sustainability, 11*(8). doi:https://doi.org/10.3390/su11082339

Beurden, P. v., & Gossling, T. (2008). The Worth of Values – A Literature Review on the Relation Between Corporate Social and Financial Performance. *Journal of Business Ethics*, 407 - 424. Retrieved from https://link.springer.com/article/10.1007/s10551-008-9894-x

Bhattacharya, C. B., & Zaman, M. (2023). The What, Why and How of ESG Dashboards. *NIM Marketing Intelligence Review, 15*(1). doi:doi.org/10.2478/nimmir-2023-0005

Briens, E. C., Chiu, Y., Braun, D., Verma, P., Fiegel, G., Pompeii, B., & Singh, K. (2023). Assessing sustainability knowledge for undergraduate students in different academic programs and settings. *International Journal of Sustainbility in Higher Education, 24*(1), 69-95. doi:10.1108/IJSHE-10-2021-0455

Bryman, A. (2016). *Social research methods.*

ÇEK, K. (2023). Relationship between Environmental, Social and Corporate Governance Performance and Financial Performance. *Journal of Finance Letters*(119), 1-20. Retrieved from https://web.s.ebscohost.com/ehost/viewarticle/render?data=dGJyMPPp44rp2%2fdV0%2bnjisfk5Ie46bFOr6%2b0SbSk63nn5Kx95uXxjL6vrUqzpbBIsKmeTbirsFKyrZ5Zy5zyit%2fk8Xnh6ueH7N%2fiVaurr0i0qLJKsamki%2bfau3qzqOFQsKmuReCosU%2brqrF9sKPfTLerq1Cxq%2bN6sKjhSN%2fYsVjw2%2bKB8

Cernuşca, L. (2011). Ethics in Accounting: The Consequences of the Enron Scandal. *Agricultural Management / Lucrari Stiintifice Seria I, Management Agricol, 13*(3), 35 - 42.

Clark, G. L., Feiner, A., & Viehs, M. (2015). *From the Stockholder to the Stakeholder: How Sustainability Can Drive Financial Outperformance.* doi:https://dx.doi.org/10.2139/ssrn.2508281

Clark, T., Foster, L., Bryman, A., & Sloan, L. (2021). *Bryman's social research methods.* Oxford university press.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research Methods in Education.* doi:https://doi.org/10.4324/9780203029053

Cormac, S. M., & Haney, H. (2012). New Corporate Forms: One Viable Solution to Advancing Environmental Sustainability. *Journal of Applied Corporate Finance, 24*(2).

Crane, A., & Matten, D. (2023). *Business Ethics: Managing Corporate Citizenship and Sustainability in the Age of Globalization* (4th ed.). Oxford University Press.

Dalal, K. K., & Thaker, N. (2019). ESG and Corporate Financial Performance: A Panel Study of Indian Companies. *IUP Journal of Corporate Governance, 18*(1), 44-59.

Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The Impact of Corporate Sustainability on Organizational Processes and Performance. *Management Science, 60*(11), 2835-2857. doi:https://dx.doi.org/10.2139/ssrn.1964011

Eccles, R. G., Serafeim, G., & Krzus, M. P. (2011). Market Interest in Nonfinancial Information. *Journal of Applied Corporate Finance, 23*(4), 113-127. doi:10.1111/j.1745-6622.2011.00357.x

E-governance academy. (2024). *E-governance in practice.* Retrieved from https://ega.ee/publication/handbook-thai-language/

Elkington, J. (1998). Accounting for the Triple Bottom Line. *Measuring Business Intelligence, 2*(3), 18-22. doi:https://doi.org/10.1108/eb025539

Esty, D. C., & Cort, T. (2020). *Values at Work: Sustainable Investing and ESG Reporting.* doi:https://doi.org/10.1007/978-3-030-55613-6

Filho, L., Eustachio, J., Caldana, A., Will, M., Salvia, A., Rampasso, I., . . . Kovaleva, M. (2020). Sustainability Leadership in Higher Education Institutions: An Overview of Challenges. *Sustainability*. doi:10.3390/su12093761

Firoiu, D., Ionescu, G. H., Pirvu, R., Badircea, R., & Patrichi, I. C. (2022). Achievement of Sustainable Development Goals in Portugal and Forecast of Key Indicators Until 2030. *Technological and Economic Development of Economy*, *28*(6), 1649 - 1683. doi:https://doi.org/10.3846/tede.2022.17645

Forsyth, D. R. (1980). A Taxonomy of Ethical Ideologies. *Journal of Personality and Social Psychology*, 175-184. doi:http://dx.doi.org/10.1037/0022-3514.39.1.175

Forsyth, D. R. (2019). *Making Moral Judgments; Psychological Perspectives on Morality, Ethics and Decision Making* (1st ed.). Retrieved from https://www.taylorfrancis.com/chapters/oa-mono/10.4324/9780429352621-2/ethics-position-theory-donelson-forsyth

Fritzsche, D. J., Huo, P. Y., Sugai, S., & Tsai, S. D.-H. (1995). Exploring the ethical behavior of managers: A comparative study of four countries. *Asia Pacific Journal of Management*, 37-61. doi:10.1007/BF01734385

García-González, E., Jiménez-Fontana, R., & Azcárate, P. (2020). . Education for Sustainability and the Sustainable Development Goals: Pre-Service Teachers' Perceptions and Knowledge. *Sustainability , 12*, 7741.

García-Sánchez, I.-M., Rodríguez-Ariza, L., Aibar-Guzmán, B., & Aibar-Guzmán, C. (2020). Do institutional investors drive corporate transparency regarding business contribution to the sustainable development goals? *Business Strategy and the Environment*, *29*(5), 2019-2036. doi:https://doi.org/10.1002/bse.2485

Gerndorf, K., Elenurm, T., & Terk, E. (1999). *Corporate Governance in Estonia.*

Gilbert, J. T. (1992). Teaching business ethics: What, why, who, where, and when. *Journal of Education for Business*, *68*(1).

Golzar, J., Noor, S., & Tajik, O. (2022). Sampling Method Descriptive research: Convenience Sampling. *International Journal of Education and Language Studies*. Retrieved from https://www.ijels.net/article_162981_06fc448b8914d42316b8d44829c88188.pdf

Hart, S. L. (1997). Beyond greening: Strategies for a sustainable world. Harvard Business Review, 75(1), 66-76. *Harvard Business Review*, *75*(1), pp. 66-76. Retrieved from https://hbr.org/1997/01/beyond-greening-strategies-for-a-sustainable-world

Hennig-Thurau, T., Hofacker, C. F., & Bloching, B. (2013). Marketing the Pinball Way: Understanding How Social Media Change the Generation of Value for Consumers and Companies. , 237-241. *Journal of Interactive Marketing, 27*, 237–241. doi:http://dx.doi.org/10.1016/j.intmar.2013.09.005

Ho, S. S.-H., Lin, H.-C., Hsieh, C.-C., & Chen, R. J.-C. (2022). Importance and performance of SDGs perception among college students in Taiwan. *Asia Pacific Education Review*. Retrieved from https://link.springer.com/article/10.1007/s12564-022-09787-0

Hoffman, A. J., & Bazerman, M. (2005). Changing Environmental Practice: Understanding and Overcoming the Organizational and Psychological Barriers. Retrieved from https://www.researchgate.net/publication/256066537_Changing_Environmental_Practice_Understanding_and_Overcoming_the_Organizational_and_Psychological_Barriers

Hoffman, W. M., & Frederick, R. E. (1995). *Business Ethics: Readings and Cases in Corporate Morality.*

Holmes, J., Moraes, O. R., Rickards, L., Steele, W., Hotker, M., & Richardson, A. (2022). Online learning and teaching for the SDGs – exploring emerging university strategies. *International Journal of Sustainability in Higher Education, 23*(3). Retrieved from https://www.emerald.com/insight/content/doi/10.1108/IJSHE-07-2020-0278/full/html

Imperiale, F., Pizzi, S., & Lippolis, S. (2023). Sustainability reporting and ESG performance in the utilities sector. *Utilities Policy, 80*. doi:https://doi.org/10.1016/j.jup.2022.101468

Jenkins, H., & Yakovleva, N. (2006). Corporate Social Responsibility in the Mining Industry: Exploring Trends in Social and Environmental Disclosure. *Journal of Cleaner Production*. doi:10.1016/j.jclepro.2004.10.004

Kant, I. (1964). *The metaphysical principles of virtue.* (J. Ellington, Trans.) New York: Bobbs-Merrill Co.

Kanungo, R. N. (2001). Ethical Values of Transactional and Transformational Leaders. *Canadian Journal of Administrative Sciences, 18*(4), 257–265. doi:https://doi.org/10.1111/j.1936-4490.2001.tb00261.x

Kelman, H. C., & Lawrence, L. H. (1972). Assignment of Responsibility in the Case of Lt. Calley: Preliminary Report on a National Survey. *Journal of Social Issues*. doi:https://doi.org/10.1111/j.1540-4560.1972.tb00010.x

Knights, D., & O'Leary, M. (2006). Leadership, Ethics and Responsibility to the Other. *Journal of Business Ethics, 67*, 125–137. Retrieved from https://link.springer.com/article/10.1007/s10551-006-9008-6

Kostić, N., & Hujdur, A. (2023). *Building a Sustainable Future: ESG Business Handbook.* Retrieved from https://www.undp.org/sites/g/files/zskgke326/files/2023-08/building_a_sustainable_future_esg_business_handbook.pdf

Kozma, M. (2021). Miklós Educating Future Business Leaders through values of Responsible Research and Innovation – Exploring the Potential of Sensitising Students in the Leading Business School of a Converging Economy. *Budapest Management Review*, 65-75. doi:10.14267/VEZTUD.2021.07.07

Leiva-Brondo, M., Lajara-Camilleri, N., Vidal-Meló, A., Atarés, A., & Lull, C. (2022). Spanish University Students' Awareness and Perception of Sustainable Development Goals and Sustainability Literacy. *Sustainability, 14*(8). doi:https://doi.org/10.3390/su14084552

Lewis, P. V. (1985). Defining 'business ethics': Like nailing jello to a wall. *Journal of Business Ethics*, 377 - 383. doi:doi:10.1007/BF02388590

Lozano, R., Lukman, R., Lozano, F., Huisingh, D., & Lambrechts, W. (2013). Declarations for sustainability in higher education: becoming better leaders, through addressing the university system. *Journal of Cleaner Production, 48*, 10-19. doi:doi:10.1016/j.jclepro.2011.10.006

Lundquist, L. L., Lucero, K., & Cox, H. (2018). Sustainability Knowledge Assessment at a Large, Regional, Minority-Serving Institution. *The Journal of Sustainability Education*. Retrieved from http://www.susted.com/wordpress/content/sustainability-knowledge-assessment-at-a-large-regional-minority-serving-institution_2018_12/

Margolis, J. D., & Walsh, J. P. (2003). Misery Loves Companies: Rethinking Social Initiatives by Business. *Administrative Science Quarterly, 48*(2), 268-305. doi:https://doi.org/10.2307/3556659

Martin, M., Swift, J., & Pajouh, M. S. (2021). The Philosophical Theories of Utilitarian Ethics and Deontology on the Regulation of Insider Dealing in The United Kingdom. *Abasyn Journal of Social Sciences, 14*(2). doi:10.34091/AJSS.14.2.08

Mathis, S., & Stedman, C. (2023). *What is environmental, social and governance (ESG)?*

McWilliams, A., & Siegel, D. (2001). Corporate Social Responsibility: A Theory of the Firm Perspective. *The Academy of Management Review, 26*(1), 117-127. Retrieved from http://www.jstor.org/stable/259398

Nidumolu, R., Prahalad, C. K., & Rangaswami, M. R. (2009). Why Sustainability is Now the Key Driver of Innovation. *Harvard Business Review*.

Niemczyk, A., Gródek-Szostak, Z., Adler, D., Niewiadomski, M., & Benková, E. (2023). Green Entrepreneurship: Knowledge and Perception of Students and Professionals from Poland and Slovakia. *Sustainability, 16*(1), 273. Retrieved from https://www.mdpi.com/2071-1050/16/1/273

Nikolopoulou, K. (2023). *What Is Convenience Sampling? | Definition & Examples*. Retrieved from https://www.scribbr.com/methodology/convenience-sampling/

OECD. (2017). *SDGs: Ever heard of SDG washing? The urgency of SDG Due Diligence*. Retrieved from https://oecd-development-matters.org/2017/09/25/ever-heard-of-sdg-washing-the-urgency-of-sdg-due-diligence/

OECD. (2024). *Estonia Economic Snapshot.* Retrieved from https://www.oecd.org/economy/estonia-economic-snapshot/

Omazić, M. A. (2023). Navigating Corporate Responsibility: Unveiling the 'Purpose' as the Fourth P in Elkington's 3Ps Model. *Croatian Regional Development Journal, 4*(2), 1-23. doi:10.2478/crdj-2023-0005

Omisore, A. G., Babarinde, G. M., Bakare, D. P., & Asekun-Olarinmoye, E. O. (2017). Awareness and Knowledge of the Sustainable Development Goals in a University Community in Southwestern Nigeria. *Ethiopian Journal of Health Sciences, 27*(6). doi:http://dx.doi.org/10.4314/ejhs.v27i6.12

Onifade, T. A., Oviebo, G. O., & Elufisan, O. O. (2022). Corporate Social Responsibility and Financial Performance of Selected Food and Beverage Firms in Lagos State, Nigeria. *Review of International Comparative Management, 23*(5), 668-680. doi:10.24818/RMCI.2022.5.668

Owens, T. L. (2017). Higher education in the sustainable development goals framework. *European Journal of Education*. doi:https://doi.org/10.1111/ejed.12237

Paik, Y., Lee, J. M., & Pak, Y. S. (2017). Convergence in International Business Ethics? A Comparative Study of Ethical Philosophies, Thinking Style, and Ethical Decision-Making Between US and Korean Managers. *Journal of Business Ethics*, 839-855. Retrieved from https://link.springer.com/article/10.1007/s10551-017-3629-9

Parboteeah, P. K., & Cullen, J. B. (2018). *Business Ethics* (Second ed.). New York. doi:https://doi.org/10.4324/9781315180663

Peterson, P. E., & Ferell, O. (2005). *Business Ethics* (1st ed.). New York: Routledge. doi:https://doi.org/10.4324/9781315497815

Phatak, A., & Habib, M. (1998). How Should Managers Treat Ethics in International Business? *Thunderbird International Business Review, 40*(2), 91 - 184. doi:https://doi.org/10.1002/tie.4270400203

Pizzi, S., Rosati, F., & Venturelli, A. (2021). The determinants of business contribution to the 2030 Agenda: Introducing the SDG Reporting Score. *Business Strategy and the Environment, 30*(1). doi:https://doi.org/10.1002/bse.2628

Porter, M. E., & Kramer, M. R. (2006). Strategy & Society: The Link Between Competitive Advantage and Corporate Social Responsibility. *Harvard Business Review*. Retrieved from https://hazrevista.org/wp-content/uploads/strategy-society.pdf

Porter, M. E., & Kramer, M. R. (2011). Creating Shared Value. *Harvard Business Review*. Retrieved from https://www.communitylivingbc.ca/wp-content/uploads/2018/05/Creating-Shared-Value.pdf

Premeaux , S. R. (2004). The Current Link Between Management Behavior and Ethical Philosophy. *Journal of Business Ethics*, 269–278. Retrieved from https://link.springer.com/article/10.1023/B:BUSI.0000032495.53772.42

Premeaux, S. (2008). The Link Between Management Behavior and Ethical Philosophy in the Wake of the Enron Convictions. *Journal of Business Ethics*, 13-25. Retrieved from https://link.springer.com/article/10.1007/s10551-008-9745-9

Premeaux, S. R., & Mondy, R. W. (1993). Linking management behavior to ethical philosophy. *Journal of Business Ethics*, 349-357. Retrieved from https://www.jstor.org/stable/25072409

Rihma, M., & Meel, M. (2013). The discrepancy between declared values and real ethical behaviour od companies (Estonian Case). *European Scientific Journal, 9*(16). Retrieved from https://eujournal.org/index.php/esj/article/view/1133/1149

Riigiportaal . (2024). *Occupational health and safety in the company*. Retrieved from https://www.eesti.ee/en/doing-business/occupational-environment-and-personnel/occupational-health-and-safety-in-the-company

Roos, I., & Soosaar, S. (2005). Energy and environmental indicators for Estonian energy sector. *Oil and Shale, 22*(4), 487-498.

Rünne, E. (2022). *A record number of organisations are joining the diversity agreement.* Retrieved from Estonian Human Rights Centre: https://humanrights.ee/en/2022/04/mk-leppe-liitumine/

Saari, U., Ojasoo, M., Venesaar, U., Puhakka, I., Nokelainend, P., & Mäkinen, S. (2024). Assessing engineering students' attitudes towards corporate social responsibility principles. *European Journal of Engineering Education*. doi:https://doi.org/10.1080/03043797.2023.2299731

Saari, U., Venesaar, U., Ojasoo, M., Mäkinen, S., & Nokelainen, P. (2019). Assessing sustainability orientations of first year university students. *79th Annual Meeting of the Academy of Management Proceedings* (pp. 1 - 8). Boston, Massachusetts, USA: Academy of Management AOM.

Sachs, J. D., Lafortune, G., Kroll, C., Fuller, G., & Woelm, F. (2022). *Sustainable Development Report 2022*. Cambridge University Press. Retrieved from https://s3.amazonaws.com/sustainabledevelopment.report/2022/2022-sustainable-development-report.pdf

Saleem, A., Aslam, S., Sang, G., Dare, P. S., & Zhang, T. (2023). Education for sustainable development and sustainability consciousness: evidence from Malaysian universities. *International Journal for Sustainability in Higher Education, 24*(1), 193 - 211. doi:https://doi.org/10.1108/IJSHE-05-2021-0198

Saqib, Z. A., Zhang, Q., Ou, J., Saqib, K. A., Majeed, S., & Razzaq, A. (2020). Education for sustainable development in Pakistani higher education institutions: an exploratory study of students' and teachers' perceptions. *International Journal of Sustainability in Higher Education, 21*(6), 1249-1267. doi:https://doi.org/10.1108/IJSHE-01-2020-0036

Savitz, A. W., & Weber, K. (2014). *The Triple Bottom Line: How Today's Best-Run Companies Are Achieving Economic, Social, and Environmental Success - and How You Can Too.*

Schaltegger, S., & Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: categories and interactions. *Business Strategy and the Environment*. doi:https://doi.org/10.1002/bse.682

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach* (7th edition ed.). John Wiley & Sons.

Serafeim, G. (2018). Investors as Stewards of the Commons? *Journal of Applied Corporate Finance, 30*(2).

Serafini, P. G., Morais de Moura, J., Rodrigues de Almeida, M., & Dantas de Rezende, J. F. (2022). Sustainable Development Goals in Higher Education Institutions: A systematic literature review. *Journal of Cleaner Production*. doi:https://doi.org/10.1016/j.jclepro.2022.133473

Seva-Larrosa, P., Marco-Lajara, B., Úbeda-García, M., Zaragoza-Sáez, P., Rienda-García, L., García-Lillo, F., . . . Martínez-Falcó, J. (2023). Students´ perception of sustainable development goals (SDGs) and the benefits for companies derived from their implementation. *Economic Research-Ekonomska Istraživanja, 36*(1). doi:https://doi.org/10.1080/1331677X.2023.2167100

Shehu, M., & Shehu, H. (2018). Knowledge, Attitude and Perception About Sustainable Developmental Goals (SDGs) Among Clinical Medical Students of Bingham University

Teaching Hospital. *Journal Health Environment Research, 89*, 130-148. Retrieved from https://www.researchgate.net/profile/Maryam-Shehu-4/publication/351452948_Knowledge_Attitude_and_Perception_About_Sustainable_Developmental_Goals_SDGs_Among_Clinical_Medical_Students_of_Bingham_University_Teaching_Hospital_Jos/links/6478b75d2cad460a1be905

Sigel, A. (2021, March). CSR statements: Incentives and enforcement in the wake of the business roundtable's statement on corporate purpose. *Boston University Law Review, 101*(2), pp. 803-833.

Smaniotto, C., Battistella, C., Brunelli, L., Ruscio, E., Agodi, A., Auxilia, F., . . . Tardivo, S. (2020). Sustainable development goals and 2030 agenda: Awareness, knowledge and attitudes in nine Italian universities. *International journal of environmental research and public health, 17*(23), 8968. Retrieved from https://www.mdpi.com/1660-4601/17/23/8968

Smith, A. E., Zlatevska, N., Chowdhury, R. M., & Belli, A. (2023). A Meta-Analytical Assessment of the Efect of Deontological Evaluations and Teleological Evaluations on Ethical Judgments/Intentions. *Journal of Business Ethics*, 1-36. doi:10.1007/s10551-022-05311-x

Sonetti, G., Sarrica, M., & Norton, L. (2021). Conceptualization of sustainability among students, administrative and teaching staff of a university community: An exploratory study in Italy. *Journal of Cleaner Production, , 316*, 128292.

Steele, S. (2014). The Collapse of Lehman Brothers and Derivative Disputes: The Relevance of Bankruptcy Cultures to Roles for Courts and Attitudes of Judges. *Law in Context, 30*(1), 51 - 84.

Struck, D. J. (2023). What We Talk About When We Talk About ESG. *Board Leadership*, 1-8. doi:10.1002/bl.30237

Sullivan, K., Thomas, S., & Rosano, M. (2018). Using industrial ecology and strategic management concepts to pursue the Sustainable Development Goals. *Journal of Cleaner Production, 174*, 237-246. doi:https://doi.org/10.1016/j.jclepro.2017.10.201

Svensson, G., & Wood, G. (2003). The dynamics of business ethics: a function of time and culture – cases and models. *Emerald insight*. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/00251740310468195/full/html

Szennay, Á., Szigeti , C., Kovács , N., & Szabó , D. R. (2019). Through the Blurry Looking Glass—SDGs in the GRI Reports. *Resources, 8*(2). doi:https://doi.org/10.3390/resources8020101

Tallinn University of Technology. (2021). *TalTech School of Business and Governance PRME report 2019–2021*. Tallinn. Retrieved from https://haldus.taltech.ee/sites/default/files/2021-09/SBG_PRME%20report%202021.pdf?_ga=2.121708427.1873350056.1685935487-903379464.1625750533

Tallinn University of Technology. (2023). *Our PRME Journey*. Retrieved June 6, 2023, from https://taltech.ee/en/sbg/ethics-responsibility-and-sustainability

Taltech. (2024). *School of Business and Governance*. Retrieved from https://taltech.ee/en/sbg/ethics-responsibility-and-sustainability

Taltech. (2024a). *Green strategy of Tallinn University of Technology 2023-2035*. Retrieved from https://oigusaktid.taltech.ee/en/green-strategy-of-tallinn-university-of-technology/

UN PRME. (2023). *What is PRME*. Retrieved from Principles for Responsible Management Education: https://www.unprme.org/about

United Nations. (2000). *Resolution adopted by the General Assembly_United Nations Millennium Declaration.* UN General Assembly. Retrieved from https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_55_2.pdf

United Nations. (2004). *Who Cares Wins.* Retrieved from https://www.unepfi.org/fileadmin/events/2004/stocks/who_cares_wins_global_compact_2004.pdf

United Nations. (2014). *Report of the Open Working Group of the General Assembly on Sustainable Development Goals.* Retrieved from http://undocs.org/A/68/970

United Nations. (2015). *Resolution adopted by the General Assembly on 25 September 2015 _ Transforming our world: the 2030 Agenda for Sustainable Development.* UN General Assembly. Retrieved from https://undocs.org/en/A/RES/70/1

United Nations. (2015, December). *Sustainable Development Goals kick off with start of new year*. Retrieved from https://news.un.org/en/story/2015/12/519172

United Nations. (2021). Principles for Responsible Investment. Retrieved from https://www.unpri.org/download?ac=10948

United Nations. (2023). *We Can End Poverty - Millennium Development Goals and Beyond 2015*. Retrieved June 6, 2023, from https://www.un.org/millenniumgoals/

United Nations. (2023a). *Are Some SDGs More Important than Others?* Retrieved from https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/Note-SDGs-VNRs.pdf

United Nations. (2024). *The Paris Agreement*. Retrieved from United Nations Framework Convention on Climate Change: https://unfccc.int/process-and-meetings/the-paris-agreement

United Nations. (2024a). *Rankings: The overall performance of all 193 UN Member States*. Retrieved from Sustainable Development Report: https://dashboards.sdgindex.org/rankings

Valderrama-Hernández, R., Sánchez-Carracedo, F., Rubio, L., & Limón-Domínguez, D. (2019). Methodology to Analyze the Effectiveness of ESG in a Higher Degree in Education. A Case Study. . *Sustainability* , *12*, 222.

Wersun, A. (2022). An exploration of student learning for sustainability through the WikiRate Student. . *Education (PRME)*, *15*(2), 73-83.

Wersun, A. D., Gibbons, B., Gonzalez-Perez, M., Heithaus, T., Jun, H., & Mesicek, R. (2019). An exploration of student learning for sustainability through the WikiRate student engagement project. *The International Journal of Management Education, 17*(3), 100313.

Weybrecht , G. (2021). How management education is engaging students in the sustainable development goals. *International Journal of Sustainability in Higher Education, 22*(6), 1302-1315. doi: https://doi.org/10.1108/IJSHE-10-2020-0419

Whitcomb, L. L., Erdener , C. B., & Li, C. (1998). Business Ethical Values in China and the U.S. *Journal of Business Ethics*, 839–852. Retrieved from https://link.springer.com/article/10.1023/A:1005793424492

Williams, J., & Usher, A. (2022). *World Higher Education: Institutions, Students and Funding.* Toronto. Retrieved from https://higheredstrategy.com/wp-content/uploads/2022/03/HESA_World-Higher-Education-2022_Main-Report-2.pdf

Yuan, X., & Zuo, J. (2012). A critical assessment of the Higher Education For Sustainable Development from students' perspectives e a Chinese study. *Journal of Cleaner Production*. Retrieved from http://dx.doi.org/10.1016/j.jclepro.2012.10.041

Yuan, X., Yu, L., & Wu, H. (2021). Awareness of Sustainable Development Goals among Students from a Chinese Senior High School. *Education sciences, 11*, 458. Retrieved from https://www.mdpi.com/2227-7102/11/9/458/pdf

Zhou, R. K., Abedin, N. F., & Paramasivam, S. (2022). Sustainable Development Goals Knowledge and Sustainability Behaviour: A Study of British and Malaysian Tertiary Students. *Asian Journal of University Education, 18*(2). Retrieved from https://files.eric.ed.gov/fulltext/EJ1347641.pdf

Zwickle, A., & Jones, K. (2018). Sustainability Knowledge and Attitudes—Assessing Latent Constructs. In *Handbook of Sustainability and Social Science Research.* Springer International Publishing. doi:https://doi.org/10.1007/978-3-319-67122-2_25

Zwickle, A., Koontz, T., Slagle, K., & Bruskotter, J. (2014). Assessing sustainability knowledge of a student population. *International Journal of Sustainability in Higher Education, 15*(4), 375-389. doi:10.1108/IJSHE-01-2013-0008

APPENDICES

Appendix 1. Sustainability assessment for full data set

S/N	Questions	Frequency	Percent
1.	Which of the following countries is the largest emitter of the greenhouse gas carbon dioxide?		
	Brazil	4	2.3
	China	124	72.1
	Japan	4	2.3
	U.S.	38	22.1
	Missing responses	2	1.2
2.	Which is the most common cause for pollution of streams and rivers?		
	Waste dumped by factories	88	51.2
	Surface water running off yards, city streets, paved lots, and farm fields	39	22.7
	Litter near streams and rivers	11	6.4
	Dumping of garbage by cities	32	18.6
	Missing responses	2	1.2
3.	Ozone forms a protective layer in the earth's upper atmosphere. What does ozone protect us from?		
	Acid rain	8	4.7
	Climate change	20	11.6
	Harmful UV rays	133	77.3
	Sudden changes in temperature	9	5.2
	Missing responses	2	1.2
4.	Which of the following is an example of sustainable forest management?		
	Never harvesting more than what the forest produces	140	81.4

	Producing lumber for nearby communities to build affordable housing	4	2.3
	Putting the local communities in charge of forest resources	9	5.2
	Setting aside forests to be off limits to the public	16	9.3
	Missing responses	3	1.7
5.	Which of the following is the most commonly used definition of sustainable development?		
	Building a neighbourhood that is both socio-demographically and economically diverse	7	4.1
	Creating a government welfare system that ensures universal access to education, health care, and social services	37	21.5
	Meeting the needs of the present without compromising the ability of future generations to meet their own needs	114	66.3
	Setting aside resources for preservation, never to be used	10	5.8
	Missing responses	4	2.3
6.	Which of the following is the most commonly used definition of economic sustainability?		
	Continually expanding market share	18	10.5
	Long term profitability	109	63.4
	Maximizing the share price of a company's stock	11	6.4
	When costs equal revenue	30	17.4
	Missing responses	4	2.3
7.	Which of the following would be considered living in the most environmentally sustainable way?		
	Recycling all recyclable packaging	74	43.0
	Reducing consumption of all products	77	44.8
	Buying products labelled "eco" or "green"	16	9.3
	Buying the newest products available	3	1.7
	Missing responses	2	1.2
8.	Over the past decade, what has happened to difference between the wealth of the richest and poorest Estonians?		
	The difference has increased	99	57.6

	The difference has stayed about the same	43	25.0
	The difference has decreased	26	15.1
	Missing responses	4	2.3

Appendix 2. Sustainability assessment for Taltech sample

S/N	Questions	Frequency	Percent
1.	Which of the following is the most commonly used definition of economic sustainability?		
	Continually expanding market share	9	8.9
	Long term profitability	68	67.3
	Maximizing the share profit	5	5
	When costs equal revenue	17	16.8
	Missing responses	2	2
2.	Which of the following is an example of sustainable forest management?		
	Never harvesting more than what the forest produces in new growth	87	86.1
	Producing lumber for nearby communities to build affordable housing	4	4
	Putting the local communities in charge of forest resources.	2	2
	Setting aside forests to be off limits to the public	7	6.9
	Missing responses	1	1
3.	Which of the following is the most commonly used definition of sustainable development?		
	Building a neighborhood that is both socio-demographically and economically diverse	2	2
	Creating a government welfare system that ensures universal access to education, health care, and social service	22	21.8
	Meeting the needs of the present without compromising the ability of future generations to meet their own needs	70	69.3

	Setting aside resources for preservation, never to be used	5	5
	Missing responses	2	2
4.	Which of the following would be considered living in the most environmentally sustainable way?		
	Buying products labelled “eco” or green	9	8.9
	Buying the newest products available	2	2
	Recycling all recyclable packaging	38	37.6
	Reducing consumption of all products	51	50.5
	Missing responses	1	1
5.	Ozone forms a protective layer in the earth’s upper atmosphere. What does ozone protect us from?		
	Acid rain	7	6.9
	Climate changes in temperature	11	10.9
	Harmful UV rays	76	75.2
	Sudden changes	6	5.9
	Missing responses	1	1
6.	Which of the following countries is the largest emitter of the greenhouse gas carbon dioxide?		
	Brazil	1	1
	China	78	77.2
	Japan	2	2
	U.S.	20	19.8
7.	Over the past decade, what has happened to difference between the wealth of the richest and poorest Estonians?		
	The difference has increased	58	57.4
	The difference has stayed about the same	30	29.7
	The difference has decreased	11	10.9
	Missing responses	2	2.0
8.	Which is the most common cause for pollution of streams and rivers?		
	Waste dumped by factories	50	49.5
	Surface water running off yards, city streets, paved lots, and farm fields	30	29.7

	Litter near streams and rivers	5	5.0
	Dumping of garbage by cities	15	14.9
	Missing responses	1	1.0

Source: Author's calculations

Appendix 3. Correct answers to the sustainability assessment questions

Questions	Correct Answer
Which of the following is the most commonly used definition of economic sustainability?	Long term profitability
Which of the following is an example of sustainable forest management?	Never harvesting more than what the forest produces in new growth
Which of the following is the most commonly used definition of sustainable development?	Meeting the needs of the present without compromising the ability of future generations to meet their own needs
Which of the following would be considered living in the most environmentally sustainable way?	Reducing consumption of all products
Ozone forms a protective layer in the earth's upper atmosphere. What does ozone protect us from?	Harmful UV rays
Which of the following countries is the largest emitter of the greenhouse gas carbon dioxide?	China
Over the past decade, what has happened to difference between the wealth of the richest and poorest Estonians?	The difference has increased
Which is the most common cause for pollution of streams and rivers?	Surface water running off yards, city streets, paved lots, and farm fields

Source: (Zwickle *et al.*, 2014; Zwickle & Jones, 2018)

Appendix 4. Exploratory factor analysis

Table 19. Total variance explained and Communalities on SDGs (Full dataset)

SDGs	Initial Eigenvalues			
	Total	% of Variance	% of Variance	Communalities
1	11.025	64.855	44.526	0.703

2	1.051	6.181	26.509	0.744
3	0.701	4.122		0.72
4	0.675	3.971		0.72
5	0.629	3.7		0.75
6	0.456	2.679		0.716
7	0.417	2.456		0.765
8	0.369	2.173		0.679
9	0.318	1.868		0.616
10	0.251	1.476		0.7
11	0.242	1.424		0.668
12	0.21	1.236		0.679
13	0.188	1.107		0.629
14	0.155	0.909		0.822
15	0.121	0.711		0.845
16	0.111	0.651		0.61
17	0.082	0.481		0.709

Source: Author's calculations

Table 20. Total variance explained and Communalities on ESG principles (Full dataset)

ESG	Total	% of Variance	Cumulative %	Communalities
1	2.475	82.504	82.504	0.853
2	0.316	10.548		0.837
3	0.208	6.948		0.785

Source: Author's calculations

Table 21. Total variance explained on SDGs (Taltech students)

SDGs	Total	Initial Eigenvalues% of Variance	Cumulative %
1	10.821	63.654	63.654
2	1.156	6.8	70.454
3	0.745	4.383	
4	0.718	4.225	
5	0.546	3.212	
6	0.521	3.065	
7	0.41	2.412	
8	0.39	2.296	
9	0.359	2.113	
10	0.303	1.781	
11	0.239	1.407	
12	0.211	1.241	
13	0.206	1.211	
14	0.132	0.778	
15	0.104	0.614	

16	0.084	0.494	
17	0.053	0.314	

Source: Author's calculations

Table 22. Total variance explained on ESG principles (Taltech students)

ESG	Total	Initial Eigenvalues % of Variance	Cumulative %	Cumulative %
1	2.462	82.056	82.056	82.056
2	0.336	11.199	93.255	
3	0.202	6.745	100	

Source: Author's calculations

Appendix 5. Questionnaire

Students' Awareness of SDGs and ESG

Dear Participant,

Allow me to introduce myself as the researcher responsible for conducting this study. My name is Tolu Johnson, and I am currently pursuing my Masters degree in International Business at Tallinn University of Technology. This research project represents a significant milestone in my academic journey, and I am enthusiastic about the opportunity to engage with you, our valued participants, in exploring the intriguing subject matter of Students' Awareness of Sustainable Development Goals (SDGs) and Environmental Social and Governance (ESG). The purpose of this questionnaire is to understand the level of awareness of university students of these concepts as well as their attitudes and the level of importance that they attach to them.

Your participation is completely voluntary, and all the information you provide will be treated with the utmost confidentiality. No personally identifiable information will be disclosed, ensuring your privacy and anonymity throughout the research process.To ensure the effectiveness and accuracy of our study, it is crucial that you answer the questions as honestly and thoroughly as possible. There are no right or wrong answers, and your perspective is highly valued.

Before you proceed, please take a moment to read the informed consent statement provided in the previous paragraph. By continuing with the survey, you are confirming your consent to participate in the study.

The questionnaire is structured into several sections, each of which is designed to gather specific data related to the research objectives. Your time and effort in completing this questionnaire will contribute significantly to the success of this research endeavor.

Thank you for your time and participation in this survey.

Which of the following genders do you identify with? *

- ◯ Male
- ◯ Female
- ◯ Prefer not to answer

Which one of the following describes your age? *

- ◯ < 15 years
- ◯ 15 - 24 years
- ◯ 25 - 34 years
- ◯ 35 - 44 years
- ◯ 45 years and above

Where are you studying? *

- ◯ Estonian Business School (EBS)
- ◯ Tallinn University (TLU)
- ◯ Tallinn University of Technology (Taltech)
- ◯ University of Tartu
- ◯ Mainor
- ◯ Estonian University of Life Sciences
- ◯ Other: _____

If you have selected Taltech, please indicate the school that you belong to. *

- ◯ School of Business and Governance
- ◯ School of Engineering
- ◯ School of Information Technologies
- ◯ School of Science

- ◯ Estonian Maritime Academy
- ◯ I am not a student of Taltech

What degree that you are currently studying for? *

- ◯ Bachelors
- ◯ Masters
- ◯ PhD

Are you a Domestic or Foreign student? *

- ◯ Domestic
- ◯ Foreign

The following statements are related to **students' awareness** about SDGs – Sustainable Development Goals – and ESG – Environmental, Social & Governance. Please indicate your level of agreement with these statements. *

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I recognize the term "Sustainable Development Goals"	○	○	○	○	○
I recognise the term "Environmental, Social and Governance"	○	○	○	○	○
I believe that there is a positive relationship between a firm's ESG performance and its financial performance	○	○	○	○	○

I have taken at least one course in the university that has SDGs or ESG related topics	○	○	○	○	○

If you are aware about SDGs and ESG, then where have you learnt about it from: *(Please select all the options that are applicable to you)*

- [ ] My current university
- [ ] Schools, colleges or universities that I have attended outside Estonia
- [ ] Online
- [ ] Other sources in Estonia
- [ ] Other sources outside Estonia
- [ ] Not Applicable

To what extent do you think the SDGs have been achieved in Estonia? *

	Highly achieved	Somewhat achieved	Neither	Merely achieved	Not achieved
No poverty	○	○	○	○	○
Zero hunger	○	○	○	○	○
Good health and wellbeing	○	○	○	○	○
Quality education	○	○	○	○	○
Gender equality	○	○	○	○	○
Clean water and sanitation	○	○	○	○	○
Affordable and clean energy	○	○	○	○	○
Decent work and economic growth	○	○	○	○	○

Industry, Innovation and Infrastructure	○	○	○	○	○
Reduced inequalities	○	○	○	○	○
Sustainable cities and communities	○	○	○	○	○
Responsible consumption and production	○	○	○	○	○
Climate action	○	○	○	○	○
Life below water	○	○	○	○	○
Life on land	○	○	○	○	○
Peace, justice and strong institutions	○	○	○	○	○

Partnerships for the goals	○	○	○	○	○

Under each goal, there are many sub-goals. How well do you know the content of SDG goals? *

	Very well	Basic knowledge	Zero knowledge
No poverty	○	○	○
Zero hunger	○	○	○
Good health and wellbeing	○	○	○
Quality education	○	○	○
Gender equality	○	○	○
Clean water and sanitation	○	○	○
Affordable and clean energy	○	○	○
Decent work and economic growth	○	○	○

Industry, Innovation and Infrastructure	○	○	○
Reduced inequalities	○	○	○
Sustainable cities and communities	○	○	○
Responsible consumption and production	○	○	○
Climate action	○	○	○
Life below water	○	○	○
Life on land	○	○	○
Peace, justice and strong institutions	○	○	○
Partnerships for the goals	○	○	○

How well do you know ESG pillars? *

	Very well	Basic knowledge	Zero knowledge
Environmental	○	○	○
Social	○	○	○
Governance	○	○	○

Sustainability Assessment

Which is the most common cause for pollution of streams and rivers?

- ◯ Dumping of garbage by cities
- ◯ Surface water running off yards, city streets, paved lots, and farm fields
- ◯ Litter near streams and rivers
- ◯ Waste dumped by factories

Ozone forms a protective layer in the earth's upper atmosphere. What does ozone protect us from?

- ◯ Acid rain
- ◯ Climate change
- ◯ Sudden changes in temperature
- ◯ Harmful UV rays

Which of the following is an example of sustainable forest management?

- ◯ Setting aside forests to be off limits to the public
- ◯ Never harvesting more than what the forest produces in new growth
- ◯ Producing lumber for nearby communities to build affordable housing
- ◯ Putting the local communities in charge of forest resources.

Of the following, which would be considered living in the most environmentally sustainable way?

- ◯ Recycling all recyclable packaging
- ◯ Reducing consumption of all products
- ◯ Buying products labeled “eco” or “green”
- ◯ Buying the newest products available

Which of the following is the most commonly used definition of sustainable development?

- ○ Creating a government welfare system that ensures universal access to education, health care, and social services
- ○ Setting aside resources for preservation, never to be used
- ○ Meeting the needs of the present without compromising the ability of future generations to meet their own needs
- ○ Building a neighborhood that is both socio-demographically and economically diverse

Over the past decade, what has happened to difference between the wealth of the richest and poorest Estonians?

- ○ The difference has increased
- ○ The difference has stayed about the same
- ○ The difference has decreased

Which of the following is the most commonly used definition of economic sustainability?

- ◯ Maximizing the share price of a company's stock
- ◯ Long term profitability
- ◯ When costs equal revenue
- ◯ Continually expanding market share

Which of the following countries is the largest emitter of the greenhouse gas carbon dioxide?

- ◯ China
- ◯ U.S.
- ◯ Brazil
- ◯ Japan

The following statements are related to the **perception of students** towards SDGs and ESG. Please indicate your level of agreement with the following statements. *

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Business dedication to ESG and the SDGs is important for the achievement of the SDGs	○	○	○	○	○
Employees should be given an additional one day leave to participate in charity work such as: giving of clothes, money and food items to the homeless	○	○	○	○	○

The success of an organisation is more important than the success of its surrounding community	○	○	○	○	○
I believe that companies have a vital role to play for the achievement of the SDGs	○	○	○	○	○
I consciously try to reduce my environmental footprint on a regular basis	○	○	○	○	○
Access to clean water is a universal human right	○	○	○	○	○

I work with a company that practices ESG and actively works towards achieving SDGs.	○	○	○	○	○
I would like to work with a company that practices ESG and actively works towards achieving SDGs.	○	○	○	○	○
Clean air is part of a good life	○	○	○	○	○
Generally speaking consumerism is not sustainable	○	○	○	○	○
An unsustainable economy values personal wealth at the expense of others	○	○	○	○	○

To what extent are the SDGs important to your personal daily life and values? *

	Very important	Important	Neither	Rarely important	Not important
No poverty	○	○	○	○	○
Zero hunger	○	○	○	○	○
Good health and wellbeing	○	○	○	○	○
Quality education	○	○	○	○	○
Gender equality	○	○	○	○	○
Clean water and sanitation	○	○	○	○	○
Affordable and clean energy	○	○	○	○	○
Decent work and economic growth	○	○	○	○	○

Industry, Innovation and Infrastructure	○	○	○	○	○
Reduced inequalities	○	○	○	○	○
Sustainable cities and communities	○	○	○	○	○
Responsible consumption and production	○	○	○	○	○
Climate action	○	○	○	○	○
Life below water	○	○	○	○	○
Life on land	○	○	○	○	○
Peace, justice and strong institutions	○	○	○	○	○
Partnerships for the goals	○	○	○	○	○

Appendix 6. Non-exclusive licence

A non-exclusive licence for reproduction and publication of a graduation thesis[1]

I Toluwalase Johnson (*author's name*)

1. Grant Tallinn University of Technology free licence (non-exclusive licence) for my thesis Students' Awareness of Sustainable Development Goals and Environmental, Social and Governance Principles in Estonia ,
(*title of the graduation thesis*)

supervised by Merle Ojasoo PhD ,
(*supervisor's name*)

1.1 to be reproduced for the purposes of preservation and electronic publication of the graduation thesis, incl. to be entered in the digital collection of the library of Tallinn University of Technology until expiry of the term of copyright;

1.2 to be published via the web of Tallinn University of Technology, incl. to be entered in the digital collection of the library of Tallinn University of Technology until expiry of the term of copyright.

2. I am aware that the author also retains the rights specified in clause 1 of the non-exclusive licence.

3. I confirm that granting the non-exclusive licence does not infringe other persons' intellectual property rights, the rights arising from the Personal Data Protection Act or rights arising from other legislation.

07/05/2024 (date)

[1] *The non-exclusive licence is not valid during the validity of access restriction indicated in the student's application for restriction on access to the graduation thesis that has been signed by the school's dean, except in case of the university's right to reproduce the thesis for preservation purposes only. If a graduation thesis is based on the joint creative activity of two or more persons and the co-author(s) has/have not granted, by the set deadline, the student defending his/her graduation thesis consent to reproduce and publish the graduation thesis in compliance with clauses 1.1 and 1.2 of the non-exclusive licence, the non-exclusive license shall not be valid for the period*