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The Green Entrepreneurship Handbook

Sustainable approaches and eco innovation with regard to entrepreneurship education

Insights in the GREENWORLD Project

IK-Verlag

Co-funded by the Erasmus+ Programme of the European Union

WP PADERBORN
Department Wirtschaftspädagogik
Business and Human Resource Education
Chair Wirtschaftspädagogik II

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Abbreviations

cf.	cited from
CSR	Corporate Social Responsibility
ECO-AP	Eco-innovation Action Plan
EE	Entrepreneurship Education
ETAP	Environmental Technologies Action Plan
EU	European Union
GEO	Green Entrepreneurial Orientation
Greenworld	Erasmus+ - project “Think green for the world”
Ibid.	abbreviation for the Latin word ibīdem, meaning ´in the same place´
IK	Ingenious Knowledge
IT	Information Technology
Ltd.	Limited
PR	Project Result
SBMI	Sustainable Business Model Innovation
UPB	University of Paderborn, Chair Business and Human Resource Education II
UN	United Nations
UNICEF	United Nations Children’s Fund
VET	Vocational Education and Training

1. Part A – Information on the project GREENWORLD

Marc Beutner

1.1 Youth Education in Europe

The focus of Youth education under the European programme ERASMUS+ is a bit different form the classical view on it because Erasmus+ Youth is the EU program for non-formal and informal youth work. This programme is the basis for all the work in the project GREENWORLD which will be reported in this book. Nevertheless, it is important to have also an overview about the classical way of youth education in Europe, to get the ERASMUS+ focus within this context. So let´s have a closer look at the classic approach first:

Educating young people holds significant importance as they embody the future of our society. Education plays a pivotal role in fostering development and enhancing the well-being of youth worldwide. It is recognized as a key focus area in globally endorsed development agendas such as the Millennium Development Goals and the World Programme of Action for Youth.

The UN puts this into the following statement:

“Education is central to development and to the improvement of the lives of young people globally, and as such has been identified as a priority area in internationally agreed development goals, including the Millennium Development Goals and the World Programme of Action for Youth.” (UN 2024, 1)

Moreover the UN points out that education “is important in eradicating poverty and hunger and in promoting sustained, inclusive and equitable economic growth and sustainable development. Increased efforts towards education accessibility, quality and affordability are central to global development efforts.” (UN 2024, 1)

The structure of youth education in Europe varies from country to country. In Europe each nation has its own education system. And all these systems come with unique features. Nevertheless, there are some commonalities and trends across the continent

The structure of youth education in Europe typically starts with Early Childhood Education (ECE). This part of youth education typically begins at age 3 or 4, although this can vary by country. I can starts already with birth and goes often until the age of 8 (c.f. NAEYC 2024).

The idea of ECE is to provide young children with a nurturing environment that promotes social, emotional, cognitive, and physical development. In Europe different organisations and institutions are responsible for ECE (see UNICEF 2023), like including nursery schools, kindergartens, and daycare centres.

Usually the next step in youth education is Primary Education (PEd), which usually starts at around age 6 and lasts for 4-6 years, depending on the country. “In 2021, there were, on average, 13.4 pupils per teacher in primary education across the EU, ranging from an average of 8.0 in Greece to 18.7 in Romania.” (see EUROSTATS 2024)

Primary education focuses on foundational skills such as literacy, numeracy, science, and social studies, Therefore, in many European countries, primary education is compulsory for all children.

The next classic step is Secondary Education (see IES / NCES 2024) Lower Secondary Education which usually begins around age 10-12 and lasts for 3-5 years (see e.g. Eurodyce 2024). It builds upon the foundational skills learned in primary education and introduces more specialized subjects. Lower secondary education often includes a broader range of subjects, such as foreign languages, arts, and vocational training.

According to the ISCED level, secondary education is describes like this:

“ISCED 2: Lower secondary education

Programmes at this level are typically designed to build on the learning outcomes from ISCED

level 1. Students enter ISCED level 2 typically between ages 10 and 13 (age 12 being the most common).

ISCED 3: Upper secondary education

Programmes at this level are typically designed to complete secondary education in preparation for tertiary education or provide skills relevant to employment , or both. Pupils enter this level typically between ages 14 and 16.” (European Commission/ EACEA / Eurydice 2018, 9)

This highlights that after Lower Secondary Education the next step is Upper Secondary Education that often lasts for 2-5 years, depending on the European country and the type of program. Upper secondary education tends to offers a more specialized curriculum and may

include academic or vocational tracks. Such academic tracks prepare students for higher education, while vocational tracks focus on practical skills and may lead directly to employment or further training.

After that Tertiary Education is getting to be addressed and this Tertiary Education encompasses both higher education and vocational training beyond the secondary level and also here youth is heavily involved. Higher education includes universities, colleges, and technical institutes that offer bachelor's, master's, and doctoral degrees. In addition to that, Vocational education and training (VET) provides specialized skills and qualifications for specific careers or industries. Tertiary education is becoming increasingly important in the global economy, and many European countries have implemented policies to increase access to higher education and vocational training.

After these parts of youth education adult education takes over and offers education programs which are available for individuals who wish to continue their education or acquire new skills later in life. But, overall, while there are variations in the structure and organization of youth education across Europe, there is a common commitment to providing quality education and preparing young people for success in an increasingly complex and interconnected world.

But, with the ERASMUS+ programme youth education focusses more on non formal education and informal education and offers mobilities and cooperation opportunities Here ERASMUS+ implements the EU Youth Strategy 2019-2027 (see European Commssion 2024).

The ERASMUS+ programme guide put it in the following words, what is the focus of youth education under ERASMUS+:

“YOUTH PARTICIPATION ACTIVITIES

This action128 supports activities outside formal education and training that encourage, foster and facilitate young people’s participation in Europe’s democratic life at local, regional, national and European level.

OBJECTIVES OF THE ACTION

Erasmus+ supports youth-driven local, national, transnational and international participation projects encouraging youth

participation in Europe's democratic life and following one or more of the following objectives:

• provide young people with opportunities to engage and learn to participate in civic society by offering pathways of engagement for young people in their daily lives but also in democratic life, aiming for a meaningful civic, economic, social, cultural and political participation of young people from all backgrounds, with special focus on those with fewer opportunities);

• raise young people's awareness about European common values and fundamental rights and contribute to the European integration process, including through contribution to the achievement of one or more of the EU Youth Goals;

• develop young people's digital competences and media literacy (in particular critical thinking and the ability to assess and work with information) with a view to increasing young people's resilience to disinformation, misinformation and propaganda, as well as their capacity to participate in democratic life;

• bring together young people and decision makers at local, regional, national and transnational level and/or contribute to the EU Youth Dialogue" (European Commission 2023 ,180)

Numerous education and training systems fail to equip young individuals with essential skills necessary to break free from poverty and unemployment, even amidst their formal education pursuits. This is where ERASMUS+ Youth and non-formal education initiatives come into action. The core aim is to address this deficiency by offering learning and skill-building opportunities tailored to the environments where young people reside and pursue their livelihoods. Such non formal educational are typically delivered through youth and community-based organizations. The specific focus is on the acquisition of practical knowledge and skills relevant to daily life, particularly benefiting disadvantaged and marginalized groups.

The UN points out:

"Non-formal education should not be seen as an alternative to formal education, but rather recognized for its complementariness in providing a more fully rounded and skills based approach, equipping youth to meet the competing demands of work and personal life." (UN 2024, 4)

Youth education under ERASMUS+ is so important because it provides young people with opportunities to develop a diverse set of skills, including communication, teamwork, leadership, and intercultural competence, which are vital for personal growth and future employability. Young people gather international experiences in a way that these young individuals are exposed to different cultures, languages, and perspectives through international exchanges and collaborations, fostering a more globally-minded generation. Young people youth from diverse backgrounds, including those from underprivileged or marginalized communities, take part in measures and take opportunities and contribute to social cohesion and equal access to education. Therefore, inclusion, innovation and creativity is fostered as well as EU integration by facilitating cross-border cooperation and networking among youth organizations.

The project ´GREENWORLD - Think Green for the World´ is a project which is situated in this view of youth education and offers youth activities and educational opportunities with regard to green issues and the need to act in a sustainable, climate and eco-friendly way. It is a youth education project that raises awareness of sustainability and the green economy and takes up entrepreneurship approaches for young people and develops, tests and evaluates eLearning approaches and concepts. The following guide-book offers insights into this project and its results. After presenting the core issues of the project GREENWORLD within the next chapter of this guidebook, we will offer insights into the different learning modules the partnership behind GREENWORLD created.

References

1.2 The project Greenworld – Aims, core ideas structure and concept

The ERASMUS+ project ´GREENWORLD - Think Green for the World´ is a youth education project which started in March 2022 and which focusses on sustainability and ecological issues. The aim of GREENWORLD is to raise awareness of sustainability and the green economy and takes up entrepreneurship approaches for young people and develops, tests and evaluates eLearning approaches and concepts.

It is a ´Strategic Partnerships for Youth Education´, especially a ´Cooperation partnership´. The project is focussing on collaborative work that is addressed be seven European partners from Germany, Turkiye, Portugal and Romania:

- ***prEUnec GmbH, Germany***
  prEUnec is active as the project coordinator and offers cooperation contatcs between youth groups in Germany and Turkiye.
- ***Universität Paderborn - UPB, Lehrstuhl Wirtschaftspädagogik II – Chair Business and Human Resource Education II, Germany***
  UPB is the concept- and research partner and focusses also on didactic and pedagogical issues. It is the university partner in GREENWORLD.
- ***E-digital software, Turkiye***
  E-digital software is resonsible for technical issues and work as the technical partner in the project.
- ***Doganin Cocuklari Ceroki Ekolojik Yasam Ve Ingilizce Koyu Kulubu Dernegi - Ceroki, Turkiye***
  Ceroki is the implementation and testing partner in the project and has access to a broad variety of youth groups.
- ***Associação BioLiving, BioLiving, Portugal***
  BioLivin is a development, implementation and testing partner in the project and has access to a broad biological settings and to youth groups.
- ***Asociatia Share Education. Impartasim Educatiein Craiova, ASE, Romania***
  ASE is also involved as a is a development, implementation and testing partner in GREENWORLD and offers youth work experiences and access to youth groups.

The project language of the partners is English but the youth work and the trainings are done in the different partner languages and most of the youth groups usually work in their national languages.

The EU's 2030 strategy encompasses a set of binding regulations aimed at ensuring the attainment of its climate and energy targets which are a basis for our GREENWORLD project. Progress toward establishing a low-carbon economy and meeting commitments under the Paris Agreement hinges upon fostering green growth and cultivating environmentally conscious generations. Our project is dedicated to introducing innovative concepts and learning processes, primarily tailored for young individuals and staff members of partner institutions, in the realms of environmental science and climate awareness. Thus, it will provide a robust scientific foundation for advancing cutting-edge applications in these fields through innovation. Our objective is to nurture environmentally conscious generations within our countries and promote awareness in environmental and climate literacy. Based on the

results of our regional environmental problems survey, the most pressing issue concerning the environment and climate is the lack of awareness and vision about green entrepreneurship among the younger generation. Efforts to prevent environmental issues proactively can only be achieved by fostering generations capable of thinking green with a strong environmental literacy. Environmental consciousness constitutes an ongoing, cyclical process that requires systematic cultivation over a lifetime.

The objectives of GREENWORLD are:

“For youth;

1- To increase the capacity of environmental literacy,

2- By developing strategies about green economy sectors and employment opportunities, enable them to become entrepreneurs,

3- To create opportunities for them to acquire and use integrated, basic, digital and language skills in their development.

4- To ensure active participation in political decision-making processes by strengthening critical thinking and creativity

For staff;

1- Learning information, experience and strategies about the project topic.

2-EU awareness, cultural interaction

3-Increasing language proficiency and entrepreneurship

For the institutions;

1-To improve the educational results of young people at risk of failure due to lack of skills, trust and commitment

2-Adopting best practices to make the institutions (subject / private / NGO) green perspective more effective

3- To be model institutions on environment” (GREENWORLD Consortium 2021)

Awareness about sustainability and the green economy is crucial for youth in Europe. Young people are the future custodians of the planet. By understanding sustainability principles and

the importance of a green economy, they can become proactive agents in protecting the environment and preserving natural resources for future generations. The green economy offers numerous job opportunities and economic benefits, particularly in sectors such as renewable energy, sustainable agriculture, and green technology. By being aware of these opportunities, youth can better prepare themselves for future careers and contribute to the growth of sustainable industries. Youth awareness and engagement are essential for tackling climate change effectively. It is crucial that they understand the impact of their actions on the environment and advocating for sustainable practices, young people can contribute to mitigating the effects of climate change and promoting adaptation strategies. With GREENWORLD they get in touch with their environmental and social responsibility. n an interconnected world, issues such as climate change and environmental degradation transcend national borders and are important to all people and especially the younger generation who can become agents of change, and drivers of a more sustainable and resilient future for Europe and the world.

The partners of GREENWORLD collaborate to achieve four core project results (PRs):

PR 1: Environmental-climate sensitivity analysis reports

In PR1 the partners did a analysis study in the partner countries to reflect the current situation and the usefulness of the solutions offered by our project and to shed light on environmental-climate issues. This was the basis for the work in PR2, PR3 and PR4.

PR 2: Green Entrepreneurship Handbook

The Green Entrepreneurship Handbook is the supporting element of the Green youth center models in the partner countries. The Green Entrepreneur Handbook Content consists of six modules which will be explained below.

PR 3: Environmental Literacy Handbook

With the environmental literacy handbook, as another supportive element of the green youth center, the impact area increases. A Green youth center model is developed, tested and validated with local practices in PR3. The partners outlined the environmental literacy handbook in seven modules:

Module 1: Ethical and aesthetic values in environmental education

Module 2: Analysis of Perceived Environmental Problems According to Environmental Literacy Level

Module 3: Ecology and ecosystem

Module 4: Environmental activities where individuals or groups invite others to help prevent or solve environmental problems

Module 5: Effects of global change on human health, infectious and epidemic diseases

Module 6: Environmental activities that people use to support or strengthen laws designed to help prevent or solve environmental problems

Module 7: Development of environmental literacy handbook education curriculum

PR 4: Web tools and E-learning / E- Book

The Webtool is a website and additional tools created by the coordinator and its partner in Turkiye, Edigital software. With the e-learning and e-book, which will be created through the website, all young people and institutions, local, national and transnational, will be reached.

The web tools and E-learning offers information on:

1-The activities and workshops

2-Learning models produced based on data and analysis

3- The "Green Entrepreneurship Handbook"

4. The "Environmental Literacy Handbook"

5. e-learning videos

6. course scenarios to be used in green youth centers and e-learning platforms

7. Environmental-climate themed educational games with WEB tools

8. Information on all activities and workshops of the young people

Currently you are reading here the Green Entrepreneurship Handbook which is directly connected to PR2.

PR2 consists of six modules which are also the guidelines for the information presented in the second part of this book here:

Figure 1: Modules within the GREENWORLD - Green Entrepreneurship Handbook

UPB wa responsible for the design of the module M1. The module M2 was created by Associação BioLiving. The third module M3 and the fourth module M4 were created by the Coordinator prEUnec . E-digital softearw was resporsible for the design of module 5 and together E-digital software and UPB took care about module 6.

The feedback on the project and the results was excellent. Young people could get in contact with Green Economy, sustainability issue and work on solutions in their own fields. With regard to the Green Entrepreneurship handbook, that you are currently reading the young people get in touch with ideas of running an own business.

Entrepreneurship is the process of creating, developing, and managing a business venture with the aim of generating profit or fulfilling a need in the market (see Beutner 2018 and BEUTNER / RÜSCHER 2017). It involves identifying opportunities, taking risks, innovating, and marshaling resources to bring a new product, service, or solution to the market. Entrepreneurs are individuals who drive this process, often exhibiting qualities such as creativity, initiative,

resilience, and a willingness to adapt to changing circumstances. Entrepreneurship plays a vital role in driving economic growth, fostering innovation, and creating jobs.

According to FFE-YE and the Entrecomp Framework

“Entrepreneurship is when you act upon opportunities and ideas and transform them into value for others. The value that is created can be financial, cultural, or social.” (FFE-YE 2012).

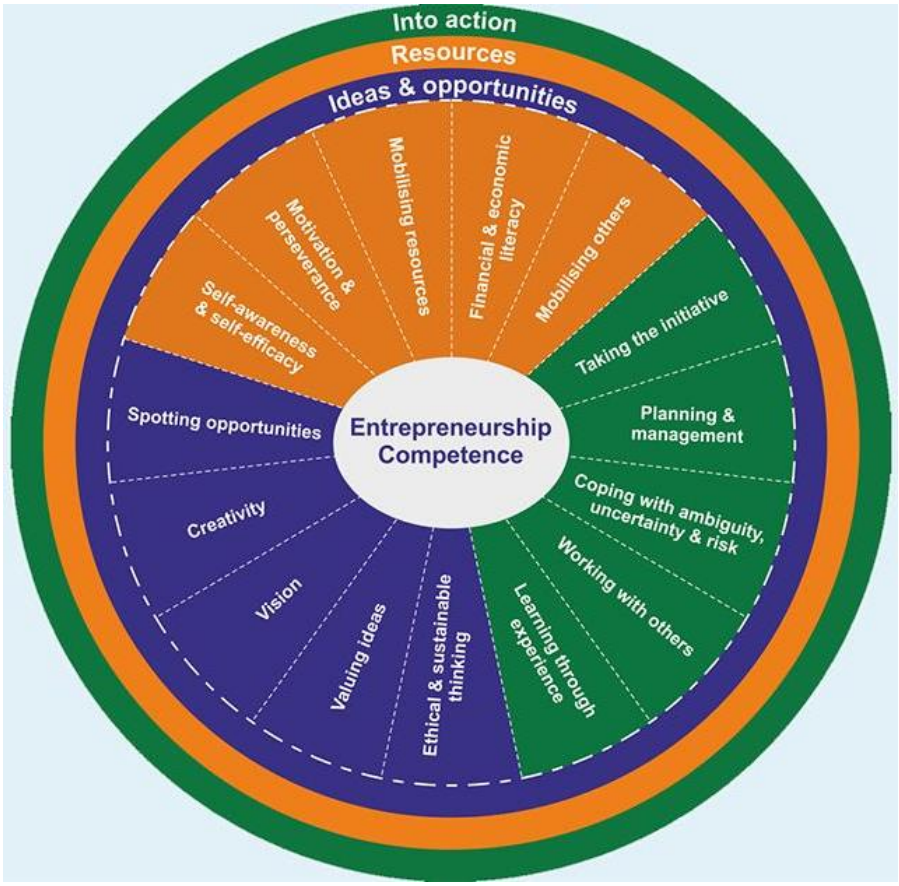
The youth groups trained their entrepreneurial skills like:

- Building Business Plans
- Critical Thinking
- Decision Making
- Organization
- Planning
- Positivity
- Social Media
- Creation of own entrepreneurial idea and solutions

A basis was here the competences according to the EntreComp model with its three competence areas (see European Commission 2016):

a) Into Action
b) Resources
c) Ideas and opportunities

“The framework consists of 15 key competences that professionals in the domain of entrepreneurial teaching and training recognised as instrumental to facilitate, nurture and support the emergence of entrepreneurial spirits, sense of initiatives and professional empowerment among EU citizens.” ()



(see European Commission 2016)

Figure 2: The EntreComp Framework model –
A basis for the PRs and the Green Entrepreneurship Handbook of GREENWORLD

After an overview on the six modules, all modules of the Green Entrepreneurship approach of GREENWORLD will be described and presented in the following chapters as a basis for future transfer and use in green youth centers.

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2. Part B – The informative six modules of the Greenworld project

Niclas Grüttner / UPB

This handbook contains six individual modules that deal with sustainable approaches and eco innovation with regard to entrepreneurship education in reference to the Erasmus+ Greenworld project. The modules serve as a comprehensive guide to equip young entrepreneurs with the necessary knowledge and skills to navigate the complexities of the green economy. The modules focus on different aspects:

- **Module 1: Eco-Innovation and Sustainability Design in Green Entrepreneurship**
  This module focuses on the intersection of eco innovation, sustainability design, and green entrepreneurship. It explores how these three areas come together to address environmental challenges and promote sustainable practices in business. The module also explores the role of ethical and social responsibility in business, emphasizing the importance of aligning economic goals with ecological and social considerations. It highlights the need for businesses to adopt a holistic approach that takes into account the interests of stakeholders and promotes fairness and justice.

- **Module 2: Natural Resource Management and Sustainability in Green Innovation**
  This module deals with the effective management of natural resources and explores strategies for fostering sustainability in innovation processes. It highlights the significance of preserving natural ecosystems and minimising environmental impact.

- **Module 3: User Experiences of Green Companies**
  Offering practical insights, this module examines real-world experiences of green companies. By analysing successful case studies, young entrepreneurs can gain valuable lessons and inspiration for their own ventures.

- **Module 4: Developing and Analysing Access to Finance for Green Entrepreneurs**
  Focusing on the financial aspect, this module addresses challenges related to accessing funding for green initiatives. It provides guidance on financial planning, investment strategies, and leveraging available resources.

- **Module 5: Green Entrepreneurship Culture and Business Models Ideas**
  This module explores the cultural aspects of green entrepreneurship and offers diverse perspectives on business models. It encourages creativity and innovation in developing sustainable business models tailored to specific cultural contexts.

- **Module 6: Development of the Training Curriculum of the Green Entrepreneurship Handbook**
  Wrapping up the handbook and modules, this module serves as an information about the training curriculum as well as the didactic approach behind it and how to use interactive tasks such as H5P tasks.

To put it in a nutshell, this handbook developed under the Erasmus+ Greenworld project comprises six comprehensive modules aimed at equipping young entrepreneurs with the knowledge and skills necessary to thrive in the green economy. These modules cover various aspects of sustainable entrepreneurship, including eco-innovation, sustainability design, natural resource management, user experiences of green companies, access to finance for green initiatives, and the cultural dimensions of green entrepreneurship. Additionally, the handbook provides guidance on developing a training curriculum and implementing interactive tasks to enhance learning. By addressing these key areas, the handbook aims to empower young entrepreneurs to create innovative and sustainable solutions to environmental challenges while promoting ethical and socially responsible business practices.

3. Module 1: Eco Innovation and Sustainability Design in Green Entrepreneurship

Niclas Grüttner / UPB

In an era marked by environmental challenges and a growing awareness of the finite nature of our planet's resources, the intersection of eco innovation, sustainability design, and green entrepreneurship has emerged as a powerful force for positive change (cf. OECD 2022). This dynamic field seeks to redefine the traditional business landscape by integrating innovative solutions that prioritise ecological responsibility, resource efficiency, and long-term sustainability. By taking up these different dimension of the field of sustainability in entrepreneurship, sustainable business model innovation (SBMI) is an important key action in redefining the way businesses are working (cf. BOCKEN & GERADTS, 2020/ DENTCHEV ET AL., 2018). Therefore, eco innovation and sustainability design in green entrepreneurship represent a paradigm shift, where businesses are not only concerned with profit but also with their environmental and social impact. If now the social corporate responsibility (CSR) (cf. OKPARA & IDOWU, 2013) of a business is taken into account, it gets cleat that green entrepreneurship goes beyond conventional business models, embracing a holistic approach that aligns economic goals with ecological and social considerations especially ethics.

The ethical responsibility of a business aligns with the sustainable key dimensions of it: "[E]thical responsibility represents those standards, norms, or expectations that reflect a concern for what consumers, employees, shareholders, and the community regard as fair, just, or in keeping with the respect or protection of stakeholders' moral rights" (OKPARA & IDOWU, 2013 p. 7). This intricate interplay between eco innovation, sustainability design and ethical as well as social responsibility not only addresses environmental concerns but also opens up new avenues for economic growth in the field of social interaction between companies and society: Green entrepreneurs and their green entrepreneurial orientation (GEO) are not just responding to market demand; they are actively shaping it on the basis of what society needs (cf. WENJIN, YU, & YANG, 2022). This means that consumers are increasingly seeking products and services that align with their values, and businesses that prioritize eco-friendly practices are gaining a competitive edge (cf. OKPARA & IDOWU, 2013 p. 3 ff.).

Emphasizing the integration of eco-friendly principles in the conceptualization, development, and implementation of products and services, sustainability design plays an important role in

this perspective. It involves a deliberate and thoughtful process that considers the entire lifecycle of a product or service, from raw material extraction to disposal. SHARON ET. AL (2020) describe sustainable design as something that is "transforming how people think, how they design, how they build and how they maintain the environment (JAFFE ET AL., 2019, p. 21). It furthermore extends "beyond functional, spatial, and aesthetic criteria to consider the impact to the environment and local community. Sustainable design requires designers to think beyond the building itself, and consider the influence and inspiration a project brings to the broader community and societal concerns" (JAFFE ET AL., 2019, pp. 21-22). By adopting sustainable design principles, green entrepreneurs aim to reduce waste, energy consumption, and negative environmental externalities while enhancing overall product performance and user experience.

As we navigate through the complex challenges of the 21st century, the fusion of eco innovation and sustainability design in green entrepreneurship present a solution to pick up and extend to the personal needs of the contexts in which different groups act. In the following module, the Eco Innovation and Sustainability Design in Green Entrepreneurship is focussed as to provide an understanding of how the triangulation between sustainability, entrepreneurship and innovation work.

a. 3.1 Green Entrepreneurship and Entrepreneurship Education

In the late 1990s, Germany introduced government-funded programs aimed at promoting entrepreneurship, particularly initiatives supporting the establishment of new businesses. Similarly, in the early 2000s, Austria implemented corresponding funding programs, including those at the university level, supported by the Austrian Research Promotion Agency (FFG). The primary focus of almost all these programs was to increase the entrepreneurial rate, with the expectation of generating positive employment effects (cf. BIJEDIĆ ET AL., 2019, p. 4). For instance, in Germany, the EXIST initiative for promoting entrepreneurship from universities launched five major pilot projects initially, designed as developmental initiatives. Consequently, the main emphasis of these projects was on creating structures conducive to entrepreneurship rather than engaging in a scholarly exploration of the associated issues. Nevertheless, spurred by various funding efforts, this period also gave rise to discussions around Entrepreneurship Education as a research field. Over the years, this

discussion has deepened and evolved into a diverse and sometimes interdisciplinary research landscape (cf. BIJEDIĆ ET AL., 2019, p. 4).

Nowadays, the increasing entrepreneurial rate shows that more and more companies focus on environmental issues as well (cf. STATISTA, 2021). A successful economy must not only be internationally competitive but also environmentally and socially sustainable. The growing demand for eco-friendly services and products is creating new employment opportunities, consequently driving the need for additional skills, particularly among entrepreneurs (cf. NA BIBB, 2018). Therefore, green entrepreneurship is a key factor for transforming economy and economic growth into a sustainable way of making business. In this context, green entrepreneurship can be described as "a special subset of entrepreneurship that aims at creating and implementing solutions to environmental problems and to promote social change so that the environment is not harmed" (SAARI & JOENSUU-SALO, 2019, p. 1). Both, the dimensions of entrepreneurship and business as well as the dimensions of social, socioeconomic and environmental life are intertwined in the concept of green entrepreneurship. But, in order to foster green entrepreneurship, educational programs, which not only inherit the traditional business principles but also a comprehensive understanding of environmental and social considerations must be established.

In regards to the above mentioned subjects, establishing a shared understanding of the subject of entrepreneurship education is essential as a unifying basis for discussions and a prerequisite for a coherent disciplinary development. What is entrepreneurship education and how could it be taught?

Entrepreneurship Education (EE) is a relatively new and simultaneously diverse and interdisciplinary field in both teaching and research (cf. BIJEDIĆ, 2019, p. 21). While Entrepreneurship Education is gradually establishing itself as a teaching domain within the broad spectrum of the (adult) education system, research in Entrepreneurship Education remains strongly application-oriented and continues to adhere to its original focus on entrepreneurial principles, maintaining a monodisciplinary orientation. Particularly in the context of school education, however, emphasis is placed on understanding entrepreneurship as versatile thinking and actions. This results in a highly interdisciplinary understanding of Entrepreneurship Education, the theoretical and conceptual foundations of which are not yet fully coherent (cf. BIJEDIĆ, 2019, p. 21). The primary terms commonly employed in this domain

are enterprise education and entrepreneurship education. In the United Kingdom, the term enterprise education is predominantly utilized, encompassing a broader scope that includes personal development, mindset, skills, and abilities (cf. LACKÉUS, 2015, p. 7). In regard to the term entrepreneurship education, even today, the term is used inconsistently both colloquially and in a professional context. Although it is already making its way into the German language, there is still no adequate translation. This is due, among other things, to the translation of Entrepreneurship as business founding and entrepreneurship, which encompasses the form of employment, while in English usage, entrepreneurship is associated with a specific mindset and socio-economic innovations (cf. BIJEDIĆ, 2019, p. 24). Taking LACKÉUS (2015) into account, entrepreneurship education is more specific to the context of establishing a venture and pursuing self-employment (cf. LACKÉUS, 2015, p. 7). According to the FEDERAL MINISTRY FOR ECONOMIC AFFAIRS AND CLIMATE ACTION, the primary aim is not necessarily to prepare students for future entrepreneurial independence. Rather, the goal of Entrepreneurship Education is to cultivate qualities and skills that empower them to become entrepreneurs of themselves, thereby increasing their chances of securing an apprenticeship or employment after completing their vocational training (cf. FEDERAL MINISTRY FOR ECONOMIC AFFAIRS AND CLIMATE ACTION).

The existing research on how real-life entrepreneurs learn is largely disjointed from the educational sector and provides minimal guidance for teachers (cf. LACKÉUS, 2015, p. 26). In order to get to know how entrepreneurship competences are acquired, COPE (2005) states that it “can only be acquired through learning-by-doing or direct observation” (COPE, 2005, p. 381). But, this still leaves us with the lingering question of "learning-by-doing-what?" (LACKÉUS, 2015, p. 26). It shows us that there is a demand for substantial guidance on specific activities to engage students in, facilitating the development of their entrepreneurial competencies (cf. LACKÉUS, 2015, p. 26). Research indicates that the groundwork for an entrepreneurial mindset can be laid in early childhood. Consequently, there is a growing interest in didactic approaches, methods, and tools suitable for entrepreneurship education in schools, preschools, and kindergartens, going beyond the traditional student company concepts (cf. BLOCK ET AL., 2023 p. 3-4). At the very same time it means that EE is not stopping after finishing a specific educational journey but is an ongoing process that, in the context of school education, must be guided by teachers (cf. BLOCK ET AL., 2023 p. 4). This argues with the concept of lifelong learning (cf. LONGWORTH, 2006) which means that there is a necessity to cultivate,

expand, and enhance competencies that foster an entrepreneurial mindset and initiative across all ages and roles (cf. BLOCK ET AL., 2023 p. 4).

According to BLOCK ET AL. EE has different propositions that have to be taken into account when teaching it:

2. Entrepreneurship education must address the unique needs of various target groups, each requiring specific skills and competencies. Examining models like EntreComp from the European Commission, entrepreneurial competencies are identified as diverse skills essential for entrepreneurship, with certain areas being more relevant to specific entrepreneurial activities. It is imperative for both research and practical applications to prioritize the integration of entrepreneurship and sustainability competencies, forming comprehensive frameworks for contemporary and impactful entrepreneurship education (cf. BLOCK ET AL., 2023 p. 4-5).

3. Entrepreneurship educators ought to include discussions on the negative dimensions of entrepreneurship. Despite the positive economic value generated for society, especially through innovative and rapidly growing ventures, there exists the substantial potential for adverse effects such as environmental damage and societal inequality. Therefore, instructors should not solely focus on highlighting the positive aspects but also engage in a discourse on the detrimental consequences of entrepreneurship. The aim is to educate entrepreneurs who critically evaluate their actions, recognizing the impact on stakeholders and society. Ultimately, the objective of entrepreneurship education is to foster the development of responsible and sustainable startups that contribute to addressing the significant societal challenges of today (cf. BLOCK ET AL., 2023 p. 5).

4. Entrepreneurship education demands the incorporation of existential, experiential, and transformational learning methods. While educators in the realm of new venture creation often rely on experiential and transformational learning, a shift in focus necessitates a closer examination of students' existing knowledge and perspectives upon entering the classroom. Recognizing that not every student naturally possesses entrepreneurial qualities, it becomes imperative to impart an enterprising mindset in

a unique manner. Many students may not be aware of their entrepreneurial potential and essential traits. Consequently, placing emphasis on the existential dimension of entrepreneurship becomes crucial. Introducing existential learning as a precursor to experiential and transformational learning is essential. Existential learning explores how learners engage with the world, positioning them as independent and responsible agents capable of shaping their own development. This approach focuses on understanding the impact of past choices, influencing perceptions of possibilities and opportunities in life. The existential approach facilitates personalized growth, refining existing knowledge, and supporting individual agency through meaningful learning experiences and critical self-reflection (cf. BLOCK ET AL., 2023 p. 5).

5. Entrepreneurship tools hold significance, but their impact hinges on students' backgrounds, education, personal traits, and the specific context. Much of entrepreneurship education is dedicated to instructing students on using tools like the lean startup or value proposition design to recognize and seize entrepreneurial opportunities, aiming for the establishment of enduringly successful ventures. While these tools guide the entrepreneurial process and encourage structured thinking, it's crucial to understand that their effectiveness goes beyond the tool itself. Students need to comprehend the underlying process and apply it in practice. Caution is necessary when using these tools, as they may lead to unintended consequences and hinder creative thinking if not applied correctly or in an unsuitable context. Additionally, outcomes may vary based on students' prior education, experiences, personality, and adherence to scientific rigor. For example, a value proposition canvas could represent a set of assumptions or the result of weeks spent validating or challenging underlying hypotheses (cf. BLOCK ET AL., 2023 p. 5-6).

6. Entrepreneurship education should rely on solid evidence rather than be swayed by passing trends. The role of an entrepreneurship educator is dynamic, involving exposure to the latest ideas from students aspiring to make a difference. Despite the frequent introduction of new tools and approaches, there is a temptation to quickly integrate them into the classroom. Unfortunately, many of these lack a solid foundation of objective evidence, posing a potential risk as educators may expose

students to interventions with uncertain effects, albeit appearing trendy and innovative. Recent entrepreneurship education research aims to establish an evidence-based foundation for these tools and interventions. However, educators shaping and refining their courses must stay informed about this research to provide students with well-grounded guidance. This edited volume is intended as a positive step in that direction, empowering educators to offer students informed input (cf. BLOCK ET AL., 2023 p. 6).

7. Entrepreneurship educators and practitioners should embrace an entrepreneurial mindset. In the realm of entrepreneurship education research and practice, it's crucial for individuals to think and act entrepreneurially, viewing challenges as opportunities to innovate and experiment with new teaching approaches. Advocating for such an approach doesn't imply that educators must personally launch businesses, and it doesn't endorse celebrating every new idea simply for its novelty. Instead, being a successful entrepreneurial educator involves consistently questioning objectives, understanding the unique needs of their target audience, and perpetually growing. This entails going beyond traditional teaching methods and prioritizing the facilitation of learning processes. Accompanying research is essential to evaluate and refine the most effective didactic approaches, tools, and methods for fostering dynamic and successful entrepreneurship education (cf. BLOCK ET AL., 2023 p. 6-7).

To put it in a nutshell, the evolution of entrepreneurship education in Germany, Austria, the United Kingdom and other countries reflects a transformative journey initiated by government-funded programs aimed at fostering entrepreneurship. While these programs initially focused on increasing the entrepreneurial rate to spur positive employment effects, they inadvertently laid the foundation for discussions around entrepreneurship education as a research field. Over time, this discourse has matured into a diverse and interdisciplinary research landscape, with a growing emphasis on green entrepreneurship. The contemporary landscape demonstrates a heightened awareness of environmental issues within entrepreneurship, with a rising entrepreneurial rate aligned with environmental considerations. This shift underscores the importance of not only international competitiveness but also environmental and social sustainability in building a successful

economy. The demand for eco-friendly products and services has created new opportunities, necessitating additional skills, particularly among entrepreneurs.

Green entrepreneurship, described as a subset dedicated to solving environmental problems and promoting social change, highlights the intertwining dimensions of entrepreneurship, business, social, socioeconomic, and environmental aspects. However, to effectively foster green entrepreneurship, educational programs must extend beyond traditional business principles and encompass a comprehensive understanding of environmental and social considerations. Establishing a shared understanding of entrepreneurship education becomes crucial for a cohesive disciplinary development. The term Entrepreneurship Education (EE) represents a relatively new and interdisciplinary field in teaching and research, with a focus on both the adult education system and school education. While EE is gradually finding its place, research remains application-oriented and maintains a monodisciplinary orientation, especially in the context of school education. The terms enterprise education and entrepreneurship education are used interchangeably, with varying interpretations across regions. In Germany, the emphasis is on personal development, mindset, skills, and abilities, while in the United Kingdom, enterprise education has a broader scope.

The discussion around EE extends to how real-life entrepreneurs learn, with a need for guidance on specific activities to develop entrepreneurial competencies. Early childhood is recognized as a critical phase for laying the foundation of an entrepreneurial mindset. However, EE is not confined to a specific educational journey; it is a lifelong learning process guided by educators. Key propositions for effective entrepreneurship education include addressing the unique needs of diverse target groups, discussing the negative dimensions of entrepreneurship, incorporating existential, experiential, and transformational learning methods, recognizing the significance of entrepreneurship tools, relying on evidence-based practices, and embracing an entrepreneurial mindset. These propositions emphasize the dynamic and multifaceted nature of entrepreneurship education, calling for continuous adaptation and innovation in teaching methods and content. As the field evolves, the aim is to foster not only successful ventures but also socially and environmentally responsible entrepreneurship, contributing to the broader goals of sustainability and positive societal impact.

2.2 Eco innovation in Europe

The competitiveness of companies is closely tied to their ability to engage in eco-innovation due to factors like globalization, technological progress, shorter product life cycles, growing pollution, and dynamic customer demands. Despite the abundance of eco-innovation research, a universally agreed-upon definition for eco-innovation (or environmental innovation) has not yet emerged (cf. BARTOSZCZUK, 2015, p. 19). But it is clear that Eco-innovation is essential for supporting the shift to a circular economy (cf. WEETMAN, 2016) and attaining the objectives outlined in the European Green Deal (EUROPEAN COMMISSION, 2019). The 8th Environment Action Programme of the EU aligns with these goals by emphasizing continuous innovation, adaptation to challenges, and co-creation for a regenerative economy. A biennial thematic report provides insights into eco-innovation, showcasing best practices, factors driving it, and challenges faced, all aimed at facilitating a circular industrial transformation (cf. EUROPEAN COMMISSION, n.d.). For companies, involvement in eco-innovation results in cost reduction, improved ability to seize new growth opportunities, and an enhanced reputation among customers. Consequently, eco-innovation emerges as a potent tool that not only safeguards the environment but also generates positive impacts on the economy and society. In summary, eco-innovation is an important driver for sustainability, resilience, and efficient resource utilization, contributing to both environmental and economic objectives (cf. EUROPEAN COMMISSION, n.d.). It has therefore emerged as a central theme in Europe's journey towards sustainable development and environmental stewardship. This chapter delves into the multifaceted landscape of eco innovation within the European context, exploring the policies, initiatives, and collaborative efforts that position Europe as a global leader in fostering sustainable entrepreneurship.

Eco-innovation, conveys a compelling message by combining the reduction of negative environmental impacts with the promotion of socio-economic development (cf. COSTANTINI ET AL., 2023, p. 1). The communication Innovation for a sustainable future – The Eco-innovation Action Plan (Eco-AP) from the European Commission defines eco-innovation as “any form of innovation resulting in or aiming at significant and demonstrable progress towards the goal of sustainable development, through reducing impacts on the environment, enhancing resilience to environmental pressures, or achieving a more efficient and responsible use of natural resources” (EUROPEAN COMMISSION, 2011, p. 2). This progress involves lessening environmental impacts, increasing resilience to environmental pressures, and achieving a more efficient and

responsible utilization of natural resources. In essence, eco-innovation focuses on attaining environmental goals through inventive approaches, closely associated with the efficient use of natural resources and the encouragement of environmentally friendly production and consumption behaviours (cf. COSTANTINI ET AL., 2023, p. 1).

Within the EU Policy Context (2014-2020), eco-innovation gained prominence as a key policy objective following the introduction of the Lisbon Treaty and the Environmental Technologies Action Plan (ETAP) in 2006 (cf. EUROPEAN UNION, 2019, p. 3). The European Commission has progressively increased its support for eco-innovation, integrating it into various Directorates General (DGs) activities and mainstreaming it into their primary programs. ETAP emphasizes the significance of Technology Platforms and Environmental Technology Verification (ETV) in objectively validating the environmental benefits of technologies (cf. EUROPEAN UNION, 2019, p. 3). The Innovation Union Flagship Initiative in 2010 reinforced the EU's commitment to innovation, leading to the creation of the Eco-AP in 2011. This plan supports concrete actions across environmental policy, demonstration projects, standards, SME finance, international cooperation, and European Innovation Partnerships. The Eco-AP is facilitated through an internet platform, the Eco-innovation Action Plan Community Platform, serving as a comprehensive resource for policymakers, Member States, businesses, researchers, and civil society (cf. EUROPEAN UNION, 2019, p. 3). Simultaneously, the Resource Efficient Europe Flagship Initiative in 2011, alongside the Roadmap for a Resource Efficient Europe, highlighted changing consumption patterns, transforming production, and emphasizing natural capital and ecosystem services. Green Public Procurement (GPP) has been instrumental in EU policy, aiming to utilize local government spending to foster eco-innovation (cf. EUROPEAN UNION, 2019, p. 3). Recognizing the limitations of local and sectoral approaches, there has been a shift toward a systemic approach, focusing on entire value chains and envisioning a circular economy. In 2015, the EC published the Circular Economy Package and Action Plan, introducing legislation on raw materials, plastics, water reuse, eco-design, food waste, and packaging, including the Extended Producer Responsibility (EPR) (cf. EUROPEAN UNION, 2019, p. 4).

The EU is discussing increased funding for eco-innovation in the 2021-2027 period, with Horizon Europe and Cohesion Policy playing key roles. The focus is on supporting the circular economy, with mission-oriented policies emphasizing eco-innovation and a shift towards a low-carbon, circular economy. The Regional Development and Cohesion Fund will contribute

to innovation, while the post-2020 period will see additional funding through the LIFE+ program. Challenges at the regional level include the need for institutional support, funding, knowledge, collaboration, and stimulating demand for eco-efficient products and services. The Policy Learning Platform is highlighted for knowledge exchange and collaboration among regional actors in eco-innovation projects (cf. EUROPEAN UNION, 2019, pp. 5-6).

All in all, eco-innovation is at the forefront of Europe's strategic positioning, driven by the imperative to address environmental challenges, foster sustainability, and promote economic growth. The multifaceted landscape of eco-innovation is explored within the European context, showcasing the policies, initiatives, and collaborative efforts that position Europe as a global leader in sustainable entrepreneurship. Defined as any innovation contributing to significant progress in sustainable development, eco-innovation aligns with the European Green Deal and the circular economy objectives. The EU's commitment is evident through various programs like ETAP, the Innovation Union Flagship Initiative, and the Eco-innovation Action Plan. Looking forward, discussions around increased funding for eco-innovation in the 2021-2027 period indicate a continued focus on advancing the circular economy and addressing regional challenges. As Europe strives for a systemic approach, embracing entire value chains and envisioning a circular economy, eco-innovation remains an important force for achieving environmental and economic goals.

2.3 The importance of Sustainability

Sustainable development, as written in the 1987 Brundtland report 'Our Common Future' by the World Commission on Environment and Development, is defined as a “development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs” (UNITED NATIONS, 1987, para. 2). As we now have the definition of the term sustainability, the question of why sustainability is important evolves.

In addition to catalysing societal and ecological transformations, endeavours towards sustainability can significantly enhance an enterprise's overall prosperity. Although it might

appear counterintuitive that allocating more resources to sustainable business practices can augment a company's profitability, research indicates that the most sustainable businesses tend to be the most financially successful (cf. CHLADEK, 2019). Organisations often employ Environmental, Social, and Governance (ESG) metrics as indicators of their ethical and sustainable practices. According to McKinsey, companies boasting high ESG ratings consistently outperform the market over both the medium and long term. Despite sustainability strategies requiring initial investments, they have the potential to yield enduring advantages in the long run (cf. CHLADEK, 2019).

Sustainability is not just a trendy buzzword; it holds profound significance. It is crucial for maintaining our current quality of life, preserving the diverse ecosystems on Earth, and safeguarding the health of resource-rich environments. Sustainable practices, ranging from improved water and air quality to reduced landfills and increased reliance on renewable energy, contribute to cleaner and healthier living conditions, especially benefiting lower-income communities.

Moreover, sustainability plays an important role in ensuring a habitable planet for future generations. With natural resources being finite, their judicious use in the short term is imperative. Failing to do so could lead to the depletion of fossil fuels, exhaustion of natural resources, and irreversible damage to the Earth's atmosphere (cf. SINHA, 2023). By embracing sustainability now, we pave the way for a safer and more liveable world for our descendants. In the business realm, sustainability not only addresses global challenges but also enhances organizational success. McKinsey reports that companies with high Environmental, Social, and Governance (ESG) metrics, indicative of ethical and sustainable practices, consistently outperform the market. Sustainable practices protect a company's brand, mitigate risks, and provide a compelling competitive advantage (cf. SINHA, 2023).

Current sustainability trends reflect the evolving landscape of responsible practices. ESG investing, emphasizing environmental, social, and governance criteria alongside financial returns, is gaining prominence. The concept of being "climate positive," surpassing net-zero carbon emissions by actively removing carbon dioxide from the atmosphere, is becoming a key focus. The affordability of renewable energy, combined with a push for greater reliance on renewable power sources, is a notable trend (cf. SINHA, 2023). Clean transportation is on

the rise, with 18 of the world's 20 largest automotive manufacturers committing to manufacturing electric vehicles. Climate-friendly consumer products are also gaining traction as environmentally conscious consumers seek products aligned with their sustainability goals. Increasing pressure from governments for businesses to disclose their climate risks publicly is another emerging trend (cf. SINHA, 2023). The decarbonization of the food system is a significant shift, involving a move towards alternative proteins, alternative dairy, and other alternatives to the current industrial food system. Collectively, these trends represent crucial steps towards creating a world that meets the needs of the present without compromising the ability of future generations to meet their own needs (cf. SINHA, 2023).

2.4 Eco innovation, Sustainability and Green Entrepreneurship

The concept of green entrepreneurship has emerged within the growing landscape of sustainability, presenting a dynamic intersection of environmental commitment, innovative intelligence, and economic interests. It involves entrepreneurs who prioritise environmentally friendly practices and seek to address environmental issues while ensuring profitability (cf. MATINDIKE ET. AL., 2023, p. 149). Despite the growing importance of green entrepreneurship, a universally accepted definition remains elusive, reflecting its nascent stage of development. Different scholars emphasise the entrepreneur's capacity to garner stakeholder support, seize control over value chains, and profit from addressing environmental challenges. Green entrepreneurship is often associated with efforts to measure and improve efficiency through various green programs, with a notable rise in companies experimenting with environmentally conscious practices (cf. MATINDIKE ET. AL., 2023, p. 149). The phenomenon of greenwashing, where companies falsely portray their environmental activities, highlights the power of green practices in expanding consumer bases. Genuine green businesses, committed to environmentally friendly operations, are shown to enjoy higher levels of consumer loyalty despite the challenges posed by greenwashing.

Overcoming hurdles such as the lack of government assistance, funding evaluation challenges, and market uncertainties is crucial for the broad acceptance of green entrepreneurship. Entrepreneurs who genuinely prioritise compassionate and ecologically conscious businesses can build positive reputations, fostering the success of green-born businesses (cf. MATINDIKE ET. AL., 2023, p. 150-152). The importance of green entrepreneurship has intensified since the

2015 Paris Climate Agreement, with global efforts raising the risks for stocks in polluting businesses. Green entrepreneurship not only contributes to long-term growth but also aligns with the goals outlined in the Intended Nationally Determined Contributions (INDCs), where over 200 nations express their commitment to minimising the effects of climate change. This aligns with the broader goal of transitioning to reduced carbon and more sustainable economies, requiring support from both corporate and governmental sectors (cf. MATINDIKE ET. AL., 2023, p. 151-152).

Unsustainable business practices underlie the triple planetary crises of climate change, biodiversity loss, and pollution. These issues pose a threat to both the attainment of sustainable development goals and human well-being, given the associated environmental degradation. A shift in the way businesses engage with the environment is crucial for securing a sustainable future (cf. Arora, 2023, p. 1). Therefore, Eco innovation and green entrepreneurship combined represent dynamic facets of sustainable development, intertwining environmental consciousness with economic interests. Eco innovation involves the creation and application of novel ideas, processes, products, or services that contribute to environmental sustainability. It is a driving force for positive change, encouraging businesses to adopt eco-friendly practices, reduce environmental impact, and promote resource efficiency (cf. ALDIERI ET. AL., 2021). Green entrepreneurship, on the other hand, refers to the establishment and operation of businesses that prioritise environmental responsibility and social impact alongside financial success as well as cultural shifts (cf. YASIR ET. AL., 2023). Green entrepreneurs actively seek innovative solutions to environmental challenges, integrating sustainability into the core of their business models. These entrepreneurs often leverage eco innovation to develop products or services that address ecological concerns while meeting market demands. The intersection of eco innovation and green entrepreneurship fosters a business landscape where profitability aligns with environmental stewardship. In recent years, there has been a growing emphasis on supporting eco innovation and green entrepreneurship as key drivers for a sustainable future, since it has already been demonstrated that "innovation-, opportunity-, and growth-oriented entrepreneurship, do indeed have unique impacts on sustainable development" (NEUMANN, 2022, p. 2). Governments, institutions, and investors are increasingly recognising the importance of nurturing a green economy, providing incentives, funding, and policies that encourage environmentally responsible innovation and entrepreneurship.

To conclude it can be said that the intertwined realms of eco innovation and green entrepreneurship manifest as dynamic elements within the broader framework of sustainable development. As a response to the escalating challenges posed by unsustainable business practices—culminating in the triple crises of climate change, biodiversity loss, and pollution—the importance of adopting eco-friendly measures has gained significance. Eco innovation encourages businesses to embrace ecological consciousness, minimize environmental impact, and champion resource efficiency. On the other hand, green entrepreneurship defines the establishment and operation of businesses that prioritise not only financial success but also environmental responsibility and social impact. Green entrepreneurs actively seek innovative solutions, embedding sustainability into the core of their business models and driving cultural shifts. The synergy between eco innovation and green entrepreneurship creates a business landscape where profitability harmonises with environmental invention. This emphasis on eco-friendly practices and green entrepreneurial ventures gains further momentum in regards to the pressing need for sustainable development. Recent years have witnessed a growing acknowledgment of the impacts that innovation-oriented entrepreneurship can have on sustainable development. Governments, institutions, and investors are increasingly recognising the importance of nurturing a green economy, especially in developing countries (cf. OECD, 2012). This recognition translates into tangible support in the form of incentives, funding, and policies aimed at fostering environmentally responsible innovation and entrepreneurship. Moreover, the intersection of eco innovation and green entrepreneurship not only responds to the current challenges but also propels us towards a future where economic prosperity is intricately linked with environmental sustainability. As we navigate the complexities of the modern world, the imperative to embrace eco-friendly practices and foster green entrepreneurship emerges as a key strategy for achieving a sustainable and resilient future.

2.5 Learning outcome Matrice for Module 1

Outcome	Teaching and Learning Activities	Assessment
Having taken this course, (teachers/trainers) will be able to:	The participants (teachers/trainers) will be taught to achieve this specific outcome through the following learning activities:	The participants (teachers/trainers) will be assessed on their achievement of this specific outcome through the following assessment tasks:
understand the main aspects, fundamentals and modules of the GREENWOLRD Project as well as the aims of the project.	The participants will be informed by additional presentations and materials as well as different modules to show the ideas of GREENWORLD.	An oral feedback and a written evaluation is the main basis of assessing the students.
demonstrate a comprehensive understanding of the integration of eco innovation, sustainability design, and green entrepreneurship.	The participants will collaborate on group projects to develop sustainable business models integrating eco innovation and sustainability design principles.	A group presentation on the developed sustainable business model will be delivered to class.
gain insights into redefining the traditional business landscape by prioritizing ecological responsibility, resource efficiency, and long-term sustainability.	The participants will present and discuss real-world examples of companies effectively incorporating ethical and social responsibilities.	A group presentation of where the participants show the differences between the ecological way and the non-ecological way of doing businesses will be delivered.
understand the ethical and social responsibilities associated with green entrepreneurship, aligning economic goals with ecological and social considerations.	The participants will explore examples of sustainable business model innovation through detailed case analyses.	Answering questions covering key concepts, theories, and practical applications related to eco innovation, sustainability design, and green entrepreneurship.

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3. Module 2: Natural Resource Management and Sustainability and Green Innovation in Green Entrepreneurship

Associação BioLiving

Natural resources refer to raw materials or substances that occur in the environment and are used by living organisms, including humans, for various purposes. These resources are naturally existing elements or compounds that are not created by human intervention (BRITANNICA, 2023).

Examples of assets considered natural resources may be renewable (R) - regenerated naturally over time and their availability is not depleted as quickly as they are consumed. Or non-renewable (NR) - It cannot be regenerated within a human time frame and once these resources are depleted, they cannot be readily replaced. Examples of natural resources are:

- Forests: Providing timber, food, habitat for various species and clean water and air
- Surface Water and Groundwater: Crucial for human survival, agriculture, and supporting ecosystems.
- Fertile Lands and Minerals in Soil: Valuable for agriculture and the extraction of minerals and metals (NR).
- Energy Resources: Such as petroleum, natural gas, coal (NR), and geothermal energy contained within rock layers or water, wind and sun (R).

Natural Resource Management constitutes the strategic and sustainable utilisation of essential resources. These resources collectively deliver ecosystem services crucial for enhancing human life quality (MURALIKRISHNA & MANICKAM, 2017). These services include both consumptive and public-good elements, involving ecological processes encompassing elements crucial for life support, biodiversity, human health, aesthetic and testamentary value, climate balance, and cultural and natural heritage (Muralikrishna & Manickam, 2017)..

In the current global economic structure, 20% of the world's population consumes a staggering 80% of its resources (ERMAKOVA ET AL.,2020). Facing unprecedented industrial growth, the intensified demand for raw materials and resources has prompted the need for efficient utilisation and conservation (EPSTEIN, 2023). This emphasises the concept of "critical natural capital," representing resources that, due to their unique ecological functions, cannot

be replaced by human-made alternatives. The ongoing depletion of these resources necessitates the development of innovative approaches to utilise hard-to-reach resources effectively (ERMAKOVA ET AL., 2020).

3.2 Introduction to innovation for sustainability and green entrepreneurship

Entrepreneurship relies fundamentally on the ongoing process of innovation, a dynamic force shaped by constant revolutions in obtained results. Economic cycles introduce new combinations of existing data, demanding entrepreneurs to navigate towards development (DATHEIN, 2022). Traditionally, innovation was primarily motivated by the goal of satisfying customers and achieving financial success for organisations. However, contemporary perspectives broaden its scope to encompass social and environmental considerations (OLIVEIRA DA SILVA ET AL., 2010). This expansion involves adherence to regulatory guidelines, as well as responsiveness to the increasing awareness among consumers regarding the socio-environmental impact of their consumption patterns (OLIVEIRA DA SILVA ET AL., 2010).

Green innovation, also known as eco-innovation, involves using new technologies, services, production processes or coordination systems to minimise environmental impact and promote sustainable development in a company or organisation. This approach contrasts with other potential alternatives and besides having a role in conserving resources, green innovation offers an opportunity for economic growth (DATHEIN, 2022; XIANG ET AL., 2022).

3.3 How to become a green entrepreneur and manage natural resources sustainably in a company

To become a green entrepreneur in a constantly changing society you need to be innovative and original as well as think about the future of the world as well as your enterprise. But there are some ideas and guidelines that you can follow or have in mind to help you start or to turn your company into a greener one. All this switching or efforts to do eco-friendly business may be costly, but there are many benefits that you will take out of it. The following chapters will give you some basic ideas for all of that.

3.4 Build a new Sustainable Company, Product, Service, or Innovative Business

(GATLEY, N.D.; VLS, N.D.)

1. Sustainability as Your Business Goal:

When building your business incorporate sustainability into your mission statement.

- Define clear goals, priorities, and tangible actions for sustainability.
- Collaborate with decision-makers to ensure alignment with company values.
- Search for green business certifications so you know which practices and guidelines you need to follow.

2. Create a Green Product or Service:

- Prioritise sustainable materials and ethical suppliers, ideally with recognized certifications (e.g. RAINFOREST ALLIANCE CERTIFICATION or FAIRTRADE INTERNATIONAL CERTIFICATION).
- Consider recyclability, renewability and local sourcing.
- Design original and practical products with reusable and low packaging (e.g. COMPOSTABILITY LABEL BY EUROPEAN BIOPLASTICS)

3. Green storage, shipping and waste management:

- Use warehouses with sustainable practices (e.g. powered by renewables, well insulated, prefer renovated existent buildings instead of brand new builded ones).
- Reduce the packaging of products, use reusable materials and explore transportation with low greenhouse gases emissions.
- Plan effective ways to manage the waste you may produce by recycling and reusing as much as possible, install water treatment and water recovery structures.

4. Green Back Office:

- Make your office energy-efficient, go paperless, choose a location with easy access to public transport, allow remote work if possible.
- Encourage employees to follow sustainable practices.

5. Donate or Return to Nature:

- Donate unused items or profits (e.g. 1% FOR THE PLANET)
- Engage in team volunteering in social or environmental actions
- Contribute to environmental conservation as a way to give back to nature what your company used

3.5 Turn Your Company into a Green Enterprise

(CULTIVATING CAPITAL, N.D.; GATLEY, N.D.; VLS, N.D.)

1. Evaluate How Sustainable your Company is:
   - Conduct a thorough audit of your current sustainability practices.
   - Set benchmarks to measure progress in areas like waste reduction, energy consumption, and supply chain.

0. Develop a Green Action Plan:
   - Create a formal plan with time-bound goals for sustainability.
   - Include specific steps and assign responsibilities within your organisation.
   - Think about what is achievable short and long term considering your budget.

0. Step by Step:
   - Begin with one or two sustainable programs to build momentum.
   - Observe other successful green enterprises and learn from them
   - Learn from early efforts and prepare your team for future sustainability initiatives.

0. Involve your Employees:
   - Provide training to keep employees informed about sustainability issues
   - Implement incentives and challenges to promote sustainability (e.g. free public transport passes, healthy and sustainable meals)

0. Maintain a Credible Sustainable Business Certification:
   - Use certifications to benchmark and score sustainability practices (e.g. EU ECOLABEL, LEAPING BUNNY, CLIMATE NEUTRAL)

- Certifications provide independent verification and require periodic renewal, ensuring ongoing commitment.

0. Don’t Give Up:

Sustainable practices require ongoing effort, even if your actions seem small, they make a difference

- Established businesses can continually improve and incorporate new technologies.
- Investors are demanding more and more social responsibility and regulations for sustainable practices are evolving.

3.6 Benefits of sustainable resource management

1. Incentives and Reputation (Vitality, n.d.)

- Governments offer tax incentives for renewable energy and sustainability initiatives.
- Practising sustainable resource management enhances your company's reputation among many other less sustainable ones.

0. Greener Business, Better Clients and More efficiency (Gatley, n.d.)

- Sustainability builds trust with consumers, attracting new opportunities.
- Demonstrating environmental responsibility makes your organisation appealing to like-minded clientele.
- Investing in renewable resources saves money in the long-term.
- Supply chain transparency can lead to increased consumer willingness to pay.
- Small changes, such as recycling bins and efficient water usage, contribute to sustainability and reduces costs

By following these steps and embracing sustainable practices, young entrepreneurs can build and grow businesses that not only contribute positively to the environment but also thrive in a world increasingly focused on sustainability.

3.7 Example of the role of the government in natural resource management

Illustrating the role of the government in natural resource management, here's an example from China. In response to increased economic activity leading to resource exploitation and environmental degradation, the Chinese government has taken significant measures (Muralikrishna & Manickam, 2017). These include substantial investments in research and development, issuance of green bonds with tax exemptions, and the integration of clean local technology to boost renewable energy and green investment. This underscores the global importance of green technical advances and strategic governmental interventions in managing natural resources sustainably.

3.8 Green Tourism, examples of green entrepreneurship using natural resources

Green tourism focuses not only on the sustainable use of resources, but also on sensitising tourists to issues related to the environment. In Portugal there has been greater promotion of green thinking in various economic sectors, particularly tourism (Kaim, 2018; Toubes & Araújo-Vila, 2022). The Azores are a good example of a region where green tourism has seen great growth thanks to its natural resources . This archipelago, located in the Atlantic Ocean, has 9 islands with great potential for renewable energy (geothermal & wind) and other natural resources (for agriculture, fishing, dairy farming…) (Kaim, 2018). The good management of natural resources has been fundamental for the development of the region, has helped to bring more tourists and still preserve the natural heritage of the archipelago. A good example of green innovation in entrepreneurship in these islands is the whale watching. For more than a century this region was famous for whale hunting and many processing factories were a source of income for the locals (Azores Getaways, n.d.). Only at the end of the 20th century, whaling was declared illegal and all the industries around it closed. The Azores Islands became one of the biggest whale sanctuaries with 30% of all the species of whales and dolphins passing there. With this change of mindset there was a big investment in whale watching and now 20 whale watching companies operate in the different islands, bringing tourists and researchers to the area (Pinto-Rodrigues, 2023). Social and economic development in line with environmental sustainability in Portugal has been possible thanks to support from the European Union (Kaim, 2018).

3.9 Learning outcome Matrice for Module 2

Outcome	Teaching and Learning Activities	Assessment
Having taken this course, (teachers/trainers) will be able to:	The participants (teachers/trainers) will be taught to achieve this specific outcome through the following learning activities:	The participants (teachers/trainers) will be assessed on their achievement of this specific outcome through the following assessment tasks:
Know what natural resources are, how they are generated, what services they provide to society and what benefits are obtained when they are managed sustainably in a enterprise	The participants will get to know some of the natural resources that sometimes are forgotten on a daily basis but still crucial to our survival and functioning of the society.	Answer questions about the concepts learned throughout the model regarding, green innovation, natural resources management and green entrepreneurship
Relate the concept of the green entrepreneur to the need to innovate and rethink the way a company is run or a new business is created to lead to a sustainable future	The participants will discover examples of green entrepreneurship that have revolutionised the way entire communities think and act, particularly through eco-tourism	Oral presentation of an idea of an innovative product or service that was explored deeper.
Learn tips to establish a new sustainable business or redefine strategies that help convert a company into a green enterprise.	The participants will, through videos, be able to draw ideas from services and products that have become not only economically profitable, but also have low environmental impacts	Discussion with the group about the innovative idea, debating the pros and cons of it for economy and the environment

Understand the economic and environmental benefits of sustainable resource management in a SME	The participants will be guided to explore more ideas for sustainable resource management and innovations in companies	Oral feedback of the module apprenticeships

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4. Module 3: User Experiences of Green Companies

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4.2 Introduction

With the industrial revolution fallowed by an increase in world population, the use of non-renewable energy resources has started to increase over time to in order to cover the needs of the rising population. Since the middle of the twentieth century there has been a dramatic increase in the consumption of resources such as water, mineral fertilizers, fossil fuels, paper, as well as increased levels of deforestation and greenhouse gas emissions, particularly CO2 (Biloslavo and Trnavcevic, 2014, p. 1158) On the other side, political actors and international organizations exert significant effort to eliminate negative impacts of using non-renewable energy resources on the earth.

This increased usage both non-renewable energy sources and greenhouse gas emissions have led to ecological and climate issues. Recently, there have been certain regulations made by the political and international authorities to eliminate these effects. In particular, the Kyoto Protocol, adopted in 1997, underlines the key role of industrialized countries in climate change and highlights the responsibility of companies towards the natural environment (Albino, Balice,, and Dangelico, 2009, p. 84) Clean energy, sustainable cities and climate action consist of important pillars of UN Sustainable Development Goals (SDG). (buraya bir kaynakça). Also, European Union has given considerable importance to climate actions, clean energy and green projects. With the European Climate Pact, it has been aimed to become carbon neutral until 2050. Especially as a result of the EU's particular emphasis on this issue, we observe that more than half of sustainability-driven companies, that is 51%, are located in Europe. The percentage of European companies adopting environmental strategic approaches is above the sample average (Albino, Balice,, and Dangelico, 2009, p. 88)

However, the adverse developments on a global scale can be addressed not only through the efforts of political actors but also to an equal extent by the efforts of other responsible entities such as both society and companies. On the other hand, these efforts carried out by international bodies pushes companies to modernize their technologies making products eco-friendly accordingly to SDGs principals.

In the fallowing subtitles, we will be examining how companies become green companies and the impact of being a green company on the company itself, consumer behaviour in the context of green company bases, and sometimes how certain companies portray themselves as green to consumers through greenwashing.

4.2 Green Companies and Companies evolution to 'green':

Based on companies' response to the question of environment, they can be divided into three groups: green companies, companies that are on the way to becoming green and others. The green company could be defined as a company whose purpose, activities and its own material existence are in full harmony with the natural and cultural environment, and whose employees strictly follows ethical rules in relation and communication among themselves and with the company's stakeholders (Biloslavo and Trnavcevic, 2014, p. 1159). Based on this definition, the company needs to be fully committed to behaving in a way that promotes financial, social and environmental sustainability (Biloslavo and Trnavcevic, 2014, p. 1160)

Companies continue their journey towards becoming a green company through areas such as environmental strategies and green products. Companies can implement their processes towards becoming a green company in three different ways: production of sustainable products, usage of renewable energies in the production process, or materials reduction (Biloslavo and Trnavcevic, 2014, p. 1167)

Thus, a company can become a 'green company' either because of the production process which is based on reduction of consumption and the use of non-renewable resources or due to the product itself.

Eliminating the negative impacts of the product and the production process on the environment has become important concern for the corporate environmental strategies. Then, companies are committed to develop green products, i.e. goods or services that minimize their impact on the environment at each phase of their life cycle (Albino, Balice,, and Dangelico, 2009, p. 84)

Companies are increasingly valuing obtaining the 'green company' label. We can observe that in the last ten years many companies have decided to take up the so-called eco-friendly strategy (Bradbury and Clair, 1999). This strategy includes activities such as recycling

programs, water/waste reduction programs, environmentally friendly purchasing, and lowering greenhouse gas emission (Biloslavo and Trnavcevic, 2014, p. 1159)

Because obtaining the 'green company' designation is also a good way for companies to gain a valuable reputation. to be recognised in the market as a green company, the company needs to build a strong reputation. building a strong reputation as a green company is crucial for businesses aiming to be recognized as environmentally responsible in the market and most importantly to the consumers. Ottman (1998) wrote that the reputation of a “green” company is achieved when the majority of stakeholders (both internal and external) considers a company to be truly committed to nothing less than a long-term, ideal goal of “zero”: zero emissions, zero waste, zero environmental impact (Biloslavo and Trnavcevic, 2014, p. 1160)

Research also shows that consumers prefer to use brands that have a lower risk of a bad image and are eco-friendly, due to the credibility gained by companies through being eco-friendly. A good corporate reputation to the increase in sales of products or services since it reduces the risk at the first purchase and stimulates the future purchase, which ultimately leads to customer loyalty (Biloslavo and Trnavcevic, 2014, p. 1160) On the other hand, empirical data shows that green companies due to their higher trust levels, no-risk, higher reputations; they are attracting green investments and increasing the level of trust among stakeholders.

As a result, a company can be labelled as ‘green’ due to many activities such as the production process, or sustainable and eco-friendly products. "In recent years, especially as climate issues become increasingly prominent, companies have started to view implementing green policies as a social responsibility. Particularly, being 'eco-friendly' has begun to grant companies a separate credibility in the markets, and green companies are perceived as trustworthy entities with lower risks. The positive impact of 'eco-friendly' or 'green' labels not only enhances the companies' reputation but also influences consumer behaviour.

4.3 Consumer Behaviours based on ‘Green Companies’

Based on literature research, it has been determined that green practices are effective in consumers' purchasing behaviour due to their environmental concerns (Bozpolat, 2021, p. 721). In recent years, green management and environmentalism have become one of the most

debated topics as a form of social responsibility. Chen and Chang (2013) explain this phenomenon as the result of intensive industrial manufacturing leading to uncontrollable environmental pollution being recognized by society (Çavuşoğlu, 2021, p. 1357)

The increasing climate crisis and the emphasis public bodies place on this issue, along with the signing of agreements among states, have gradually influenced consumers and led to various changes in consumer behaviour over time. Perhaps behaviours that we could not observe at the beginning of the 21st century are now becoming observable due to the increasing ecological issues. Green companies, which may not have been significant 20 years ago, now hold a special importance for consumers. In fact, research shows that not only consumers but also employees consider it important to work for an eco-friendly company. The Tandberg (2007) world study of corporate environmental behaviour and brand reputation shows that almost 80 per cent of global workers believe that working for an environmentally ethical organisation is important and that more than half of global consumers interviewed would prefer to purchase products and services from a company with a good environmental reputation (Biloslavo and Trnavcevic, 2014, p. 1159)

In today's world, meeting consumers' needs without harming the environment has become almost a social and unwritten norm. Especially with the increasing environmental issues and the attention given to this by both governments and international bodies, people have come to view adopting an environmentally friendly attitude as a social norm and shape their behaviours accordingly. At this point, consumers expect businesses to prioritize environmental practices. Therefore, green companies are valued by consumers (Berber and Öztürk, 2023, p. 2689) With the increasing awareness of social responsibility, consumer behaviours are shifting towards green companies As ecological problems and natural disasters continue to rise, consumers feel a social norm and responsibility to consider the environment when making consumption choices. Consequently, research indicates that consumers experience longer-term satisfaction when purchasing environmentally friendly products (Xiao & Li, 2011) (Çavuşoğlu, 2021, p. 1361) This leads to the hypothesis that green purchasing behaviour positively influences green customer satisfaction (Çavuşoğlu, 2021, p. 1360) As a result, studies demonstrate that customers who prefer green companies are more satisfied. According to conducted analyses, a positive impact has been determined between green purchasing behaviour (such as purchasing from green companies) and customer satisfaction.

Normally, when considering the general purchasing behaviour, the decision process is determined based on the customer's personal cost- benefit analysis. However, in green purchasing behaviour, the decision process is influenced by a future-oriented approach (such as cleaner environment, sustainability of resources, etc.) and considers the interests of the whole society beyond the individual's personal benefit and satisfaction.

To conclude, it can be said that the ecological purchase on companies is also applicable to consumers. Nowadays, being a more conscientious consumer and considering the harm to nature and the environment in purchasing behaviour has become a social norm and a necessary behaviour. In this regard, preferring green companies leads to higher satisfaction for consumers. Consequently, customers will be willing to purchase brands that will result in higher customer satisfaction without considering their pre-purchase and post-purchase behaviours.

4.4 Effects of Greenwashing on Consumer Behaviours

As part of the awareness of social responsibility, the misuse of ecological behaviour is a widespread phenomenon. Such instances are termed "greenwashing" and require consumers to question companies' environmental claims. Greenwashing occurs when a company claims to be environmentally responsible but lacks sufficient evidence or actions to support these claims. It is important for consumers to be aware of greenwashing because every company may attempt to strengthen its "green" image through advertising and marketing yet may not genuinely care about environmental sustainability. Some companies may try to exploit consumers' sensitivity by simply referencing a popular issue like environmental responsibility.

If the product remains unchanged, if there are no changes in the production from the aspect of the environmental policy of the company, and if the company acquires only a new outfit, the consumers quickly discover this and a decrease in corporate reputation may even result. Saha and Darnton (2005) refer to this phenomenon as "greenwashing" (Biloslavo and Trnavcevic, 2014, p. 1169)

For the most part, greenwashing is used by industrial companies (oil, chemical, automotive, etc.) to develop a green brand and promote their products as eco-friendly (Pimonenko, Bilan, Horak, Starchenko, and Gajda, 2020, p. 3)

However, as mentioned in the "Green Companies" section, adopting an eco-friendly approach significantly enhances the reputation of companies both in the market and in the eyes of consumers. However, on the other hand, greenwashing has significantly negative effects on the reputation of companies. According to reports, use of greenwashing by Volkswagen in 2015 led not only to losses of €7 billion in profits but also to a decrease in investments and reputational losses (the value of the company's shares decreased by 25%) friendly (Pimonenko, Bilan, Horak, Starchenko, and Gajda, 2020, p. 3) The chain reaction to this scandal also provoked a decline in consumer confidence in the brand "Made in Germany", as well as the investment attractiveness of the car market. In 2015, the value of the shares of all automobile companies decreased by 3–14% (Toyota—by 3.24%, BMW—88%, Honda—13.73%, Ford—12.42%, General Motors—4.32%, Mercedes—6.51%, Fiat—5.97%) (Pimonenko, Bilan, Horak, Starchenko, and Gajda, 2020, p. 3)

Greenwashing can lead to loss of reputation and credibility for companies. This can negatively effect consumers' consumption behaviors. Consumers may become skeptical and hesitant to support or purchase from companies engaged with greenwashing. Therefore, maintaining authenticity and transparency in environment efforts is crucial for companies to build trust and loyalty with consumers. Thus, using greenwashing negatively influences the company's green brand, which provokes the outflow of green investment from the company (Pimonenko, Bilan, Horak, Starchenko, and Gajda, 2020, p. 3) A decrease of greenwashing will increase a company's transparency trough publishing the financial and non-financial reports of company's green policy and achievements (Pimonenko, Bilan, Horak, Starchenko, and Gajda, 2020, p. 11)

Ultimately, it is important for consumers to be aware of greenwashing and to prefer transparent and trustworthy companies that support genuine environmental sustainability efforts. This way, a stronger foundation can be established to assess companies' real environmental impacts and make informed decisions.

Outcome	Teaching and Learning Activities	Assessment
Having taken this course, (teachers/trainers) will be able to:	The participants (teachers/trainers) will be taught to achieve this specific outcome through the following learning activities:	The participants (teachers/trainers) will be assessed on their achievement of this specific outcome through the following assessment tasks:
Understand the production process which makes a company, and learn about possible future developments of it.	Through interactive discussions participants on what makes a company actually green and their impact on sustainability.	Answering questions discussing key concepts, theories, and practical applications of the green companies, and sustainability.
Understand how the label of 'green' changes the purchasing habits of consumers.	The participants will be informed about it through this module.	
Distinguish between a company engaging in greenwashing and a company truly embracing green policies.	By making this distinction between companies, consumers become more conscious. Thus, they can prefer genuine green companies	A group presentation of where the participants show the differences between the greenwashing activities and the ecological way of production process will be delivered

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5. Module 4: Developing and analyzing access to finance for Green Entrepreneurs

prEUnec

5.2 Introduction

The concept of green finance has emerged as a transformative approach to align financial markets with the urgent need to address global environmental challenges. It represents a strategic intersection between economic development and ecological sustainability, offering a pathway to finance green projects that not only contribute to reducing carbon emissions but also foster innovation in sustainable technologies. For entrepreneurs, the significance of green finance extends beyond mere access to funds; it symbolizes a commitment to integrating sustainable practices into the core of their business models. This commitment is critical in a world grappling with the impacts of climate change, where sustainable projects play a crucial role in combating environmental degradation and promoting a green economy. The transition towards green finance is not just a financial imperative but a moral and environmental one, urging businesses to rethink their strategies towards more sustainable outcomes (Emerald Insight, 2023; OECD, 2021).

This module is designed with the aim of equipping learners with an in-depth understanding of green finance, specifically tailored for entrepreneurs who are keen on spearheading the shift towards more sustainable business practices. The primary goal is to demystify the complexities surrounding green finance, offering clear insights into how entrepreneurs can access, analyze, and utilize these financial instruments to support and scale their green ventures. The emphasis on green finance is timely and critical, as it encapsulates a broad spectrum of financing options available to support projects that have a positive environmental impact, from renewable energy to sustainable agriculture and beyond.

Learners will explore the multifaceted nature of green finance, including its sources, the opportunities it presents, and the challenges inherent in accessing it. The module will delve into the dynamics of green finance markets, policy frameworks that support green financing, and the role of innovation in driving the green economy forward. Through this comprehensive exploration, the module aims to underscore the pivotal role of green finance in enabling entrepreneurs to not only realize their business objectives but also contribute to

the broader agenda of environmental sustainability and climate change mitigation. By the end of this module, learners will possess the knowledge and tools to navigate the green finance landscape effectively, identifying and leveraging opportunities to make a tangible impact on the planet and society (Emerald Insight, 2023; OECD, 2021).

5.3 Specification of Elements to Learn

Refined Learning Tasks with Embedded References:

This section elaborates on the specific elements learners will engage with, structured to deepen their understanding and application of green finance within the entrepreneurial landscape. The tasks are aligned with academic rigor, including references to underscore their foundation on credible sources and research findings.

1. **Comprehension of Green Finance and Its Global Importance**:
    - Delve into the essence of green finance, exploring its pivotal role in fostering environmental sustainability and economic growth. This exploration is grounded in the understanding that green finance is instrumental in facilitating investments leading to a reduction in carbon emissions and promoting renewable energy sources (Labatt & White, 2003).
    - Analyze global success stories where green finance has significantly contributed to sustainable development, drawing insights from these narratives to illustrate the transformative impact of green finance on environmental conservation efforts (Lindenberg, 2014).
2. **Identification and Utilization of Green Finance Sources**:
    - Catalog the array of green finance instruments available globally, with a special focus on those pertinent to the German context. This includes an overview of green bonds, grants, and loans, emphasizing their potential in bolstering sustainable ventures (European Commission; LIFE Programme).
    - Investigate the green finance ecosystem within Germany, identifying the key institutions and mechanisms that provide financial support for green projects, thereby offering a roadmap for entrepreneurs seeking green finance options in Germany (European Commission).
3. **Challenges and Opportunities in Accessing Green Finance**:
    - Discuss the multifaceted barriers entrepreneurs face in accessing green finance, including financial constraints, regulatory hurdles, and the nascent stage of green markets. This discussion aims to prepare learners for the realistic challenges they may encounter and strategize on overcoming these barriers.

- Explore the unique opportunities that green finance presents for entrepreneurs, particularly the strategic benefits of adopting sustainable business practices that align with green finance principles.

4. **Strategies for Green Entrepreneurs to Secure Financing**:
    - Guide learners through crafting compelling green finance proposals. This involves articulating the environmental impact and economic viability of their green projects, a crucial step in securing green finance.
    - Offer strategic advice on navigating the green finance landscape, including leveraging partnerships, governmental incentives, and alternative financing models like crowdfunding and impact investing, to enhance access to green finance.
5. **Navigating the Green Finance Landscape**:
    - Equip learners with knowledge on the legal and economic frameworks governing green finance, highlighting the significance of financial instruments such as the Green Climate Fund and structured green funds in facilitating sustainable investment (Lindenberg, 2014).
    - Stress the importance of understanding policy frameworks and market dynamics that influence green finance availability and accessibility, urging learners to stay abreast of trends and legislative developments in the green finance sector.

Instructional Approach:

- **Case Studies and Real-World Examples**: By examining successful applications of green finance, learners can contextualize theoretical knowledge within practical scenarios.
- **Interactive Lectures and Expert Insights**: Guest lectures from green finance experts will provide contemporary insights and foster an environment for interactive learning.
- **Practical Workshops**: Hands-on workshops will simulate the process of securing and managing green finance, enhancing learners' practical skills.

5.4 Best Practices in Green Entrepreneurship Across Germany, Romania, Portugal, and Turkey

Germany exemplifies leadership in green entrepreneurship through policies that integrate sustainable development with innovation and economic growth. Initiatives like the "Energiewende" (energy transition) demonstrate Germany's commitment to reducing greenhouse gas emissions and promoting renewable energy sources. This approach leverages financial incentives, regulatory frameworks, and research and development to encourage the

adoption of green technologies and sustainable business practices. Germany's success is underpinned by a strong collaboration between government, industry, and research institutions, fostering an ecosystem where green entrepreneurs can thrive (Federal Ministry for Economic Affairs and Energy, 2020).

Romania has focused on leveraging its rich natural resources to promote green entrepreneurship, particularly in the sectors of agriculture and energy. The country has implemented several EU-funded programs aimed at increasing energy efficiency and promoting the use of renewable energy sources among small and medium enterprises (SMEs). Romania's approach includes tax incentives for green investments, subsidies for renewable energy projects, and support for eco-innovation among startups. These efforts are complemented by a growing awareness and demand for sustainable products and services among Romanian consumers (Ministry of Environment, Water, and Forests, 2019).

Portugal stands out for its innovative use of technology and policy to drive green entrepreneurship, especially in the renewable energy sector. The country has become a leader in wind and solar energy, thanks in part to favorable policies such as feed-in tariffs and a simplified licensing process for renewable energy projects. Portugal's commitment to sustainability extends beyond energy, with initiatives aimed at promoting circular economy principles across industries. The government also supports green startups through incubators and accelerators that provide funding, mentorship, and networking opportunities (Portuguese Environment Agency, 2021).

Turkey has made significant strides in green entrepreneurship, particularly in the areas of waste management and recycling. The country has implemented regulations to encourage the recycling of electronic waste, packaging, and other materials, creating new opportunities for green businesses. Turkey's approach includes incentives for companies that adopt environmentally friendly practices, such as reduced taxes and access to low-interest loans. Additionally, Turkey is investing in research and development to support the growth of green technologies, demonstrating a holistic approach to fostering green entrepreneurship (Ministry of Environment and Urbanization, 2020).

5.5 Importance of Developing and Analyzing Access to Finance for Green Entrepreneurs

"Developing and Analyzing Access to Finance for Green Entrepreneurs" is pivotal for several reasons. It bridges a crucial gap in green entrepreneurship by equipping innovators

with the knowledge to navigate the complex landscape of green finance. Access to funding is often cited as a significant barrier to the development and scaling of sustainable businesses. This module not only clarifies the avenues available for green financing but also demystifies the application and acquisition process, fostering a more vibrant and successful green business ecosystem.

Moreover, it serves as a cornerstone for promoting sustainable development goals (SDGs) by ensuring that environmental ventures can find the financial support necessary to bring innovative solutions to market. The emphasis on analyzing financial opportunities helps entrepreneurs to critically evaluate various funding sources, understand their implications, and choose the most beneficial options to sustain and grow their green businesses.

5.6 Conclusion

In conclusion, the development and analysis of access to finance for green entrepreneurs are not just critical components but foundational pillars for the growth and success of sustainable business ventures. This module serves as a bridge connecting innovative green ideas with the practical realities of funding and scaling operations in a competitive and often uncertain financial landscape. It empowers entrepreneurs with the knowledge, tools, and strategies to navigate the complexities of green financing, turning environmental challenges into viable business opportunities.

Understanding the nuances of financing for green ventures enables entrepreneurs to effectively plan, launch, and grow their projects, ensuring they are both environmentally sustainable and economically viable. It fosters a conducive ecosystem for innovation, where sustainable solutions can thrive, scale, and replicate, contributing significantly to the global green economy.

Moreover, this focus on developing and analyzing finance access highlights the importance of collaboration among various stakeholders, including financial institutions, government bodies, and international organizations, in supporting green entrepreneurship. It underscores the need for tailored financial products, policies, and incentives that address the unique challenges and opportunities presented by green businesses.

Ultimately, the integration of this module into projects aimed at promoting green entrepreneurship underscores a commitment to a future where economic growth and environmental sustainability go hand in hand. It reflects a forward-thinking approach to business, where the pursuit of profit does not come at the expense of the planet. As we move forward, the lessons learned and the frameworks developed from analyzing access to finance for green entrepreneurs will be invaluable in shaping a resilient, sustainable, and inclusive global economy.

5.7 References

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6. Module 5: Green Entrepreneurship Culture and Business Models ideas

E-digital software

6.2 Who is an Entrepreneur

According to the article, an entrepreneur is an individual who creates value for the individual and society, responds to or creates economic opportunities, and brings about changes in the economic system through innovations (Muzyka Koning Churchill1995: 352).

6.3 Green Entrepreneur Definition

Green entrepreneurship can be defined as people who aim to transform a sector by establishing a business in a sector with green design, green processes and a lifelong commitment to sustainability (Kaur 2014). This definition encompasses all entrepreneurial endeavors that put the goal of environmental protection and/or improvement at the core of their business activities, thus differentiating them from classical entrepreneurs. Green entrepreneurs are those who build green businesses and see the environmental dimension as an element of green values in their business goals (EKOIQ 2015). Furthermore, while green entrepreneurship is defined as entrepreneurial activity that is beneficial to the environment, a green entrepreneur is defined as an economic actor who transforms his/her ideas into reality and produces green products and technologies for the market as a whole (Farinelli Bottini Akkoyunlu Aerni 2011).

6.4 Who is a Green Entrepreneur.

Being a green entrepreneur is distinguished from being a traditional entrepreneur by the desire to create a business model that is economically profitable, environmentally sound and creates social value. Green entrepreneurs are environmentally friendly in their operations and growth strategies, aiming to contribute to a better world and living spaces while meeting the needs of society. In addition, green entrepreneurs are those who see opportunities in the market and see sustainability as an important goal while taking advantage of these opportunities, sometimes not driven by profit motive, but to find solutions to social problems. However, it is emphasized that green entrepreneurs are those who design and implement

economically satisfying, socially responsible and environmentally beneficial businesses. Green entrepreneurs are also those who recognize social and environmental problems and take an innovative and risk-taking approach by using entrepreneurial principles to find solutions. In this context, green entrepreneurs are defined as social activists who aspire and strive to restructure the corporate culture and social relations of their business sectors through proactive, ecologically-oriented business strategies.

6.5 Key Characteristics of a Green Entrepreneur

It reflects the key characteristics of green entrepreneurs and concrete examples of how these characteristics can be applied. Green entrepreneurship is a powerful approach that can create positive changes not only in the business world, but also at the social and environmental level.

6.6 The Importance of Green Entrepreneurship

Contribution to Green Economy

Green entrepreneurs make important contributions to the formation of a green economy. They act as catalysts for positive change in the economic and environmental spheres, taking into account environmental values. Green entrepreneurs see the environmental dimension as an opportunity, not an obstacle, and with this perspective, they develop innovative and sustainable business models to have a cleaner and greener world.

Environmental Responsibility and Sustainable Growth

Green entrepreneurs contribute to green and sustainable growth by offering environmentally friendly products and services. They aim to achieve economic growth and development by protecting the natural resources that underpin our well-being and by maintaining environmental services. This aims both to meet the needs of current generations and to leave a healthy environment for future generations.

Employment and Eco-Innovation

Green entrepreneurship is also important for employment. It creates new job opportunities in various sectors such as agriculture, construction, forestry and transportation. Moreover, through eco-innovations, they have the potential to deliver new and innovative environmental technologies, services and processes that will determine the future competitive advantage of companies and countries. This is becoming a more important resource than low cost for companies and countries that want to succeed in the international market.

Green entrepreneurship offers innovative and effective solutions to the various challenges facing today's world, contributing to building a sustainable future in economic, environmental and social terms.

6.7 Green Entrepreneur Characteristics

Characteristics of Green Entrepreneurship	Description
Environmental Responsibility and Contribution	Green entrepreneurs make significant contributions to the green economy by offering environmentally friendly products and services and using clean technologies. These efforts help to protect the environment, one of the most important issues today.
Economic Development and Social Responsibility	By designing and implementing economically satisfying, socially responsible and environmentally beneficial businesses, green entrepreneurs contribute to economic development and play a role in addressing social problems such as unemployment and poverty.
Incentives for Support and Development	The development of green entrepreneurship can be supported by incentives such as technical assistance, support infrastructure, training programs and tax exemptions. Raising public perception of green products and services encourages development in this area.

a.

6.8 Key Characteristics of an Entrepreneur

Innovation and Creativity:

Entrepreneurs constantly demonstrate innovation and creativity to improve existing situations and generate new ideas. For example, an entrepreneur in the technology sector might design a new mobile app to facilitate the user experience. By offering different features than the existing apps on the market, this app can attract users' attention and create an innovation in the industry.

Risk Taking and Independence:

Entrepreneurs are courageous in making their own decisions and navigating a path full of uncertainties. They take the financial risks, market changes and other uncertain factors involved in starting a new business. For example, an entrepreneur may take on high start-up costs and the risk of market rejection by working on an unusual product idea and bringing it to market.

Competitiveness and Continuous Improvement:

Entrepreneurs see competition in the market as an opportunity and continuously improve themselves and their business. This requires constant innovation and adaptation to better meet customer needs, improve service quality and stand out in the market. For example, an entrepreneur can continuously improve their products by taking customer feedback into account and thus increase customer satisfaction, giving them an advantage over their competitors.

These three characteristics are critical to the success of entrepreneurs and are the cornerstones of their ability to survive and grow in business.

6.9 Key differences between the Entrepreneur and the Green Entrepreneur.

Features	Entrepreneur	Green Entrepreneur
Business Model and Purpose	It aims to achieve competitive advantage in the market through profit-oriented, innovation and growth.	Aims to create a business model that is not only economically profitable but also environmentally sensitive and creates social value. It contributes to a better world and living spaces while meeting the needs of society.
Sustainability and Social Issues	Evaluates market opportunities, often prioritizing economic returns.	Sees sustainability and finding solutions to social problems as important goals when evaluating market opportunities. It can act as a social entrepreneur while pursuing profit.
Innovation and Market Contribution	Compete in the market by offering innovative solutions.	Provides innovative solutions and challenges existing markets while embodying environmental values. It contributes to the growth and expansion of green markets by creating business concepts that combine market and financial objectives with environmental performance.

This table summarizes the main differences between entrepreneurs and green entrepreneurs in terms of their business models, sustainability approaches and market contributions. By integrating environmental and social dimensions into their entrepreneurial approach, green

entrepreneurs aim to create positive impacts not only economically but also environmentally and socially.

6.10 Green Culture for the Future

In line with consumers' growing concern about their carbon footprint, large-scale companies are taking responsibility and investing in combating climate change. In this context, green culture is becoming one of the fundamental realities of a business.

Promoting a green culture in the work environment can reinforce employee commitment to the company and contribute to the perception of the company as a sustainable brand. The adoption of a green culture can be realized through engagement development tools and events that increase employee loyalty and have positive repercussions on their personal lives.

Increasingly, there is a tendency among employees to gravitate towards companies that are committed to green values and have adopted this culture in the workplace.

The practice of adopting a green culture reveals that companies value the well-being of employees beyond the goal of making a profit. Such green initiatives not only increase employee loyalty, but also strengthen and inspire their sense of responsibility towards the environment.

6.11 How to Create a Green Culture

Starting a new culture at work will not be easy. But it's worth a try. To help you take the first step, we've put together a simple guide to starting a green culture at work.

Train all employees on sustainability and company goals

Employees should be made aware of the company's sustainability goals by learning to live a sustainable life and implement the necessary changes in the workplace. This process can be started by providing a platform for employees to understand the environmental impact of their actions. This approach will not only bring about positive changes in employee attitudes and behaviors in the short term, but also in the long term. Second, comprehensive training

should be provided on how the concept of sustainability is integrated with the overall strategy and mission of the company.

Efforts to raise employees' sustainability awareness enable them to adopt and promote environmentally friendly practices in daily activities. The third step in this process is to create a concrete monitoring and evaluation plan to identify areas that require progress and improvement. Finally, recognition and appreciation of their efforts should be ensured by rewarding individuals who are promoting and leading sustainability practices in the workplace. This is vital for promoting and maintaining a sustainability-oriented corporate culture.

Encourage suggestions and observations

A sustainability-oriented corporate culture is an environment that supports employees to offer their ideas and suggestions. In this culture, employees have the freedom to take responsibility for their own decisions and actions, and this includes not only environmental sensitivity but also an expanded understanding of social responsibility. It is essential that businesses are open to suggestions from employees, suppliers and customers in developing strategies to improve sustainability.

Each employee should be encouraged to engage in sustainable behaviors in their daily routines that will have a long-term impact, such as not leaving lights on unnecessarily or choosing reusable bags for shopping. They should also be encouraged to generate ideas for innovative product and service development, making processes more efficient and minimizing or eliminating environmental impacts. This should include improvements in production processes and sustainable changes in the materials used. Recognizing and celebrating such achievements, no matter how small or perceived as insignificant, is a critical factor in reinforcing a sustainable business culture.

Schedule meetings

Depending on organizational size, it is recommended that these meetings be held monthly or quarterly. The focus of the first meeting should be on discussing the organization's goals and values and asking for employees' perspectives on these issues. This will make it easier for employees to understand the steps needed to achieve organizational goals and act in a

manner consistent with company values. In addition, this process will create a sense of belonging and ownership of the company's goals.

Healthy Communication

Encourage your employees to be actively involved in local sustainability initiatives and in the evolution of the company's sustainable development goals by ensuring transparency of internal communication. Recognizing positive developments motivates individuals to focus on their personal and professional development and to continuously contribute to sustainability goals.

Increase Participation

We recognize the importance of employee engagement in building teamwork and company success. Through the use of 'Deedster at Work', we provide a mechanism to ensure continuous employee engagement and commitment. With data-driven insights and solutions delivered through our Saas platform, you can integrate actions to combat climate change into your daily business practices

6.12 Business Model Development

Develops an Economically Profitable and Environmentally Responsible Business Model

Green entrepreneurs create business models that are both economically profitable and environmentally responsible. This is an alternative to traditional business models, centering on long-term sustainability and reducing environmental impact. For example, by adopting zero waste principles, a green entrepreneur can minimize the amount of waste in production processes. In this way, it both reduces production costs and minimizes its impact on the environment. At the same time, such environmentally friendly practices can increase brand equity among consumers, which in turn can support economic profitability.

Creates Sustainability-Focused Growth Strategies

Sustainability-oriented growth strategies are a cornerstone of green entrepreneurship. These strategies aim to balance environmental, social and economic factors. For example, a green entrepreneur can meet energy needs in a sustainable way by investing in renewable energy

sources. At the same time, sustainable supply chain management aims to reduce environmental impact at every stage of the products' life cycle. Such strategies can contribute to economic growth both by reducing the environmental footprint of the business and by providing long-term cost savings.

Social Responsibility and Contribution to Society

Green entrepreneurs prioritize social responsibility and contribution to society when running their business. This can be achieved in a variety of ways, such as supporting local communities, promoting social equity and raising environmental awareness. For example, a green entrepreneur can support the local economy by sourcing their products locally and organically. It can also contribute to raising public awareness about environmental issues by organizing environmental education programs. Such social and environmental contributions can strengthen brand reputation and increase customer loyalty.

b.

6.13 What are Green Entrepreneur Supports.

Green entrepreneurship supports in Europe include a range of efforts to provide financial assistance, guidance and resources with the aim of promoting sustainable development and environmental sustainability. They are designed to support the growth of innovative green businesses and the development of green technologies, sustainable agricultural practices, energy efficiency solutions and renewable energy projects. The European Union (EU) offers many programs and funds to support green entrepreneurship. These programs include the following:

Horizon Europe: The EU's research and innovation program. This program funds projects on issues such as combating climate change, environmental sustainability and the development of green technologies.

LIFE Program: A fund created by the EU to finance environmental and climate action projects. This program supports projects that develop concrete solutions to achieve environmental and climate goals.

European Green Deal: An initiative that includes various policies and investments to support Europe's goal of becoming a climate neutral continent by 2050. It also offers various opportunities to promote and finance green entrepreneurship.

COSME Program: EU program aimed at increasing the competitiveness of SMEs. This program provides financial instruments and networking opportunities to help small and medium-sized enterprises grow, including green initiatives.

EIC Accelerator: This grant and investment program provided by the European Innovation Council supports scalable and innovative business ideas. It places particular emphasis on green technologies and sustainability-related innovations.

Local and National Supports: EU Member States also support green entrepreneurship projects through their national and local programs. These can include grants, tax breaks, advisory services and more.

Green entrepreneurship supports help businesses that offer innovative solutions for a sustainable future to grow and succeed. Entrepreneurs who want to benefit from these supports can visit the websites of the relevant programs and get detailed information about the application conditions and processes.

6.14 Business Ideas Around the World

The conditions necessary to qualify a product as a green entrepreneurial business idea can be summarized as follows (Moisander, 2007:405);

- Not harmful to human or animal health,
- No harm to the environment during manufacture, use or disposal,
- Not consume excessive amounts of energy and other resources during manufacture, use or disposal,
- No unnecessary waste due to overpackaging or short life span,
- It should not involve unnecessary use or torture of animals,
- Materials that are harmful to the environment or the universe should not be used. Businesses of the 21st century are primarily responsible for making being green a philosophy, even a way of life, and leaving a livable world for future generations.

6.15 Green Entrepreneur Business Ideas

Tarlamvar

It is a platform that brings individual consumers directly together with farmers. By reducing intermediaries in the supply chain of agricultural products, this approach aims to both reduce costs and ensure that fresh produce reaches consumers more efficiently. In the process, by increasing efficiency in the procurement and distribution of agricultural products, farmers can earn more and consumers can access more affordable and quality products.

Toplio

It is a mobile application that connects electronic waste generated at homes and workplaces with authorized e-waste collection, sorting and recycling centers. This platform enables users to manage electronic waste without harming the environment by offering economic gains, cost savings and donation opportunities. It also promotes a sustainable recycling process through reverse logistics services.

Pulsec

It is an initiative based on the utilization of electronic waste. This model collects unused electronic devices and reprocesses them into innovative, aesthetic and programmable products that can be used in corporate social responsibility projects and educational programs. This approach contributes to reducing waste and increasing technological resources in education.

Bluedot

It is a platform that allows electric vehicle owners to easily find, book and pay for charging stations. It also offers charging station owners the opportunity to earn additional revenue by sharing their stations with other users. This business model offers a solution to support the electric vehicle ecosystem by utilizing the advantages of the sharing economy.

Paksumatik

It is a technology that identifies harmful bacteria and particles in water sources with the help of artificial intelligence. Avus is an initiative that brings innovative solutions to problems in the timing of street lights, thus saving energy and meeting lighting needs more efficiently.

Phototherma Hybrid Solar Panel

Offers an innovative solution that maximizes solar energy. This system can convert sunlight and heat into electrical energy at the same time, thus increasing energy production. This hybrid panel, which can maintain its effectiveness even in snowy weather conditions, has the potential to provide uninterrupted energy even in winter thanks to its snow removal feature.

OTTO

It offers an innovative solution for vehicle cleaning; this technology aims to achieve 100% water savings by completely eliminating the use of water. It contributes to the conservation of resources by developing environmentally friendly and water-saving alternative methods to replace water in the process of cleaning vehicles. This is both an important step towards a sustainable environment and an effective measure against water scarcity.

New Type Plastic Cup Production

Changes in the behavior of people who have to stay at home during the pandemic have had significant impacts on the environment. More frequent cooking at home and increased use of home delivery services have led to a significant increase in the amount of food and packaging waste. This has affected the environment in the following ways:

According to interviews with business owners, they consider costs to implement an environmentally friendly business model. In addition, they use plastic packaging that is difficult to decompose. The picture below is a cup packaging with biodegradable oxo or oxium material (see Figure 4). Oxium is a plastic material that decomposes more easily than other types of plastic. It has also passed the SNI Eco-label 1 7118.7:2016 test and the Ecolabel Type

2 Self-Declaration for Ecoplas and Oxium. In terms of price, the oxium packaging type has a lower price than the packaging used by businesses.

Therefore, by using oxium plastic packaging, SME owners can spend less on environmentally friendly packaging.

6.16 Conclusion

While highlighting the importance of green entrepreneurship, it consequently emphasizes that the negative impacts of human activities on the environment have reached a level that can no longer be ignored. Green entrepreneurship plays a critical role as it has the potential to reduce these negative impacts and increase environmental sustainability. By offering sustainable business models and innovative solutions, green entrepreneurs aim to strike a balance between economic growth and environmental protection, and have the potential to contribute to the well-being of both current and future generations. Green entrepreneurship is shaping the entrepreneurship of the future in terms of economic, environmental and social sustainability and is therefore an important topic.

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7. Module 6: Development of the Training Curriculum of the Green Entrepreneurship Handbook

Niclas Grüttner / UPB

Module 6 marks the culmination of the Green Entrepreneurship Handbook, serving as a comprehensive guide to the development of the training curriculum. It brings together the key insights gleaned from the previous modules and provides information on structuring effective training programs tailored to green entrepreneurship. As we wrap up our exploration of eco-innovation, sustainability design, resource management, finance, culture, and other critical aspects of green entrepreneurship, Module 6 is designed as a resource for educators, trainers that are using the information provided in the modules for their work. Therefore, this module not only offers guidance on crafting a training curriculum but also has a look into the didactic approach behind it. Participants will gain insight into instructional strategies aimed at maximising engagement and learning outcomes, including the integration of interactive tasks such as H5P tasks.

By leveraging interactive elements, trainers can create a dynamic learning experience for their classrooms. Through practical examples and case studies, this module equips educators with the tools and techniques needed to facilitate discussions, foster creativity, and inspire action towards sustainable entrepreneurship.

7.2 Basic approaches of the Greenworld Curriculum

The Green Entrepreneur Handbook is divided into six modules covering various aspects of eco-innovation, sustainability, resource management, finance, culture, and training curriculum development in green entrepreneurship. All parts or the Greenworld curriculum are structured around several basic approaches aimed at promoting green entrepreneurship among youth. Based on this and with the help of the modules, young people should understand the financial aspects related to green entrepreneurship, including access to funding and financial management in the context of sustainable initiatives. Furthermore, they should be able to develop their own entrepreneurship model where they encompass aspects like business planning, resource management, and innovation within the sustainable sector. Although the individual modules build on each other and can be used in series planning, it is

also possible to use the individual modules separately from each other so that they fit into your own planning. What has already done so far is a learning outcome matrix, in the following, a curriculum is presented in how to use the modules. Therefore, the definitions of a curriculum as well as of a learning outcome matrix must be set clear:

A curriculum is a structured plan or framework that outlines the content, objectives, instructional methods, and assessments for a particular educational program or course. It serves as a roadmap for educators, guiding them in the organization and delivery of instruction to achieve desired learning outcomes. A curriculum typically includes details such as:

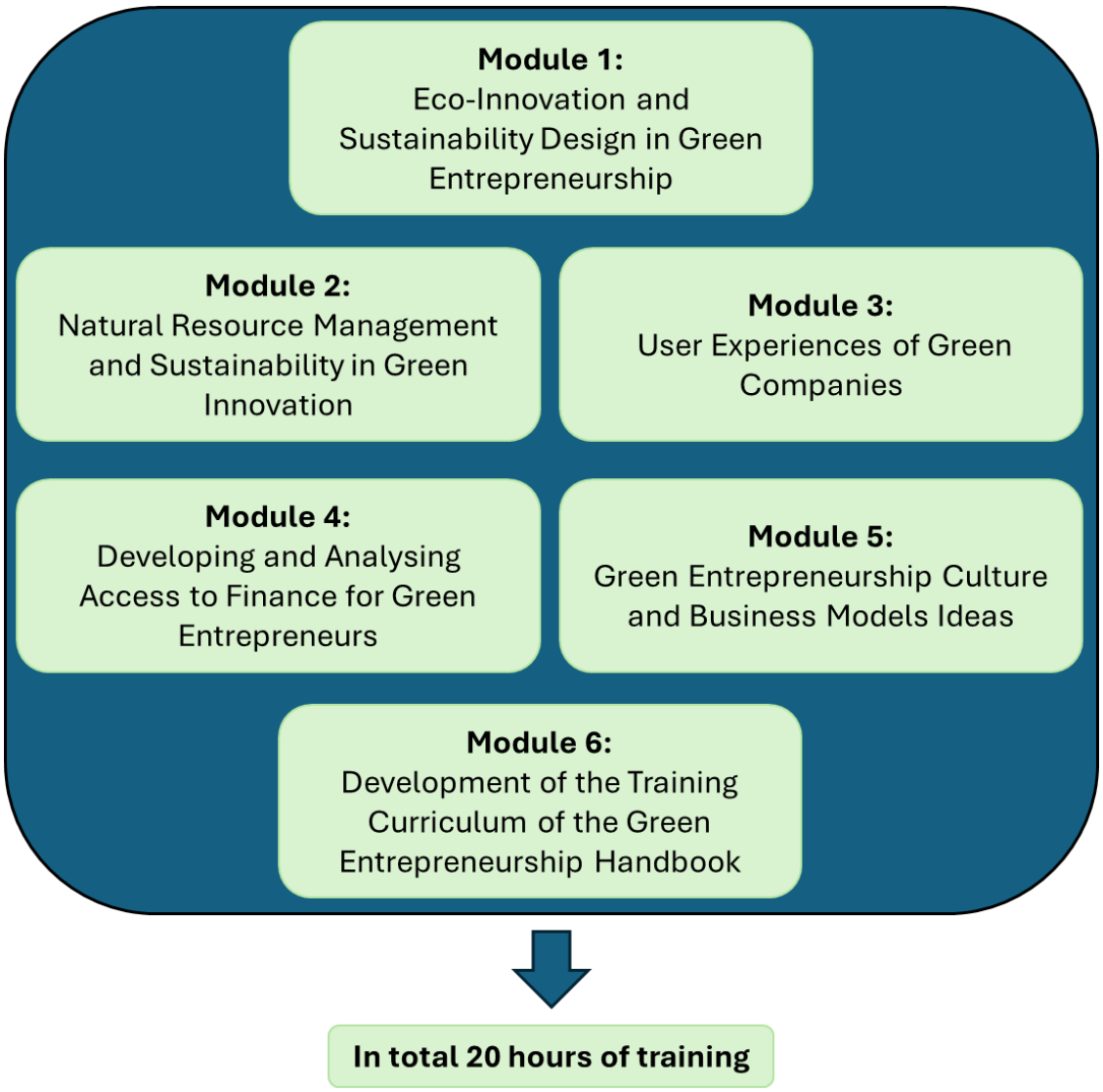
- **Scope and Sequence:** The overall content and order in which topics or subjects will be taught.
- **Learning Objectives:** Clear statements of what students are expected to know, understand, or be able to do as a result of the educational experience.
- **Instructional Strategies:** Methods, activities, and resources used to deliver instruction and engage learners.
- **Assessment Methods:** Techniques for evaluating student progress and achievement, such as tests, quizzes, projects, or presentations.
- **Resources and Materials:** Textbooks, readings, multimedia materials, and other resources needed to support teaching and learning.

At the opposite, there is the learning outcome matrix. A learning outcome matrix, also known as a matrix of learning outcomes or competency matrix, is a tool used to organise and communicate the learning objectives and competencies associated with a curriculum or educational program. It typically consists of a grid or table format, with learning objectives listed along one axis and various levels of proficiency or competency along the other axis. Each cell in the matrix represents a specific learning outcome at a particular level of proficiency.

The learning outcome matrix helps educators and students understand the progression of learning and development within a curriculum, as well as the expected outcomes at each stage. It can also aid in curriculum design, assessment development, and alignment of instructional activities with learning objectives. Additionally, the matrix provides a framework for tracking and measuring student progress over time, facilitating ongoing evaluation and improvement of the educational program.

7.3 Didactic und curricular conception of the modules and the Learning Outcome Matrices

The curriculum is based on six modules of which the last module is about the curriculum and the learning outcome matrixes of the project. Therefore, the sixth module is only presenting the curriculum and didactic approaches and does not count into the timeframe. So, in general, the timeframe for the modules 1-5 are four hours for every module which makes 20 hours of training:



Build upon the modules and the learning outcome matrixes, the curriculum is developed. The curriculum consists of a scope and sequences, learning outcomes, instructional strategies, assessment methods, resources and materials as well as a timeframe for each module. In the following, the curriculum for the modules can be found:

<table>
<tr><td colspan="3">Module 1: Eco-Innovation and Sustainability Design in Green Entrepreneurship</td></tr>
<tr><td colspan="3">Timeframe: 4 hours of training, either consecutive or two times two hours</td></tr>
<tr><td><u>Scope and Sequence:</u>
The module starts with an introduction to green entrepreneurship and what it is. It then continues with some videos on sustainability and (green) entrepreneurship where the learners should get a deeper knowledge. The module then continues with information and resources about eco innovation and sustainability before it ends with a self-check at the end.

<u>Main Learning Outcome:</u>
The learners focus the intersection of eco innovation, sustainability design, and green entrepreneurship.

<u>Other Leaning Outcomes:</u>
The learners experience how the areas of eco innovation, sustainability design, and green entrepreneurship come together to address environmental challenges and promote sustainable practices in business. They explore the role of ethical and social responsibility in business, emphasising the importance of aligning economic goals with ecological and social considerations.</td><td><u>Instructional Strategies:</u>
The module uses different resources. At the one hand there are texts and graphics that contribute to the overall learning outcome. At the other side there are videos with different topics that can be used either as part of the module or even separately to give more information.

In general it is a self-study course that can be taken either alone or in a group of two or more or the teacher can even present the slides to the students and then divide them into different groups with different sub-topics or videos that they should watch and later present to the class.</td><td><u>Assessment Methods:</u>
▪ Presentation of groupwork
▪ H5P tasks
▪ Essays about green entrepreneurship
▪ Self-reflection on what has been learned
▪ Multiple choice tasks
▪ Gap text to be filled with the appropriate words</td></tr>
<tr><td colspan="3"><u>Differentiation:</u>
High-ability learners will focus on eco innovation, sustainability design, and green entrepreneurship, leveraging advanced problem-solving skills to develop solutions for environmental challenges. Moderate-ability learners will navigate these concepts adeptly, elucidating key principles for fostering sustainable business practices. Low-ability learners will grasp the foundational aspects of eco innovation, sustainability design, and green entrepreneurship, understanding their fundamental impact on environmental sustainability. Regarding the other learning outcomes, high-ability learners will examine real-world case studies to evaluate businesses' incorporation of eco innovation, sustainability design, and green entrepreneurship, proposing actionable strategies to enhance sustainability further. Moderate-ability learners will engage in discussions surrounding the ethical and social responsibilities inherent in business operations within this context, brainstorming solutions to potential challenges. Finally, low-ability learners will articulate the essence of ethical and social responsibility in simple terms, recognising its essential connection to economic, environmental, and social considerations.</td></tr>
</table>

Module 2: Natural Resource Management and Sustainability in Green Innovation

Timeframe: 4 hours of training, either consecutive or two times two hours

Scope and Sequence:

In the first part (introduction), the learners learn something about Natural resources, management, green innovation and green entrepreneurship. They then getting shown some examples of innovation for sustainability and green entrepreneurship as well as Green Tourism. They deepen their knowledge with some videos about natural resource management and green innovation. At the end of the module, some assessment tasks can be found.

Main Learning Outcome:

The learners deal with the effective management of natural resources and get to know about the terms of green tourism as well as innovation in green entrepreneurship.

Other Leaning Outcomes:

Within the module, the learners explore strategies for fostering sustainability in innovation processes. They learn to highlight the significance of preserving natural ecosystems and minimising environmental impact.

Instructional Strategies:

The module uses different resources. At the one hand there are texts and graphics that contribute to the overall learning outcome. At the other side there are videos with different topics that can be used either as part of the module or even separately to give more information.

In general it is a self-study course that can be taken either alone or in a group of two or more or the teacher can even present the slides to the students and then divide them into different groups with different sub-topics or videos that they should watch and later present to the class.

Assessment Methods:

- Presentation of groupwork
- H5P tasks
- Essays about green entrepreneurship
- Self-reflection on what has been learned
- Multiple choice tasks
- Gap text to be filled with the appropriate words

Differentiation:

High-Ability Learners engage with advanced readings and complex case studies, taking on leadership roles in group activities to deepen their understanding. Moderate-Ability Learners can be provided with a mix of text and video resources, offering clear explanations with visual aids. Active participation in group tasks fosters comprehension. Low-Ability Learners can be equipped with simplify explanations and guided video viewing. Structured group activities can also ensure an active participation and understanding.

<table>
<tr><td colspan="3">Module 3: User Experiences of Green Companies</td></tr>
<tr><td colspan="3">Timeframe: 4 hours of training, either consecutive or two times two hours</td></tr>
<tr><td><u>Scope and Sequence:</u>
In the first part of the module, an introduction to the topic is given. The learners explore the concept of green companies, deal with the consumers' behaviour towards green companies and also learn about the concept of green washing.
<u>Main Learning Outcome:</u>
The learners deal with the effective management of natural resources and explores strategies for fostering sustainability in innovation processes. They highlight the significance of preserving natural ecosystems and minimising environmental impact.
<u>Other Leaning Outcomes:</u>
Within the module, the learners will learn why being 'green' has become important, they get to understand the concept of green companies and get to know how consumer behaviours can be changed to greener behaviour. The learners will also understand the concept of greenwashing and discuss on the problems related to this concept.</td><td><u>Instructional Strategies:</u>
The module uses different resources. At the one hand there are texts and graphics that contribute to the overall learning outcome.

In general it is a self-study course that can be taken either alone or in a group of two or more or the teacher can even present the slides to the students and then divide them into different groups with different sub-topics or videos that they should watch and later present to the class.</td><td><u>Assessment Methods:</u>
▪ Presentation of groupwork
▪ H5P tasks
▪ Essays about green entrepreneurship
▪ Self-reflection on what has been learned
▪ Multiple choice tasks
▪ Gap text to be filled with the appropriate words</td></tr>
<tr><td colspan="3"><u>Differentiation:</u>
High-Ability learners can be equipped with advanced readings on consumer behaviour and greenwashing, taking on leadership roles in group presentations to deepen their understanding through critical analysis. Moderate-Ability Learners can be utilised a mix of text-based resources and graphics to convey key concepts clearly. Low-Ability Learners can be equipped with simplified explanations and be provided with guided activities, breaking down complex concepts like greenwashing into manageable parts with the help of visual materials.</td></tr>
</table>

Module 4: Developing and Analysing Access to Finance for Green Entrepreneurs

Timeframe: 4 hours of training, either consecutive or two times two hours

Scope and Sequence:

In the first part of the module, an introduction to the topic is given. The learners explore the way of developing and analysing access to finance for Green Entrepreneurs. They are navigating through the pathway to sustainable economic development and learn about the challenges and opportunities in accessing Green Finance.

Main Learning Outcome:

Focusing on the financial aspect, in this module the learners address challenges related to accessing funding for green initiatives. They learn to provide guidance on financial planning and investment strategies regarded to green companies.

Other Leaning Outcomes:

The learners define the concept of green finance and identify sources and instruments of green finance. Furthermore, they analyse challenges and opportunities in accessing green finance and therefore learn to develop strategies for securing green finance.

Instructional Strategies:

The module uses different resources. At the one hand there are texts and graphics that contribute to the overall learning outcome.

In general it is a self-study course that can be taken either alone or in a group of two or more or the teacher can even present the slides to the students and then divide them into different groups with different sub-topics or videos that they should watch and later present to the class.

Assessment Methods:

- Presentation of groupwork
- H5P tasks
- Essays about green entrepreneurship
- Self-reflection on what has been learned
- Multiple choice tasks
- Gap text to be filled with the appropriate words

Differentiation:

High-Ability Learners can focus on advanced readings on green finance, exploring intricate financial planning and investment strategies for green companies. They can also lead group discussions, analysing complex challenges and opportunities in accessing green finance and developing innovative strategies for securing funding. Moderate-Ability Learners can be assisted with a mix of text-based resources and graphics, learners explore the fundamentals of green finance, identifying sources and instruments for funding green initiatives. Engaging in group activities, they discuss challenges and opportunities in accessing green finance, developing practical strategies to overcome barriers and secure funding. Low-Ability Learners get simplified explanations and guided activities that assist learners in understanding basic concepts of green finance, such as financial planning and investment strategies for green companies.

Module 5: Green Entrepreneurship Culture and Business Models Ideas

Timeframe: 4 hours of training, either consecutive or two times two hours

Scope and Sequence:

In the first part of the module, an introduction to the topic is given. The learners explore the meaning of green entrepreneurship culture and business models ideas. They then get examples of the importance of green entrepreneurial culture in terms of economic, sustainability, social and societal contributions. Videos on natural resource management and an assessment at the end wrap up the module.

Main Learning Outcome:

In this module, the learners explore the cultural aspects of green entrepreneurship and get to know about diverse perspectives on business models.

Other Leaning Outcomes:

Learners define the concept of green entrepreneurship culture and business model ideas. They develop their own examples of green entrepreneurship and learn how to establish a green business. Additionally, they discover the benefits of green businesses for themselves and the planet, as well as eco-friendly business ideas for green entrepreneurs.

Instructional Strategies:

The module uses different resources. At the one hand there are texts and graphics that contribute to the overall learning outcome. At the other side there are videos with different topics that can be used either as part of the module or even separately to give more information.

In general it is a self-study course that can be taken either alone or in a group of two or more or the teacher can even present the slides to the students and then divide them into different groups with different sub-topics or videos that they should watch and later present to the class.

Assessment Methods:

- Presentation of groupwork
- H5P tasks
- Essays about green entrepreneurship
- Self-reflection on what has been learned
- Multiple choice tasks
- Gap text to be filled with the appropriate words

Differentiation:

High-Ability Learners can be engaged in in-depth discussions on the multifaceted contributions of green entrepreneurial culture to economic, sustainability, social, and societal aspects. They can lead group activities exploring diverse perspectives on business models and present advanced examples of successful green entrepreneurship. Moderate-Ability Learners can participate in group discussions to understand the significance of green entrepreneurial culture and its impact on various aspects. They should analyse examples of green businesses and collaborate with peers to develop ideas for building sustainable ventures.

Low-Ability Learners receive simplified explanations and guidance to grasp the concept of green entrepreneurship culture and business models. They should be engaged in hands-on activities to identify basic examples of green entrepreneurship and understand their benefits to both individuals and the environment.