

D2.4: Comparative analysis of entrepreneurship vocational education in SSA and EU countries

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“Developing VET Entrepreneurial Green Mindset and Skills for Small Business Development”



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Acronyms

DEI - Diversity, Equity, and Inclusivity

DFFE - Department of Forestry, Fisheries, and the Environment

EEVT - Entrepreneurship Education and Vocational Training

Entrecomp - Entrepreneurship Competence Framework

ESD - Education for Sustainable Development

ESDG - Education for Sustainable Development Goals

ESG - Environment, Social and Governance

ESSP - Environmental Sector Skills Plan

GEM - Global Entrepreneurship Monitor

JET - Just Energy Transition

KNBS - Kenya National Bureau of Statistics

MDG - Millenium Development Goals

NEMA - National Environment and Management Authority

PAGE - Partnership Action for a Green Economy

SAQA - South African Qualifications Authority

SDG - Sustainable Development Goals

SEDA - Small Enterprise Development Agency

SETA - Sector Education and Training Authority

SME - Small and Medium Enterprise

SSA - Sub-Saharan Africa

TVET - Technical and Vocational Education and Training

VET - Vocational Education and Training

WEF - World Economic Forum

Executive summary

The primary objective of this report is to compile and synthesize the findings from three initial reports developed as part of Work Package 2: "Report for VET Green Entrepreneurial Skills for SME Development," "Regional Study on Entrepreneurial Education and Vocational Training in SSA," and "Best Pedagogical Practices for Small-Scale Entrepreneurship in EU Countries Report." These findings will inform the requirements for D3.2: "Training Toolbox for VET Entrepreneurial Green Mindset and Skills for Small Business Development," developed during the execution of WP3.

The first chapter introduces the report, outlining the identified needs during the GMESKILL project design phase and proposing potential solutions to address them.

In the second chapter, we delve into the existing entrepreneurial policy frameworks and educational programs in SSA countries and the gaps identified.

The third chapter focuses on skills shortages in Sub-Saharan Africa, particularly within the technical and vocational education and training (TVET) sector. This section presents results from interviews with 64 respondents, including TVET institutions and SMEs, across the three SSA countries. The findings corroborate the insights gathered from an extensive literature review. Additionally, summarized findings from focus group discussions involving 59 VET organizations and private-sector companies are provided as well.

The subsequent chapter highlights best practices for pedagogical approaches, tools, and training programs for small-scale sustainable entrepreneurship in EU countries. Under the leadership of PRIZMA, EU partners conducted 16 interviews to map out these practices and tools. The inventory was then assessed for its adaptability to a more digitized education landscape. Emphasis was placed on innovative vocational teaching methodologies, drawing insights from successful small and medium-scale



entrepreneurs. Furthermore, the importance of professional collaboration networks in delivering comprehensive training was emphasized.

Finally, the last chapter offers comparative insights on vocational education and training (VET) between SSA and EU countries. These insights will inform the development of the Training Toolbox for VET Entrepreneurial Green Mindset and Skills for Small Business Development, providing valuable elements for its formulation.

Introduction

The European Union (EU) increasingly acknowledges the pivotal role of entrepreneurship and small and medium-sized enterprises (SMEs) not only in





enhancing competitiveness and driving economic growth but also as the primary drivers of job creation and essential contributors to social cohesion. In many Sub-Saharan countries, the Technical and Vocational Education and Training (TVET) sector faces significant challenges, including a lack of practical relevance, limited responsiveness to labor market demands, inadequate infrastructure and equipment, and alarmingly low throughput rates. Entrepreneurship education is crucial for all individuals, given its inherent benefits such as job creation, poverty alleviation, improvement in living standards, meeting the needs of a growing population, and bridging the gap between technology and human necessities. By promoting entrepreneurship development through well-coordinated educational efforts, we can work towards transforming this landscape.

The youth population in sub-Saharan Africa is expected to surge to 293 million by 2030 and reach 413 million by 2050. However, a significant portion of these young people are not engaged in education, employment, or training (NEET). Addressing their socioeconomic integration into rapidly evolving societies stands as one of the most formidable challenges facing the African continent.

Statistical data from Nigeria underscores the alarming extent of youth unemployment. According to the National Bureau of Statistics (NBS) Labor Force Survey (2020), the unemployment rate among young people aged 15-34 in 2020 stood at 34.9%, a significant increase from the 29.7% recorded in the third quarter of 2018. This trend is compounded by the employment of inexperienced and unqualified technical teachers, which compromises academic standards and undermines the goals of technical education (Agbionu, 2003). In Kenya, the 2007 World Development Report underscores the importance of "second-chance" schooling programs, particularly in light of high dropout rates from primary school and limited transitions from primary to secondary education. According to the 2005 Kenya Integrated Household Budget





Survey, approximately 21% of youths aged 15-29 are unemployed, with an additional 25% neither in school nor employed. Meanwhile, in South Africa, over 3 million young people are disconnected from education and employment. Among those aged 15-24, approximately one-third, or 3.4 million individuals, are not formally employed or engaged in education or training (NEET), with two million lacking completion of Grade 12. Although the SME sector is a significant employer, contributing about 20% to GDP and employing 47% of the workforce, it remains largely informal. A 2015 research report identified 2.2 million SMEs, with only 667,000 operating formally. Core sectors within this domain include trade, accommodation, community services, and construction.

Formal Vocational Education and Training (VET) systems in Nigeria, Kenya, and South Africa suffer from notable weaknesses, fragmentation, and a disconnect from the evolving needs of the labor market. A significant deficiency lies in the inadequate emphasis placed on practical training within these systems, a concern highlighted by employers who view this as a significant weakness. Furthermore, the lack of integration between pedagogical competencies, technical qualifications, and real-world industry experience further compounds these challenges. Amidst these challenges, there's a burgeoning focus on fostering job creation through entrepreneurship and Small and Medium Enterprise (SME) development, championed by international organizations, governments, and NGOs. Yet, there persists a notable gap in comprehending youth entrepreneurship within the African context. Furthermore, embracing green practices offers a promising avenue for optimizing resource allocation and management, tapping into locally available resources to drive sustainable development.

Entrepreneurship challenges in Africa have persisted over the past decade, despite significant investments by both public and private sector entities to promote grassroots entrepreneurship in the continent's emerging economies. While efforts





have been made to equip African entrepreneurs with basic tools akin to those in developed countries, access to vital resources such as financial services, markets, business networks, education, mentorship, and support systems remains inadequate, particularly in rural communities. Given the substantial number of individuals operating within the informal economy, enhancing entrepreneurship skills can foster the growth of small businesses in urban and rural areas, with a particular focus on uplifting the most disadvantaged segments of society. The Technical and Vocational Education and Training (TVET) sector requires profound transformation to address these challenges effectively.

To address these issues, the primary objective of GSMESKILL is to strengthen the connections between third countries not associated with the Programme VET system and their labor markets, thereby aligning VET programs with local employment opportunities. Key priorities of this project include the exchange of best pedagogical practices for small-scale entrepreneurship from EU countries, with a focus on promoting sustainable growth, developing innovative vocational teaching methodologies, and creating a toolbox for fostering an Entrepreneurial Mindset and skills tailored for Small Business Development in Nigeria, Kenya, and South Africa. Additionally, the delivery approaches utilized by formal Vocational Education and Training (VET) providers, such as VET institutions, schools, and training providers, often fail to cater to the training needs of the informal economy. This is because their curricula typically focus on formal qualifications and may not be flexible enough to adapt to the specific skill requirements of informal businesses or foster an entrepreneurial mindset. It is imperative that the competencies of VET teachers align with and adapt to the evolving demands of the labor market. To address these challenges, the development of a coaching guide on Innovative and digitized vocational methodologies for VET providers aims to support them not only in delivering digitized training but also in overcoming the challenges presented by the





COVID-19 era. Furthermore, an international exchange activity for teaching staff of VET providers will facilitate mutual learning and contribute to the second major objective of enhancing the capacities of VET providers and teachers. This enhancement encompasses areas such as management, governance, inclusion, quality assurance, innovation, and internationalization, thus ensuring a comprehensive approach to VET advancement.

Each year, eleven million youth are poised to enter the labor force over the next decade. Currently, 80 percent of employment lies within the low-quality informal sector. While formal wage employment is experiencing rapid growth and is projected to eventually employ more individuals, it is imperative and urgent to capitalize on the opportunity to upscale the informal sector to provide quality jobs. Vocational education often carries a stigma as a "second choice" for students who may not have succeeded in traditional academic tracks. There is a growing demand for more practical, hands-on learning experiences within vocational programs. Therefore, the third objective of our initiative is to elevate the competencies, skills, and employability potential of Vocational Education and Training (VET) learners. This will be achieved through the development of an innovative toolbox featuring tailored curricula designed to enhance vocational entrepreneurship and business skills among young entrepreneurs operating in the informal sector. Additionally, the creation of the GSMESKILL e-learning platform will serve as a central hub for knowledge dissemination and skills enhancement. By conducting evidence-based research and mapping skills and best practices, our approach will address the needs of VET providers and enhance vocational teaching methodologies. This will be instrumental in achieving the fourth objective of our initiative, which focuses on significantly improving the knowledge, technical expertise, managerial skills, and pedagogical capabilities of VET teachers and trainers. Through the implementation of these



strategies, we aim to empower both learners and educators, fostering a more robust and effective vocational education ecosystem.

Employers are currently relegated to a limited role in standard setting and quality assurance within vocational education and training (VET) systems, primarily serving as sites for training delivery rather than influencing the overall quality of the system itself. This lack of employer involvement is particularly evident in informal employment sectors, such as handicraft production by young women, where revenues remain modest.

To address this gap, it's imperative to engage the private sector in both the design and delivery of new curriculum initiatives, with a focus on companies capable of providing micro-financing for start-up ventures and offering valuable work-based experience opportunities. By actively involving employers and entrepreneurs in standard setting, quality assurance, and curriculum development processes, we can bridge the gap between the labor market and VET institutions. Another crucial objective is to facilitate the exposure of staff and policymakers to the realities of the labor market, thereby forging closer ties between vocational education and employment opportunities. Collaborating with private sector partners to conduct skills mapping exercises, develop relevant curricula, and establish a diverse, multilingual community of education professionals and entrepreneurs will ensure that VET programs align with the evolving needs of the workforce and technological advancements. Additionally, international exchange activities for teaching staff from VET providers will promote mutual learning and the adoption of participatory approaches in drafting national policy recommendations. These initiatives, combined with efforts to develop networks and facilitate exchanges of best practices between VET providers in third countries and European counterparts, will contribute to the



overarching objective of fostering collaboration and knowledge sharing across borders.

The primary objective of this report is to provide a comprehensive summary of the findings from the initial three reports generated for Work Package 2. These reports include the following: the Report on VET Green Entrepreneurial Skills for SME Development, the Regional Study on Entrepreneurial Education and Vocational Training in Sub-Saharan Africa, and the Report on Best Pedagogical Practices for Small-Scale Entrepreneurship in EU Countries. The insights gleaned from these reports will serve as invaluable contributions to the development of the toolbox for VET Entrepreneurial Mindset and Skills for Small Business Development.



2. Existing entrepreneurial policy framework and educational programmes in SSA countries

2.1 South Africa

The Green Economy Inventory of South Africa (GEISA) documents the initiatives for the country's transition to a resource-efficient and low-carbon economy. The GEISA provides useful insights on the different sectors of the green economy with significant implications for green jobs and the concomitant skills development strategy. One of the GEISA recommendations pinpoints **agriculture, food production, fisheries, and forestry as the sector with the highest potential to create direct jobs.**¹ Relevant skills development, inclusive of business management and technical skills, is also crucial to harnessing the employment creation benefits of the green transformation. Changes in the economy can affect the demand for skills in general.

The **TIPS Report on Small Business Development in the Climate Change Adaptation Space (2019)** is part of a broader initiative on small business development in South Africa's climate change strategy. The report underscores the pressing and immediate threat of climate change to South Africa's society and economy, highlighting the necessity for prompt adaptation measures. Transitioning to a low-carbon and climate-resilient model presents an opportunity for South Africa to cultivate a robust domestic sector of small, green businesses. Focused governmental support, exemplified by initiatives like those from the Government of Flanders, plays a pivotal role in nurturing the success of small businesses engaged in climate change adaptation efforts. The report features case studies of South African entrepreneurs who are driving innovation in adaptation, including AB Farms

¹ PAGE (2017), *Green Economy Inventory for South Africa: An Overview*. Pretoria. South Africa. pp.1-78



focusing on hydroponics for food security, EWEF-SusTech in sustainable chemistry, Loo Afrique providing water-saving sanitation solutions, MySmartFarm promoting sustainable farming practices, and Waste Intrigue offering green solutions for the water sector. At the same time, limited access to finance poses a significant obstacle for small businesses seeking to develop climate adaptation solutions. Fragmented or inconsistent policy frameworks can hinder innovation and growth within the climate change adaptation sector. There is a need to increase awareness about adaptation technologies and their benefits to businesses and communities.

In 2016, the Partnership for Action on Green Economy (PAGE) launched a pivotal initiative known as the **Green Economy Learning Assessment (GELA)**. This initiative is an integral part of PAGE, which is a collaborative effort involving the United Nations Environment Programme (UNEP), International Labour Organization (ILO), United Nations Development Programme (UNDP), United Nations Industrial Development Organization (UNIDO), and United Nations Institute for Training and Research (UNITAR), in conjunction with the South African Government. The primary objective of GELA is to assess and enhance capacity-building efforts related to green economy transitions. This assessment seeks to identify areas of strength, weakness, and gaps in existing learning programs and capacity-building initiatives to support countries in their transition towards sustainable, inclusive, and resilient economies. Based on the findings of the assessment, several key recommendations have been proposed to build capacity effectively: Establishment of a Green Economy Knowledge Platform, Expansion of Introductory Green Economy Courses, Development of Integrated Courses, Introduction of Courses on Reflexive Evaluation and Adaptive Management, Training of Trainers, Mainstreaming GELA Findings in Sectoral Skills Planning

The **Environmental Sector Skills Plan (ESSP)** landmark document was developed by the South African Department of Environmental Affairs (DEA) in 2010. It's the first of its kind in the country, and serves as a crucial resource for understanding the skills





landscape within the environmental sector. The Environmental Sector Skills Plan (ESSP) aims to achieve several key objectives. Firstly, it assesses the current demand and supply of environmental skills in South Africa, identifying critical and scarce skills within the sector. It also analyzes trends influencing future skills needs, such as climate change and technological advancements, to inform the development and implementation of skills development strategies for the environmental sector. The ESSP provides a comprehensive overview of various aspects, including understanding environmental employment, skills for leading and transforming the sector, critical and scarce skills in high demand, and new trends and future skills needs. For example, it identifies specific skillsets like environmental scientists, engineers, lawyers, auditors, waste management specialists, and climate change specialists. It also highlights emerging trends such as climate change adaptation, green economy initiatives, and technological advancements. The significance of the ESSP lies in its role as a foundational document for stakeholders involved in workforce development for the environmental sector, including government agencies, training providers, educational institutions, and industry bodies. By identifying skills gaps and future needs, the ESSP helps inform the creation of targeted training programs and educational initiatives to bridge the skills gap and prepare future generations for environmental challenges. However, the ESSP has limitations, including the need for updates to reflect the latest trends and skills needs in the evolving environmental sector. Additionally, being a national-level document, it may not fully address the specific skillset needs of various sub-sectors or regions within South Africa. Overall, the Environmental Sector Skills Plan is a valuable resource that has played a significant role in raising awareness about the importance of skills development for environmental sustainability in South Africa.

Semi-formal entrepreneurship education in South Africa is offered by non-profit organisations, government agencies and private companies. more practical and hands-on in nature. There is a need for a coherent, national entrepreneurship





education strategy: high unemployment levels, especially among the youth, skills deficit, low percentage of economically active people.

The **Technological Higher Education Network South Africa (THENSA)** is the representative body for technology-focused member institutions in South Africa. Plays a crucial role in shaping South Africa's technological landscape.

The **Industrial Development Corporation (IDC)** of South Africa Limited is a national development finance institution established in 1940 by the South African government. Contributed to the creation of over one million jobs since its inception. Supported the development of over 6,000 black-owned businesses through SEFA. Played a key role in the development of major industrial projects such as the Sasol Synfuels plant and the Mossel Bay Gas Project.

The **South African Institute for Entrepreneurship (SAIE)** includes experiential learning: they focus on hands-on, simulation-based learning methods to create a practical and engaging training experience, collaboration: partners with NGOs, governments, and businesses to implement training programs throughout South Africa and sustainability: their programs prioritize developing entrepreneurial skills and mindsets for long-term, sustainable business success.

The imperative for a cohesive, national entrepreneurship education strategy becomes evident in light of persistently high levels of unemployment, particularly among the youth, a pervasive skills gap, and a low percentage of economically active individuals, among other pressing concerns. Entrepreneurship education assumes paramount importance in equipping the youth with the requisite skills and mindset for navigating the future world of work. Universities, recognizing this imperative, have increasingly embraced an entrepreneurial ethos, endeavoring to offer support for budding student entrepreneurs.





Formal EEVT programs frequently lean heavily towards academic and theoretical instruction, often failing to provide meaningful exposure to real-world challenges. Furthermore, the interaction between learning objectives and teaching methodologies is hindered by limited access to resources and technology. Crucially, there is a notable deficiency in collaboration with industry and co-curricular activities, which are essential for bridging the gap between theory and practice in entrepreneurship education.

To address these shortcomings, complementary activities must be integrated to augment academic coursework and instill entrepreneurial skills effectively. By fostering closer collaboration with industry partners and incorporating practical, hands-on experiences, EEVT programs can better prepare students for the dynamic demands of the modern business landscape.

2.2 Kenya

The **Green Economy Strategy and Implementation Plan (GESIP)** serves as Kenya's roadmap for transitioning to a more sustainable and inclusive economy, aligning with the nation's Vision 2030 objectives established in 2016. This comprehensive plan outlines key areas of focus and guiding principles to achieve sustainable development in an environmentally friendly manner. The GESIP emphasizes several guiding principles, including sustainable consumption and production, equity and social inclusion, resource efficiency, the Polluter-Pays Principle, precautionary principle, and good governance. These principles underpin the plan's objectives and actions.

The plan is structured around five thematic areas:





1. Sustainable infrastructure development: This involves the environmentally sound construction and management of infrastructure, promoting renewable energy sources and green building practices.
2. Building resilience: Focuses on enhancing Kenya's ability to adapt to and mitigate climate change and other environmental challenges.
3. Sustainable natural resource management: Emphasizes responsible use and conservation of natural resources like water, forests, and land for long-term economic and environmental benefits.
4. Promoting resource efficiency: Encourages efficient use of resources such as water, energy, and materials to minimize waste generation and pollution.
5. Social inclusion and sustainable livelihoods: Aims to ensure equitable opportunities and decent jobs for all Kenyans during the transition to a green economy.

By adhering to these principles and focusing on these thematic areas, the GESIP aims to reduce Kenya's reliance on fossil fuels and unsustainable practices, foster economically and socially responsible growth, create new green jobs, enhance resilience to climate change, and contribute to achieving the Sustainable Development Goals (SDGs). The successful implementation of the GESIP requires collaboration among various stakeholders, including the government, private sector, civil society, and individuals. It is a comprehensive and ambitious plan that underscores Kenya's commitment to sustainable development and environmental stewardship.

Kenya has taken steps to promote green entrepreneurship and support SMEs in the country. One notable programme is **the Green Innovation and Entrepreneurship Hub (GreenHub)**, launched by the Ministry of Environment and Forestry, which serves as a platform for green entrepreneurs to access business development





services, training, and networking opportunities. **Kenya Climate Ventures (KCV)** is an investment management company aimed at fostering climate-smart solutions in Kenya. Their mission is to accelerate the development of businesses offering solutions that address climate change effects. KCV provides financial support to early-stage and growing businesses working in sectors like: Renewable energy, Agribusiness, Water management, Waste management, Commercial forestry. **The Kenya Climate Innovation Center (KCIC)** provides valuable support to green entrepreneurs through its incubation and acceleration programs. These programs offer targeted assistance and resources to budding entrepreneurs in the green economy sector, helping them navigate the challenges of starting and growing their businesses.² Technical support and advisory services are also available through institutions like the **Kenya Industrial Research and Development Institute (KIRDI)**.³ KIRDI assists entrepreneurs and small businesses in the green sector with product development, testing, certification, technology transfer, and commercialization.

Several educational organisations offer formal entrepreneurial programmes and tools. These programmes are typically structured and may lead to degrees or certifications in entrepreneurship. Some of the notable institutions offering formal entrepreneurial programmes include *Kenyatta University, Strathmore University, and the University of Nairobi.*

Kenya Institute of Management (KIM) is a trusted institute of management development within Kenya, Africa, and beyond. Established in 1968, it boasts a rich history of providing professional and institutional development programs to individuals and organizations. The institution has an *Entrepreneurship Development*

² About Kenya Climate Innovation Center. Retrieved from: <https://www.kenyacic.org/>

³ Kenya Industrial Research and Development Institute (KIRDI). Retrieved from: website <https://www.kirdi.go.ke/>





Programme, a 3-month course that encompasses critical aspects such as business planning, marketing, and financial management.

National polytechnics, institutes of science and technology (IST) and technical training institutes (TTI) across the country also offer short courses in entrepreneurship embedded in courses such as **carpentry, tailoring and agribusiness, targeting small enterprises owners.**

Formal entrepreneurial programmes follow a structured curriculum that covers various aspects of entrepreneurship, including business planning, finance, marketing, and innovation and are more comprehensive than their semi-formal counterparts. Semi-formal programmes in Kenya tend to focus on practical skills and may have a shorter duration. Designed to quickly equip individuals with the skills needed to start a business. Semi-formal programmes often have a higher enrolment rate compared to formal programmes due to their accessibility. Job placement rates for graduates of semi-formal programmes are relatively high, indicating the relevance of the skills taught.

Kenya has made significant progress in developing green skills for green jobs, but several areas for improvement remain. Firstly, there's a need to expand training programs, especially in rural areas and among marginalized communities, to ensure equitable access to skill development opportunities. Aligning training programs closely with industry needs and incorporating practical training can enhance their relevance and employability. Robust monitoring and evaluation mechanisms are crucial to assess program effectiveness and drive continuous improvement.

Promoting inclusivity and gender equality within training programs is essential for creating an environment that accommodates diverse perspectives and empowers society. Lifelong learning opportunities should be available to address the dynamic nature of the green economy sector, ensuring individuals remain competitive and





adaptable. Increased engagement with the private sector can enhance program relevance, provide insights into industry trends, and increase job placement opportunities. Addressing these areas will further Kenya's efforts towards sustainable development and inclusive growth.

2.3 Nigeria

The development of entrepreneurial skills holds immense significance for Nigeria's economic growth, fostering innovation, and job creation. Recognizing the pivotal role of entrepreneurship, various initiatives and programs have been implemented across the country to nurture and enhance entrepreneurial talent.

One notable initiative is the establishment of entrepreneurship development centers and institutions throughout Nigeria. These centers serve as hubs for entrepreneurial learning, offering comprehensive training programs, workshops, and mentorship opportunities to aspiring entrepreneurs. Through these initiatives, individuals are equipped with essential skills such as business planning, financial management, marketing strategies, and leadership training, empowering them to navigate the complexities of entrepreneurship successfully. In addition to formal educational institutions, various stakeholders including government agencies, non-profit organizations, and private sector entities have launched entrepreneurship support programs. These programs provide crucial resources such as funding, technical assistance, and access to networks and markets, enabling entrepreneurs to initiate and scale their ventures effectively. Moreover, the Nigerian government has introduced policies and frameworks aimed at promoting entrepreneurship. These include tax incentives for small businesses, streamlined business registration processes, and the establishment of entrepreneurship development funds. Such initiatives create an enabling environment for entrepreneurial endeavors, facilitating business growth and sustainability. To complement these efforts, entrepreneurship





competitions, startup incubators, and innovation hubs have emerged in major cities across Nigeria. These platforms serve as catalysts for entrepreneurship, fostering a culture of innovation and encouraging young people to pursue their business ideas with confidence and determination.

Overall, the development of entrepreneurial skills is instrumental in creating a vibrant and sustainable economy in Nigeria. By investing in entrepreneurship education, mentorship, and support systems, the country can harness the potential of its youth population and drive economic development through innovation, creativity, and job creation.





3. Addressing Skills Shortages in Sub-Saharan Africa: A Focus on Technical and Vocational Education and Training

3.1 Findings on of TVET green entrepreneurial skills for SMEs

This research study focused primarily on addressing the critical issue of TVET green entrepreneurial skills for SMEs, with a specific emphasis on the skills demand necessary for fostering a green economy in three Sub-Saharan African (SSA) countries. The study aimed to conduct a regional assessment in South Africa, Kenya, and Nigeria to identify essential skills that would support innovation, design-thinking, and the adoption of sustainable practices within SMEs. Key areas covered in the study included entrepreneurial skills essential for a green economy, barriers hindering the development of green skills, the pivotal role of SMEs and TVET institutions in driving the transition to a green economy, as well as the enablers and focal points of a sustainable, environmentally conscious economy. To gather comprehensive data, the study employed two methods of data collection: secondary research of existing studies and primary field research. A structured questionnaire was utilized to survey SMEs and TVET institutions, with data collection facilitated through platforms like Google Forms. This approach allowed for a thorough examination of the current landscape of green skills demand and the challenges and opportunities facing SMEs and TVET institutions in embracing sustainability practices. Through this research, valuable insights were gained into the specific skills required for SMEs to thrive in a green economy, as well as the strategies and interventions needed to overcome barriers and promote sustainable development within the business community.



The structured questionnaire was designed to capture respondents' perceptions of skills supply and demand within the context of technical and vocational education and training (TVET). A total of 64 respondents, representing a diverse range of TVET institutions and small and medium-sized enterprises (SMEs) across the three Sub-Saharan African (SSA) countries, completed the questionnaire. Notably, the majority (50.0%) of respondents were from private organizations, with a smaller portion (37.5%) from public organizations. Many of these organizations (31.7%) primarily focused on education, training, and development, with some institutions enrolling over 1000 students. The respondents represented various decision-making roles within their organizations, including chief executive officers, managing directors, heads of administration, and heads of departments. It's worth highlighting that most respondents possessed a high level of education, ranging from senior certificates to doctoral degrees in fields such as management, social sciences, education, and engineering. As a result, the implementation of curriculum transformation, interdisciplinary approaches, and sustainability initiatives should be feasible. However, despite the respondents' educational backgrounds, the findings revealed inconsistencies in green economy planning, indicating the need for more consultation and collaboration among stakeholders to address these gaps effectively.

Recognizing the pivotal role of the SME sector, the development of entrepreneurial green skills within SMEs is paramount for fostering sustainable growth and innovation. Initiatives such as WorldSkills Vision 2025 have identified strategic goals aimed at cultivating ambition and opportunity in vocational education and training (VET) for young people, employers, and societies. Additionally, these initiatives seek to enhance the quality of VET provision by strengthening connections to labor markets, employers, and economies, while also building the organizational capability of global entities like WorldSkills and its members through skills development.

In the context of the 21st century, skills are fundamental for supporting enterprises in their economic recovery and future competitiveness, regardless of their sector or





size. Educational institutions, including technical and vocational education and training (TVET) institutions, play a catalytic role in advancing and embedding green entrepreneurial skills within SMEs. By providing relevant training, fostering innovation, and promoting sustainability practices, these institutions contribute significantly to the development of a skilled workforce capable of driving green economic growth and resilience. The most important results are summarised on the table below:

Table 1: Important skills for a greener society

VERY IMPORTANT OR IMPORTANT SKILLS	
Essential green skills for SMEs (21 st Century Skills)	<ul style="list-style-type: none"> Problem Solving Critical thinking Communication Creativity Collaboration Lifelong learning Self-Direction Flexibility Cultural Awareness Ethical Awareness
Knowledge areas in a green economy	<ul style="list-style-type: none"> Environmental accountability Waste management Conservation Recycling Renewable energy
Green skills index	<ul style="list-style-type: none"> Monitoring skills Operations management skills



<p>Green key skills for a green economy</p>	<p>Systems skills Environmental justice skills Agricultural skills Green engineering and technical skills Architectural and planning skills Science skills</p>
<p>Entrepreneurial green skills for SMEs</p>	<p>Reasoning, problem-solving and ideation Resilience, stress tolerance and flexibility Technology design and programming Technology use, monitoring and control Leadership and social influence Creativity, originality and tolerance Critical thinking and analysis Complex problem solving Active learning and learning strategies Analytical thinking and innovation</p>
<p>Priority skills in demand for SMEs in an emerging green economy such</p>	<p>Efficient use of energy and other resources to promote sustainable manufacturing operations Integrating environmental sustainability programmes that reduce waste, conserve energy, and use replacements for hazardous substance Understanding the latest standards regarding Environment and Social Governance (ESG) Undertaking ESG research activities</p>

Table 2: Focus areas of green economy programs





Focus areas of green economy programmes

- Environmental sustainability
- Sustainable consumption and production
- Water management
- Agriculture, food production and forestry
- Sustainable waste management practices
- Resources conservation and management
- Clean energy and energy efficiency
- Sustainable transport and infrastructure
- Green building and built environment

The findings of this study underscore the critical importance of 21st Century Skills, encompassing both Core skills and Contextual skills, as essential components of green skills for SMEs. Through comprehensive analysis, various knowledge areas, group work tasks, and technical and analytical components crucial for green skills development within SMEs were identified. Moreover, the study confirmed a consensus definition of entrepreneurial green skills, which encompasses the knowledge, abilities, values, and attitudes necessary to thrive in, contribute to, and sustain a sustainable and resource-efficient society. This definition encapsulates the technical skills, knowledge, values, and attitudes indispensable for the workforce to drive sustainable social, economic, and environmental outcomes across business, industry, and the broader community.

The study uncovered significant skills shortages within the burgeoning SME sector. However, the extent to which these skills proliferate among SMEs in SSA countries varies, highlighting a pressing need for skills development to foster a greener and more inclusive society. The findings affirmed the critical role of 21st Century core skills, including technical acumen, information management, communication,



collaboration, creativity, critical thinking, and problem-solving, in driving innovation and competitiveness. Furthermore, all listed knowledge areas, such as environmental accountability, waste management, conservation, recycling, and renewable energy, were deemed essential for green skills development. Similarly, the study revealed the importance of all groups of work tasks and emphasized the indispensability of high-level analytical and technical skills in fostering green skills development. Respondents rated all green skills as 'good', underscoring their significance in meeting the demands of the future economy. Additionally, the study highlighted that all listed priority skills for the future economy and those identified as essential entrepreneurial skills for a green economy are highly valued. Moreover, respondents identified collaboration, business strategy, design thinking, communication, and networking as the most relevant skills for participation in the green economy, while analytical thinking, innovation, creativity, originality, initiative, leadership, and social influence were also deemed crucial. The two components for green skills development, namely high-level analytical skills and high-level technical skills are important. These findings underscore the multifaceted nature of green skills and the diverse skill sets required for effective participation in the sustainable development agenda.

There was agreement that all the listed entities, including big business, SMEs, schools, and universities, play an important role in developing an appropriately skilled workforce and that government and NGOs are also important players, the former for policy guidelines. All the listed areas of green economy programmes for the development of green jobs were found important; and all the listed nine enablers for the implementation of the green economy, including partnership, innovation, science, and technology and regulatory frameworks were deemed critically important. The role that SMEs can play in the development of the green economy was seen as vitally important with the reasons given including helping to develop a green economy, job creation and poverty alleviation and skills development.



The study highlights several significant barriers to the development of green skills, all of which were deemed important by respondents. While Vocational Education and Training (VET) for green skills among SMEs in the surveyed countries is generally perceived as inadequate, the level of awareness of green skills among education and training practitioners remains unclear. Respondents rated the quality of green skills development and capacities for SMEs as neither poor nor good, suggesting uncertainty about its effectiveness. However, the development and teaching of green skills through VET are generally considered appropriate and meeting expected standards, though opinions on curriculum satisfaction were divided. Various initiatives supporting the green economy were identified, including partnerships with eco-friendly companies for recycling and waste management in Nigeria, and engagement in activities like pest scouting and biogas plant technology adoption in Kenya. Overall, the study findings align with existing literature highlighting a shortage of skills development and human capital in Africa, underscoring the urgent need for enhanced efforts in this area.

Key findings summarized:

1. In Kenya, there's a need to prioritize education for better green skills development, while encouraging increased participation from the agricultural, fishing, and forestry sectors in South Africa and Nigeria.
2. Nigeria should focus on encouraging big businesses to participate in green economy development.
3. Leadership skills enhancement is needed in Nigeria, while communication and collaboration skills need encouragement in both South Africa and Kenya.
4. Improving the quality of Vocational Education and Training (VET) for green skills among SMEs is crucial across all countries, particularly in South Africa and Nigeria.



5. Each country's approach to environmental skills planning and provision for the green economy requires improvement.
6. Increasing awareness of green skills among educators and practitioners is essential in Nigeria and Kenya.
7. Addressing the quality of development of green skills and capacities for SMEs is important, especially in South Africa and Nigeria.
8. Attention should be given to the VET curriculum, particularly in South Africa and Kenya.

Additionally, there's a clear correlation between green skills and entrepreneurship. Embedding sustainability and resilience paradigms within Entrepreneurship Education and Vocational Training (EEVT), utilizing Education for Sustainable Development (ESD) as a framework, can facilitate this integration. The demand for green skills, driven by environmental regulations, presents an opportunity to educate and train entrepreneurs to adopt ecologically sensitive and resilient practices in resource management.

3.2 Findings on TVET educational programmes and tools

The secondary analysis of existing Entrepreneurship Education and Vocational Training (EEVT) programs and tools in Sub-Saharan African (SSA) countries involved collecting data through internet research on organizations offering formal and semi-formal programs. Additionally, field research was conducted through focus group interviews to gather more detailed insights and explanations from a small sample of participants.

The structured schedule for the focus group interviews consisted of four sections:

1. Perceptions of existing EEVT and its future development, based on 11 propositions developed by Block et al. (2023).





2. Evaluation of whether EEVT adequately addresses access to resources, competitiveness, green entrepreneurship, and Education for Sustainable Development (ESD).
3. Simulation analysis to assess the impact of EEVT in a green economy.
4. SWOT analysis of the efficacy of EEVT tools and content.

A total of 59 participants took part in the focus groups across South Africa, Nigeria, and Kenya. The focus groups critically assessed whether the objectives of Entrepreneurship Education and Vocational Training (EEVT) were being met. Overall, they expressed dissatisfaction, highlighting the failure to achieve learning objectives and goals. They identified several key issues contributing to this ineffectiveness, including the gap between theory and practice, the need for mainstreaming entrepreneurship education, and the necessity of shifting mindsets from government to the private sector. Moreover, the groups emphasized the importance of access to resources, infrastructure, technology, and curriculum design and content for EEVT to be effective and aligned with its purpose. Participants also noted that while relevant skills acquisition was expected, it had not been fully realized. The quality of learning and teaching was scrutinized using the 11 propositions on the future of entrepreneurship education by Block et al. Although there were slight variations in the data across different focus groups, there was a consensus that goals, target groups, content, the role of educators, and access to resources were deficient to some extent.

The focus group evaluated the effectiveness of Entrepreneurship Education and Vocational Training (EEVT) in achieving its goals. They concluded that EEVT is not effective, with learning objectives and goals remaining unachieved. They identified a gap between theory and practice, emphasized the need to mainstream entrepreneurship education, and highlighted the importance of shifting mindsets from



government to the private sector. Additionally, they noted that the implementation of entrepreneurship education within Technical and Vocational Education and Training (TVET) institutions is lacking. This failure to achieve learning objectives was attributed to a gap between strategic vision and execution or between policy and practice. Critical thinking was identified as a key goal of entrepreneurship education, empowering students to act as entrepreneurs even if they pursue different careers. The group advocated for prioritizing entrepreneurship education rather than relegating it to a secondary role, rejecting the perspective that it serves merely as an alternative to employment, which they argued devalues its purpose. The focus groups highlighted critical thinking and entrepreneurial behavior as crucial outcomes of Entrepreneurship Education and Vocational Training (EEVT). They emphasized the need for a curriculum review to better align entrepreneurship education with real-world experiences. Additionally, the groups identified access to resources, infrastructure, technology, and well-designed curriculum content as essential elements for effective EEVT. Networking and collaboration initiatives aimed at connecting students with industry professionals and small business owners were recommended to enhance entrepreneurship education. The groups also stressed the importance of reskilling and upskilling educators, as the current educational management system lacks entrepreneurial skills.

More specifically in South Africa, the consensus view of the group highlighted that the goals of entrepreneurship education were not being achieved. One key reason cited was the perceived disconnection between theory and practice. Additionally, EEVT was criticized for being treated as a secondary matter rather than being prioritized. The mode of delivery of entrepreneurship education was also scrutinized, with concerns that it failed to instill an entrepreneurial mindset due to its secondary status in the curriculum. The group emphasized the need for a practical curriculum that effectively embeds entrepreneurial behavior and fosters critical thinking, communication, and problem-solving skills. There was a consensus that existing





entrepreneurship education falls short in developing these competencies, primarily due to its emphasis on a "starting your own business" approach. Participants stressed the importance of involving all stakeholders, particularly industry, in curriculum design to ensure relevance. Furthermore, the group expressed negative feedback regarding the fitness for purpose of EEVT, particularly in terms of resources, technology, competitive advantage, green entrepreneurship, and Education for Sustainable Development (ESD). They highlighted a gap between classroom teachings and advancements in industries such as automotive technology, underscoring the need for curriculum alignment. Critiques were also directed towards lecturing staff, with concerns raised about their lack of experience in entrepreneurship and small business. Participants noted that lecturers often transition directly from learning institutions to teaching entrepreneurship programs without practical business experience.

In Nigeria, several participants underscored the significant gap between the content taught in entrepreneurship education and the actual demands of the Nigerian job market. There was a unanimous agreement on the urgent need for modernization and the incorporation of technology and innovation into the curriculum. Participants frequently cited the curriculum, teaching methods, and feedback mechanisms, indicating a widespread belief in the necessity for revitalization, modernization, and a more dynamic approach to delivering EEVT. Another prevalent theme was the importance of "Resources." Whether referring to technology, materials, financial support, or infrastructure, participants consistently highlighted the critical role of resources in shaping the quality and effectiveness of EEVT. The recurring mentions of an outdated curriculum and traditional teaching methods suggest a shared sentiment that EEVT is falling behind global trends and local industry requirements. Moreover, the emphasis on "Resources" extends beyond tangible assets; it reflects a broader discussion on the need for investments in education, the challenges



institutions face in keeping up with technological advancements, and the disparities in resource allocation between urban and rural EEVT centers.

In Kenya, the group engaged in a discussion about the interdisciplinary nature of entrepreneurship education and recognized its broad scope, covering various skills and knowledge areas. Participants highlighted the importance of skills such as creativity, problem-solving, communication, leadership, and innovation, noting their relevance across multiple fields. The group unanimously rejected the notion that entrepreneurship education is solely for business students, emphasizing its applicability to individuals from diverse academic backgrounds and career paths.

Entrepreneurship education encompasses a wide array of skills and knowledge areas that extend beyond traditional business settings. These skills are recognized as valuable assets across various sectors, including science, technology, healthcare, education, and the arts. By fostering entrepreneurial skills, individuals can contribute new ideas and innovative solutions to their respective fields, driving progress and advancement across different domains. It was acknowledged that there is a deliberate effort to integrate Environmental Education (EE) and Entrepreneurial and Vocational Training (EVT) to cultivate environmentally conscious graduates equipped with valuable skills for the green economy.

All 11 participants unanimously agreed that courses offering EEVT must incorporate real-world experience. This approach, they concurred, is essential as it allows for practical skills development and ensures industry relevance. However, the group also discussed at length the resource-intensive nature of this integration, highlighting the need for investments in time, funding, logistical coordination, and real-world experiences. The larger focus group felt that collaborations with entrepreneurs and industry experts can complement the expertise of lecturing staff by bringing real-world insights to the classroom.





TVETs are increasingly integrating contemporary learning tools and technologies to enrich the learning experience, a sentiment strongly supported by the feedback from the focus group. However, the engagement between small business owners and entrepreneurs with TVETs was perceived as being in the formative stages and not particularly robust at present. Many TVET institutions grapple with resource constraints, including funding and facilities, which hinder their capacity to meet the demand for entrepreneurial training effectively. In response to the question regarding the effectiveness of the educational management system in equipping individuals with entrepreneurial skills, knowledge, and values, participants concurred that while management data exists, it is often fragmented. There was consensus on the need for centralization of this data to facilitate efficient and scalable content delivery, thereby ensuring that educational materials reach a broader audience. Given the rapid technological advancements, the group underscored the necessity for regular updates to such a system to maintain its relevance over time.



4. Best practices on pedagogical approaches

4.1 Entrecomp framework

In recent years, entrepreneurship education (EE) has gained prominence as a key focus of policy development across European nations. At the European level, EE is integral to the new European Skills Agenda, organised around four pillars: collective action, skills alignment with job requirements, supporting lifelong learning, and investments in skills. Within these pillars, 12 actions are structured, including initiatives aimed at fostering entrepreneurial and transversal skills, crucial for supporting the twin transition (green and digital).

ENTRECOMP, short for "Entrepreneurship Competence," is a framework developed by the European Commission to outline the key competences necessary for entrepreneurial behavior and mindset. It's designed to support individuals in developing their entrepreneurial potential and fostering entrepreneurship in various contexts, including education, training, and business.

Any meaningful participation in the greener society implies that all citizens must be imbued with competences for personal development, social inclusion, active citizenship, and employment. According to the Entrecomp framework, these competences include **literacy, numeracy, science, and foreign languages, as well as more transversal skills such as digital competence, entrepreneurship competence, critical thinking, problem solving or learning to learn.**

The ENTRECOMP framework identifies 15 key competences across three main areas: Idea Generation, Resource Mobilization, and Building Relationships. Here's a breakdown of each competence within the ENTRECOMP framework:



Idea Generation

1. **Spotting Opportunities:** Identifying potential opportunities for entrepreneurial ventures or initiatives.
2. **Creativity:** Generating original and innovative ideas that have the potential for economic or social value creation.
3. **Vision:** Having a clear and ambitious vision for the future and the ability to articulate and pursue it.

Resource Mobilization:

4. **Financial and Economic Literacy:** Understanding financial and economic concepts relevant to entrepreneurship, such as budgeting, pricing, and profitability.
5. **Mobilizing Others:** Engaging and inspiring others to support and contribute to entrepreneurial endeavors.
6. **Taking the Initiative:** Demonstrating proactive behavior and seizing opportunities to initiate and lead entrepreneurial activities.

Building Relationships:

7. **Persuasion and Influencing:** Convincing others of the value of entrepreneurial ideas and gaining support or buy-in.
8. **Networking:** Establishing and maintaining relationships with diverse stakeholders to access resources, opportunities, and support.
9. **Teamwork:** Collaborating effectively with others to achieve common goals and objectives.

Additional Competences:

10. **Learning Through Experience:** Reflecting on entrepreneurial experiences and learning from successes and failures.



11. **Self-awareness and Self-efficacy:** Understanding one's strengths, weaknesses, and capabilities, and having confidence in one's ability to succeed.
12. **Coping with Uncertainty, Ambiguity, and Risk:** Dealing effectively with the uncertainties and risks inherent in entrepreneurial endeavors.
13. **Motivation and Perseverance:** Maintaining motivation and resilience in the face of challenges and setbacks.
14. **Mobilizing Resources:** Accessing and deploying resources effectively to implement entrepreneurial ideas.
15. **Cultural and Civic Awareness:** Recognizing and respecting cultural diversity and societal values, and understanding the role of entrepreneurship in societal development.

These competences provide a comprehensive framework for understanding the skills, knowledge, and attitudes necessary for successful entrepreneurship. They are intended to guide the development of entrepreneurial education, training, and support programs, as well as to inform policy initiatives aimed at promoting entrepreneurship and innovation. Any meaningful participation in the greener society implies that all citizens must be imbued with competences for personal development, social inclusion, active citizenship, and employment.

Green entrepreneurship refers to a special subset of entrepreneurship that aims to create and implement solutions to environmental problems and to promote social change so that the environment is not harmed.⁴

The definition of sustainable entrepreneurship emphasises that it goes beyond the initiation of new sustainable ventures, but also involves the transformation and adept

⁴ Saari U.A. & Joensuu-Salo, S. (2019). *Green Entrepreneurship*. In: Leal Filho W., Azul A., Brandli L., Özuyar P. & Wall T. (eds) Responsible Consumption and Production. Encyclopedia of the UN Sustainable Development Goals. Springer, Cham., p.3.

management of existing businesses to enhance their sustainability. Sustainable entrepreneurship instructors therefore teach people how to successfully use current resources to achieve sustainability growth while not risking future generations' ability to access resources (Hermes and Rimanoczy, 2018). To provide sustainable entrepreneurship education modules, educators often integrate themes related to sustainability with the principles of entrepreneurship.

Entrepreneurship education is, simply defined, a systematic, conscious, and goal-oriented process, through which non-entrepreneur individuals who has the necessary potential are creatively trained. In fact, entrepreneurship education is an activity used to transfer knowledge and information required for entrepreneurship and leads to increase in, improvement, and development of non-entrepreneurs' attitudes, skills, and abilities. Moreover, it forms the students' beliefs and values for creating an entrepreneurship culture⁵.

4.2 Pedagogical practices to facilitate learning and development

Training in entrepreneurship is an activity utilised to communicate knowledge and information required for setting and running businesses. In addition, it enhances, improves, and develops non-entrepreneurs' attitudes, skills, and abilities. Training in entrepreneurship affects the level of trends, activities, and entrepreneurial passion, as a result of which setting and developing new businesses in the economy is also affected. With regard to entrepreneurship teaching methods, no certain method is offered. An overview of the literature on entrepreneurship shows the change pattern

⁵ Khanijazni J. The Impact of entrepreneurship education on the promotion of entrepreneurial culture in universities. *Journal of New Economy and Commerce*. 2009; 3(10): 242–65.



from conventional teaching of entrepreneurship to modern methods based on “action learning”. Entrepreneurship education is, simply defined, a systematic, conscious, and goal-oriented process, through which non-entrepreneur individuals who have the necessary potential are creatively trained. In fact, entrepreneurship education is an activity used to transfer knowledge and information required for entrepreneurship and leads to increase in, improvement, and development of non-entrepreneurs’ attitudes, skills, and abilities. Moreover, it forms the students’ beliefs and values for creating an entrepreneurship culture⁶.

We could consider three teaching-learning methods (direct, interactive, and practical-operational) as the main teaching methods, that include several elements.

Table 3: Elements of teaching-learning methods

1.	Direct teaching-learning methods:	inviting guest entrepreneurs, mentoring, official speech-seminars, video watching and recording, training in extracurricular activities, training in specialised lessons, small businesses mentoring, entrepreneurship tutoring.
2.	Interactive teaching-learning methods:	process-oriented learning, learning from mistakes, interviewing entrepreneurs, bilateral learning, group discussion, networking, discussion, problem-oriented learning, active learning.
3.	Practical-operational teaching-learning methods:	role-playing, training workshops, site visiting, class practice, research projects, internship, business planning, starting business, studying

⁶ Khanijazni J. The Impact of entrepreneurship education on the promotion of entrepreneurial culture in universities. Journal of New Economy and Commerce. 2009; 3(10): 242–65.



		nature, investment projects, practical experience.
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Source: Keramat Esmi, Rahmatallah Marzoughi, Jafar Torkzadeh, *Teaching learning methods of an entrepreneurship curriculum, Journal of Advances in Medical Education & Professionalism, October 2015*

Some of the most popular teaching-learning approaches aimed at sustainable entrepreneurship are collaborative learning, experiential learning and problem-based learning⁷:

- **Collaborative learning:**

This approach emphasises collaboration and cooperation among learners. It involves group activities, discussions, and projects where learners work together to solve problems, share ideas, and learn from one another. Collaborative learning fosters teamwork, communication skills, and the ability to work effectively in diverse groups.

- **Experiential Learning:**

Encourage hands-on learning experiences, such as workshops, simulations, or internships, where entrepreneurs can apply their knowledge in real-world situations. Learning by doing is often more effective for skills development.

This approach emphasises hands-on experiences and active engagement in real-world situations. Learners are encouraged to participate in practical exercises, simulations, internships, or projects that allow them to apply their knowledge and skills in authentic contexts.

- **Problem-based learning:**

⁷ Ida Matilde Fauske, Harrshinny Vallipuram, benedict-Elise Foldnes, Elli Verhust, Karin Wigger and Sólvi Solvoll: *Teaching sustainable entrepreneurship: Learning approaches, pedagogical methods and teaching tools*, May 2022.





Use real-world problems or case studies relevant to small-scale entrepreneurship as the foundation for learning. This approach fosters critical thinking and practical problem-solving skills. It centres around authentic and complex problems that learners need to solve. It involves presenting learners with real-world problems, allowing them to analyse, propose solutions, and learn new concepts and skills in the process. Problem-based learning promotes critical thinking, problem-solving, and the application of knowledge in practical situations.

Table 4: Other relevant teaching and learning approaches for sustainable entrepreneurship education

Active learning	Students are engaged through the course material so that they acquire learning actively by using methods like case studies and discussion.
Learner-centred learning	Students learn to solve problems independently.
Reflective learning	Students increase their competencies through reflection on their learning experience.
Interdisciplinary learning	Encourage entrepreneurs to explore multiple disciplines, including business management, sustainability, and digital skills, to develop a holistic understanding of their entrepreneurial endeavours.
Transformative learning	Learn new ways of thinking and creating different perspectives of the social world.
Place-based learning	Students learn about a local place, or a local heritage, and it is used in the curriculum. It connects communities with learning communities.
Problem analysis	shifting focus from problem solving to analysing problems
Service learning	Linking the classroom with the outside world – students gain academic knowledge while engaging in community service.
Inquiry-based learning	Learners are encouraged to ask questions, investigate topics of interest, and seek answers through research and exploration. It



	promotes critical thinking, problem-solving, and independent learning by stimulating curiosity and self-directed inquiry.
Project-based learning	Learners are working on extended projects that address real-world challenges or tasks. Learners engage in hands-on activities, research, planning, and implementation of projects that culminate in a final product or outcome. It encourages collaboration, self-directed learning, and the development of interdisciplinary skills.
Flipped classroom	Learners engage with instructional materials, such as pre-recorded lectures or readings, outside of the classroom. Classroom time is then dedicated to discussions, activities, and application of knowledge with the guidance of the instructor. The flipped classroom approach allows for more interactive and personalised learning experiences.
Mentorship and coaching	Facilitate access to experienced mentors and coaches who can provide guidance, share insights, and offer personalised support to small-scale entrepreneurs.
Peer learning	Create opportunities for small-scale entrepreneurs to learn from and collaborate with their peers. Peer networks can provide valuable insights and support.

To complement the desk research and best practice examples, 16 companies across six countries were interviewed, connecting theoretical insights with practical realities in small enterprises. Respondents were chosen based on professions identified in the previous SSA report on VET green entrepreneurial skills, emphasising potential for green growth. Our carefully designed interview questions aimed to capture a comprehensive view of each entrepreneur's background, training experiences, available resources, and the broader ecosystem shaping their journey in sustainable entrepreneurship. This approach unveils both individual narratives and the contextual factors influencing their endeavours



Education for Sustainable Development (ESD) pedagogy

Green skills development requires a specific pedagogy that encompasses a relevant and responsive learning and teaching framework. Pavlova (2019) conceptualised an Education for Sustainable Development (ESD) pedagogy relevant to TVETs. Based on a pilot study and literature review, the ESD pedagogy is a Problem-Oriented and Project-Based Learning Plus Model (POPBL) aimed at effective delivery of the green generic module to enhance generic green skills among TVET students: “Thus the model ... has the potential to contribute to both the theoretical and practical developments related to the use of ESD pedagogy for developing generic green skills in TVET.”

Some key features of ESD pedagogy relevant to TVET:

- Focus on real-world application: ESD pedagogy emphasizes practical application of knowledge and skills. TVET can integrate this by incorporating case studies, project-based learning, and industry collaboration into its curriculum.
- Interdisciplinary approach: Sustainability issues are complex and require understanding from various perspectives. ESD pedagogy encourages interdisciplinary learning, integrating environmental, social, and economic aspects into technical and vocational training.
- Critical thinking and problem-solving: Learners need to be able to critically analyze sustainability challenges and develop innovative solutions. This can be fostered through discussions, debates, and problem-solving activities in the TVET classroom.
- Values-driven education: ESD pedagogy aims to cultivate values such as respect for the environment, social responsibility, and intergenerational equity. This can be achieved through reflective learning practices, service learning, and community engagement.



ESD pedagogy holds immense potential for transforming TVET and contributing to a more sustainable future. By overcoming the challenges and embracing the opportunities, TVET institutions can empower their graduates to become responsible and active participants in creating a better world for generations to come.

4.3 Examples of best practices for effective pedagogical approaches

Table 5: SMEs best practices

Title	Components	Benefits and challenges	Practice adaptability
AGRITURISM			
Eleonas Hotel	<p>Hotel “Eleonas” is an eco-conscious agri-tourist small hotel in an ideal position on a hill in Evoia, Greece, surrounded by an olive grove. It has its own restaurant and organic farm. Accommodation is combined with activities that bring customers closer to nature and create environmental awareness such as guided tours for organic farming methods, olive oil tasting, making handmade paper from recycled scraps, weaving with rags. The guests have the opportunity to learn about environmental-friendly</p>	<p>Agritourism represents an authentic form of rural tourism as it allows tourists to live a real and authentic rural experience on a working farm, participating in agrifood activities (e.g., harvesting, feeding, preserves preparation) being in contact with animals and nature and enjoying the food produced and cooked on the farm. The process of applying for the state fund came with a lot</p>	<p>This practice can be adapted to SMEs in rural areas and help increase employment and local activities as well as attract tourism. The use of a more digitalised approach with applications to manage hotel bookings, payments and orders is important for the smooth development of the business. The creation of a network of all agritourist enterprises through a mapping of all the activities offered has been highlighted to</p>





	<p>techniques such as recycling, energy savings, environmentally friendly cleaning products. The hotel has an organic agrotourism farm where olive trees are cultivated and a vegetable garden.</p>	<p>of bureaucracy and no requirement to attend training on how to build a business such as on how to develop a marketing plan for the business.</p>	<p>promote operations of agritourist SMEs. State funding or other financial sources to help setting up this kind of business is also important.</p>
<p>NISI Polychoros</p>	<p>NISI Polychoros is a venue where people from Greece and all over the world can come together and express themselves, create, play and connect with Nature. It has a glamping site for accommodation, and it is also a sports, cultural and social event with a playground in a fantastic environment by the sea. The space is also appropriate to organise educational programmes and environmental events and accessible to people with disabilities.</p> <p>It uses eco-friendly building materials and construction methods when designing their lodging alternatives. It has a Centre for Experiential Education that offers free seminars for everyone: making natural products, arts camp, how to reuse of waste material, soft skills training and natural building courses. The aim of the centre is to share knowledge and skills across different people and cultures in a sustainable way.</p>	<p>Sustainable glamping acts as a role model for ethical travel and inspires visitors to make environmentally friendly decisions while visiting. The sustainable glamping experience in NISI offers educational programs and nature-based activities to enhance guests' understanding and appreciation of the local environment. The engagement with the local community supports and re-activates the local rural area.</p>	<p>This practice can be implemented in rural areas that provide access to nature-based activities and synergies with local organisations. For the future, the creation of a cooperative of camping sites that organise environmental-friendly activities and incorporate green practices offers the opportunity for knowledge exchange. Synergies of this type of enterprise with VET organisations can develop even further the business and link vocational training with the labour market.</p>



<p>Figurativ Bistro & Shop</p>	<p>Situated in Rovinj, Croatia, presents a distinctive local wine and food concept. Offering guided tours through the garden of the owner’s family, the establishment concludes the experience with selected local wine and food prepared in-house. Figurativ operates at the intersection of the gastronomy and tourism industry. The practice aligns with broader industry trends emphasising sustainability and authentic experiences. Figurativ’s practices foster skill development by offering experiences with a focus on local products and plants, and culinary traditions. Sustainability is embedded in the kilometer zero sourcing, waste reduction strategies, the propagation of local Mediterranean vegetation, and the desire to resist the polluting, unsustainable touristic business model, by offering a sustainable alternative of slow tourism.</p>	<p>Environmental Sustainability: The practice of using kilometer zero products and reducing waste through thoughtful sourcing contributes to environmental sustainability. This aligns with the growing demand for businesses that prioritise eco-friendly practices and that positively impact the environment.</p> <p>Cultural Immersion: Figurativ’s approach not only provides gastronomic experiences but also immerses visitors in local environmental culture.</p> <p>Skill Development: The emphasis on staff education and external training with experts fosters skill development among the workforce.</p> <p>Educational Outreach: Educating various stakeholders, including clients, local communities, and commercial partners, about sustainable values related to propagation of vegetation can be challenging.</p>	<p>Strategic integration of digital elements with Figurativ’s current educational practices and values, can lead Figurativ and businesses in the sector of food and agriculture similar to it, with the same purpose, to grow, enhancing accessibility, reaching a broader audience, growing through continuous learning, updating and training with different modalities, and staying innovative in the evolving landscape of digital education and sustainable entrepreneurship.</p>
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ENVIRONMENTAL EDUCATION





<p>InnoOmnia</p>	<p>Omnia, initially established to address the diverse VET needs across three cities in Finland, has evolved into a leading force in the development of TVET. It extends its support to diverse sectors, including the service industry and arts and crafts micro-companies. This unique living lab, situated on a VET campus, marks a departure from business incubator services primarily tried on university campuses. In this dynamic space, everyone assumes the dual role of a teacher and a learner. Participants collaborate, engaging in novel forms of teamwork that blend work-based, ICT-based, and social learning. The sharing of best practices is pivotal, marking a departure from traditional classroom silos. Education extends beyond confined spaces, embedding students' studies in solving real-life problems for entrepreneurs and contributing to genuine innovations.</p>	<p>Establishing the unit as an entrepreneurial living lab has yielded numerous benefits. Innovations and eLearning are now intricately aligned with the demands of local employers, often serving multiple purposes. However, this shift from traditional silos to a co-learning environment has not been without challenges. The transformation has brought to light issues related to community borders, operational culture, structures, and leadership.</p>	<p>The practice already uses many innovative tools and approaches as well as digital tools for the learning process. It would not be difficult to focus it on different areas of entrepreneurial operation (sustainable tourism, agrifood production, etc.).</p>
<p>Skink</p>	<p>Skink is a Micro-Enterprise, that operates as a plant shop, lab, didactic farm, and plant nursery, serving as a noteworthy example of effective didactic methods integrated into the business structure, solid international networking, and staff educational development within the context of the local environment. Beside being a plant nursery and shop, Skink is also an educational centre, which implements</p>	<p>Comprehensive Skill Development: Skink's model offers a holistic approach, fostering diverse skills crucial for sustainable entrepreneurship in agriculture and horticulture. Innovation and Technology Integration: The emphasis on research and technology projects positions</p>	<p>Skink's practice shows promising adaptability to digitised education, innovation, and vocational teaching methodologies. The integration of technology development projects and the emphasis on research-oriented approaches provide a foundation for a seamless transition to digital platforms by developing a</p>



structured workshops that combine theoretical introductory initial segments to subsequent practical activities. Main areas of focus are: trimming, grafting, figs, chestnuts, strawberries, olive trees, ornamental plants, aromatic plants, and permanent crops.

entrepreneurs to stay innovative and integrate modern agricultural technologies into their practices.

Market Differentiation: Entrepreneurs benefit from the specialised knowledge imparted by Skink. Being a continuously improving and learning oriented business, Skink is capable of adapting and innovating, while maintaining its traditions, standing out with respect to similar businesses.

Identified challenges or obstacles that might be encountered during implementation:

Resource Intensity: Skink's comprehensive approach may require substantial resources, posing a challenge for small-scale entrepreneurs with limited budgets.

Technological Barriers and Inexperience: Entrepreneurs may face challenges in adopting advanced technologies for developing educational or training programs within their own business

supply of workshops, trainings, consultancies and programs in hybrid modalities.





<p>PCAI</p>	<p>PCAI is a cultural organisation focusing on increasing environmental awareness through an annual programme of commissions, contemporary art exhibitions, artist residencies, performances conferences, and workshops. The organisation invites artists to reflect upon the anthropocene’s impact on our planet and investigate waste sources, sustainable and circular practices and new environmental itineraries while retaining their absolute freedom of expression and critical inquiry. The exhibitions are organised in known museums of modern art and in public spaces. The ultimate goal is to increase environmental awareness in Greece and abroad. For this reason, art exhibitions are accompanied by educational workshops and presentations. PCAI also hosts artists in residence programs, providing a space for creative exploration and collaboration with nature. Educational seminars are also organised in schools and foundations focusing on thematic and environmental challenges that trouble a specific local community and encourage them to find solutions. Another great innovation is the production of short animated films as part of the social action for environmental awareness.</p>	<p>The intersection of art and sustainability is a dynamic and evolving field that explores the relationship between artistic expression and environmental, social, and economic sustainability. Artists, designers, and cultural institutions are increasingly incorporating sustainability principles into their work to raise awareness, inspire action, and contribute to a more sustainable world.</p>	<p>This project can be adapted in countries that face environmental challenges and are open to involve local artists for environmental awareness. The use of social media, video art and other digital tools can attract the youth population and artists to get more engaged. Funding for this kind of initiative can come from businesses of the region that want to raise environmental awareness. Public art installations, workshops, and collaborative murals can bring communities together and foster a sense of ownership and pride in sustainability initiatives. Artistic elements can be integrated into the branding and marketing strategies of sustainability enterprises. Installations can convey environmental messages, showcase sustainable technologies, and encourage sustainable behaviours.</p>
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SUSTAINABLE AGRICULTURE





<p>Inagros</p>	<p>Agritech refers to the use of technology in agriculture to enhance efficiency, productivity, and sustainability. The application of agritech encompasses a wide range of technologies, from precision farming and data analytics to automation and biotechnology. Agritech aims to address the challenges faced by the agriculture industry, including the need to produce more food to feed a growing global population, optimize resource use, and mitigate environmental impacts. Inagros offers high quality services and tools to agronomists, farmers, companies and municipalities. There is a complete management of crops and green spaces, integration of geoinformatics systems (GIS) and data from drones, remote monitoring, observation and action logging tools, calendars and smart notifications.</p>	<p>Inagros is a platform that wants to serve producers and agronomists in every possible way, offering flexibility and automation where needed. The integration of technology into agriculture can enhance efficiency, productivity, and sustainability, providing opportunities for entrepreneurs to innovate and address challenges in the industry: increased Efficiency, data-driven decision making, cost reduction, improved crop yield and quality, climate resilience, enhanced livestock management and job creation. Entrepreneurs in this space have the potential to make a significant impact on agriculture and rural economies. The adoption of agritech among farmers can face reluctance due to various factors. While agritech has the potential to bring significant benefits to agriculture, farmers may be hesitant to adopt these technologies for several reasons.</p>	<p>Agritech, or agricultural technology, encompasses a wide range of technologies designed to enhance efficiency, productivity, and sustainability in the agriculture sector. It is really important to be part of incubators that will provide mentoring and support when starting up a business. Short-term workshops and seminars provide participants with an overview of agritech trends, emerging technologies, and practical applications. Agricultural institutes and research centres often offer hands-on training programs that allow participants to work with cutting-edge agritech equipment and technologies. Governments may sponsor agritech training initiatives to support the adoption of technology in agriculture. These programs often target farmers and agricultural professionals, offering subsidies or incentives for participation. Agritech training programs may include modules on entrepreneurship and business development, providing participants with the</p>
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			skills needed to start and manage agritech businesses.
FOOD INDUSTRY			
Sapori Antichi	Sapori Antichi, led by Mauro Cortellazzo, is recognized in the frozen food production sector for its adherence to various certifications, reflecting a commitment to quality and sustainability. These certifications are a strong indicator for detecting the capacity of the business to provide high quality products, to innovate and improve itself, to comply with the market needs and the increasingly relevant demand for sustainable production which the consumers are looking for, and to comply with the safety standards of the foreign systems in order to increase export opportunities.	Sapori Antichi's certification practices hold profound relevance within the frozen food production industry. The certifications acquired, such as IFS Food, ISO 9001, and others, serve as tangible evidence of the company's commitment to quality, sustainability, and meeting diverse market standards. In summary, Sapori Antichi's certification practices are effective in promoting small-scale sustainable entrepreneurship by providing a roadmap for quality and safety, facilitating market access, addressing ethical and cultural considerations, fostering innovation, integrating sustainability, offering holistic training, and setting a leadership example for others in the industry.	The needed approach involves a strategic integration of technology and modern educational tools: -Digital Training -Virtual Collaboration: -Online Certification Programs -Gamified Learning -Digital Resources for Sustainability -Mobile Learning Applications -Data Analytics for Progress Tracking -Webinars and Virtual Workshops
ENTREPRENEURIAL EDUCATION			
AgriSkills	The Agriskills educational package aims to provide vocational education in sustainable development in the agricultural sector. This educational	Using the example of cattle and pig production, AgriSkills points out opportunities of sustainable training concepts	n/a



package consists of compact modules that provide a clear understanding of the principles of sustainability and practical examples on how to integrate those principles into a business.

including economic, environmental and social dimensions.

The complete educational package consists of five parts: Instructor Guide; Education program (teaching materials); Learning Software; Practice Test Analysis; Supporting Arguments (Vocational training and education for sustainable development in agriculture for social partners).

The contents of the five training modules or teaching days are structured as follows: 1. Introduction to Sustainability and Animal Production 2. Sustainability in livestock farming 3. Sustainability in livestock feeding 4. Marketing and added value 5. Sustainable farming

TDM2000

TDM2000 is an SME established in 2000 that plays a pivotal role in fostering collaboration among young people from various parts of Europe, emphasising the common ground of intercultural dialogue and active citizenship. The practice initiated by TDM2000, focusing on sustainable tourism, social economy and skill

TDM2000 employs a teaching and learning methodology rooted in non-formal education. The company utilises engaging techniques such as escape rooms, role-playing games, simulations and debates to create immersive learning

TDM2000's teaching approach seamlessly aligns with digitised education, innovation, and vocational teaching. Its adept use of digital tools, including accounting software and project management platforms, establishes a tech-friendly foundation. The organisation





promotion, is intricately connected to the organisation’s broader mission of providing young people with upskilling and reskilling opportunities.

experiences. The focus on non-formal education allows for practical, hands-on learning beyond traditional classroom settings. Escape rooms challenge participants to collaborate and think critically, while role-playing games provide insights to entrepreneurship and decision-making. Simulations recreate real-world scenarios for risk while free skill application and debates stimulate critical thinking and dialogue. This diverse approach fosters adaptability, innovation and effective collaboration, aligning with TDM2000’s commitment to impactful and unconventional training methods

recognizes the potential of e-learning platforms for structured content delivery, providing flexibility for participants. TDM 2000’s adaptability to online networking events and commitment to multilingual, culturally inclusive content reflect its responsiveness to the digitised landscape. This element seamlessly aligns with the principles of digitised education, providing interactive and motivating experiences within online training modules. Finally, TDM2000’s existing practices and adaptability underscore its readiness to embrace the evolving landscape of digitised education. The organisation’s tech-friendly foundation, combined with its strategic use of e-learning platforms, online networking events, multilingual content, and gamification elements, positions it at the forefront of innovative and digitally-driven teaching methodologies.

Green Skills for Small Business

Green Skills for Small Business” training programme was developed by Oxford Brookes Business School in partnership with Small Business Britain. It offers entrepreneurs across

The programme is delivered over six weeks, entirely via digital channels. Training sessions are delivered as webinars, recorded and

This exemplary approach to education is already in the realm of digitalization, with potential for further enhancement through





the UK support, insight and encouragement to become more sustainable.

available for catch up on a dedicated page on the Small Business Britain website. It includes weekly challenges to help participants to put their knowledge into practice. They also have the opportunity to join the Facebook community for all participants for networking, support and on-going raising of questions and challenges. At the end of the course, all participants receive a digital “badge” to say they have completed the programme.

The training course is built by six modules: Sustainability basics, Sustainable Marketing, Measurement, Building a green community, Financing sustainability and Accreditations.

innovative elements such as gamification, augmented reality, virtual reality, and more. The program content is tailored to the context and circumstances in Great Britain, with the flexibility for adaptation to other environments. This adaptability considers the unique situations and conditions specific to each context, ensuring relevance and effectiveness in diverse settings.

ECO-TANDEM Academy

The ECO-TANDEM Academy consists of capacity building activities addressed to both SMEs, startups and professionals in the tourism value chain focused on sustainability in the tourism industry.

The goal is to enhance sustainable tourism development by fostering the adoption of eco-friendly and responsible practices among tourism SMEs. This is achieved through transnational cooperation and the

The ECO-TANDEM Education Programme offers a flexible, self-paced e-learning course comprising ten modules that delve into the tourism industry and its sustainable future. Following the Graz Model for Integrative Development, the initial five modules focus on the scientific design and assessment of sustainability

This exemplary approach to education is already in the realm of digitalization, with potential for further enhancement through innovative elements such as gamification, augmented reality, virtual reality, and more.





transfer of knowledge, empowering businesses to embrace more environmentally conscious approaches in the tourism sector. The ECO-TANDEM ACADEMY consists of the educational and training programme.

processes, aligning with the UN Sustainable Development Goals

The ECO-TANDEM Training Programme is a real-time, online training course that is targeted towards SMEs related to the tourism supply and value chain, with emphasis in accommodation facilities, tour operators, travel agents and technology-oriented start-ups. The industry-specific modules on offer aim to improve skills and build capacity around the standards for sustainability in the tourism industry.

Selfie WBL

SELFIE for work-based learning (WBL) is a free online tool that supports VET schools and companies in making the most of digital technologies for teaching, learning and training. It has been developed by the European Commission together with many key stakeholders. The tool provides valuable information to VET schools and employers on where they stand in the use of digital technologies for teaching and learning and how they can improve cooperation between them.

Comprehensive: it involves the school community and companies – school leaders, teachers, students and in-company trainers– in a 360-degree process.

Customisable: Because schools and companies are unique, the tool can be customised (questions and statements can be selected and added to suit the needs).

Matching experience: It allows all participants to answer questions that match their experience, as students,

The tool is already fully digitalised but could be used also for other kind of collaboration than WBL.





teachers, school leaders or in-company trainers.

Free and anonymous: It is free of charge. Answers are anonymised and data is secure.

Tailor-made: On completion, each school and company receives a tailor-made, interactive report which provides both in-depth data and quick insights into strengths and weaknesses in their use of technology for learning.

4.4 Training and networking for sustainability: SMEs experiences

The feedback from respondents underscores the pivotal role that networks and collaborations with Vocational Education and Training (VET) providers play in their training and professional development. An overwhelming majority of 15 out of 16 respondents acknowledged the significance of educational and training programs offered by VET providers in fostering sector-specific skill development, establishing business connections, and expanding social networks. Furthermore, interactions with other businesses, facilitated through events such as fairs and networking gatherings, as well as engagements with experts across different domains, were highlighted as invaluable sources of non-formal and informal learning. These interactions not only enrich experiences but also provide abundant opportunities for growth and



inspiration, particularly in advancing sustainability initiatives within the business and exchanging specialized knowledge.

Despite the overall positive sentiment towards collaborations with VET providers and networks, some challenges were reported. Issues such as limited human resources, difficulties in grasping the intricacies of the business model, and concerns regarding the quality of service occasionally impeded the establishment and maintenance of such partnerships. Nonetheless, the majority of respondents indicated a smooth process in their interactions with VET providers and networks, underscoring the mutual benefits derived from these collaborations.

4.5 Digital based training programs in VET for SMEs

Adapting training programs to digitalised education involves a thoughtful and strategic approach to leverage technology effectively. Some of the important steps that should be considered include:

- Assessing the needs and preferences of the target audience, considering their digital literacy levels.
- Clearly articulating the learning objectives of the program and aligning them with the necessary digital skills.
- Identifying digital tools and platforms that align with the program's goals, prioritising those that facilitate engagement and collaboration.
- Developing interactive and multimedia-rich content to keep learners engaged, incorporating videos, simulations, quizzes, and other interactive elements.
- Designing content and platforms with accessibility in mind to accommodate diverse learners, ensuring inclusivity for different learning styles.



- Implementing blended learning models that combine traditional and digital methods for a balanced approach.
- Using online collaboration tools to foster interaction and peer learning. Incorporate group projects, discussion forums, and collaborative activities to facilitate engagement.
- Designing programs that offer flexibility, allowing learners to access content at their own pace, and integrate adaptive learning features for personalization.
- Developing digital assessment methods that evaluate both knowledge and practical skills.
- Providing timely and constructive feedback to enhance the learning process.
- Establishing mechanisms for ongoing support, including forums, help desks, and mentoring.
- Incorporating gamification elements such as rewards, badges, and levels to make the learning experience more engaging.
- Keeping content up-to-date with the latest industry trends and technologies.
- Regularly evaluating the effectiveness of the training using assessment and feedback mechanisms and using data analytics to gather insights for continuous improvement.

By carefully considering these steps, training programs can be effectively adapted to the digitised education landscape, providing learners with a dynamic and relevant learning experience.

4.6 Tools and resources for online learning

When creating online training for small-scale entrepreneurs, the VET providers are advised to use the following forms and methods:





- Online learning platforms (utilising e-learning platforms to provide flexible, accessible, and self-paced training modules. These platforms can cover a wide range of topics relevant to entrepreneurship.)
- Mobile applications (developing mobile apps that offer on-the-go access to resources, tutorials, and tools for small-scale entrepreneurs. These apps can help with tasks like financial management, marketing, and business planning.)
- Webinars and virtual workshops (hosting webinars and virtual workshops to facilitate knowledge sharing, expert insights, and interactive learning experiences. These can also enable networking opportunities.)
- Sustainable business simulations (using business simulation games and software that allow entrepreneurs to test different scenarios and strategies for sustainable business growth in a risk-free environment.)
- Open education resources (curating and sharing open education resources materials, including guides, videos, and templates, that entrepreneurs can access freely for self-study and reference).



5. Comparative Insights: Vocational Education and Training in SSA and EU Countries

In Sub-Saharan Africa (SSA), addressing Vocational Education and Training (VET) needs requires a concerted effort to bridge the gap between theoretical learning and practical application. Policies governing education and skills development must be closely aligned with societal needs and the demands of the labor market. Integrating sustainability principles into education at all levels is essential to ensure that future generations are equipped to address environmental challenges. Effective collaboration among various stakeholders, including private sector companies, government institutions, community organizations, and higher education institutions, is crucial for the success of VET initiatives. This collaboration can take various forms, such as industry partnerships, internships, apprenticeships, advisory boards, incubation centers, and training programs. Continuous upskilling, capacity building, and professional development are necessary to keep educators and trainers abreast of evolving pedagogical practices and industry trends. Special attention must be paid to addressing challenges related to inclusivity and diversity, with targeted programs and incentives aimed at underrepresented groups. Recognizing the contributions of individuals and organizations in the VET sector through awards ceremonies can help foster a culture of excellence and innovation. The pedagogical approach employed should be adaptable to different educational contexts, goals, and target audiences, with an emphasis on creating dynamic learning environments that encourage active participation and skill development.

There are exciting possibilities for developing an educational programme that is inspired by the best practices and entrepreneurial mindset identified in EU countries.





Sustainable Entrepreneurship Models as Inspiration

The foundation lies in studying the successful models of sustainable entrepreneurship within the SME landscape. These models offer valuable insights into how businesses can achieve economic success while minimizing environmental impact and fostering social responsibility.

Learning by Doing: A Hands-on Approach

The curriculum emphasizes practical experience through:

Hands-on Learning: SMEs will learn best by actively engaging in sustainable agricultural practices. This could involve workshops on organic farming techniques, permaculture design principles, or water conservation methods.

Local Focus: Tailoring programs to address the specific needs and challenges of the local context is crucial. Understanding local resources, climate, and existing agricultural practices ensures the training is directly applicable.

Collaboration is Key

Building partnerships strengthens the program:

Expert Engagement: Collaborating with experts from extension services, research institutions, and NGOs brings valuable knowledge and best practices to the table.

Learning Centers: Establishing physical spaces where SMEs can witness sustainable techniques in action and participate in practical training provides a powerful learning environment.

Building a Network of Support

The program should foster a supportive ecosystem:





Networking and Knowledge Sharing: Connecting SMEs with peers through forums and events allows them to exchange experiences, learn from each other's successes and challenges, and build a network of support.

Lifelong Learning: Encouraging continuous learning through workshops, seminars, and webinars ensures SMEs stay updated on emerging trends and innovations in sustainable agriculture.

Recognition and Validation

The program should facilitate achieving external validation:

Certification Support: Assisting SMEs in obtaining certifications and eco-labels for their sustainable practices validates their commitment and potentially opens them up to new markets.

Overall Impact

By implementing these elements, the curriculum can empower SMEs to become successful sustainable entrepreneurs. This not only benefits the businesses themselves but also contributes to a more environmentally responsible and socially conscious agricultural sector.

EntreComp Framework

The EntreComp Framework and the skills identified in the research conducted for this project overlap in areas that are essential for navigating today's dynamic world.

EntreComp Framework:

The EntreComp Framework focuses on 15 competences categorized into three areas:

- Ideas and Opportunities: Identifying and seizing opportunities, creative thinking.





- Resources: Mobilizing resources, financial literacy.
- Into Action: Planning and implementing ideas, risk management.

Several of the skills mentioned directly align with the EntreComp Framework:

Problem-solving and Critical Thinking: Crucial for identifying opportunities, evaluating ideas, and making sound decisions.

Creativity: Essential for generating innovative solutions and approaches.

Communication: Needed to effectively pitch ideas, collaborate with others, and market ventures.

Self-direction and Initiative: Entrepreneurs need to be proactive and take ownership of their projects.

Learning Agility (Lifelong Learning): The ability to adapt and learn new things is key in a constantly evolving environment.

Complementary Skills

EntreComp skills are highly relevant to the entrepreneurial mindset:

Collaboration: Working effectively with others is essential for building teams and achieving goals.

Cultural Awareness: Understanding different cultures is crucial for operating in a globalized market.

Ethical Awareness: Acting with integrity and social responsibility is important for building trust and a sustainable business.

Flexibility: Adaptability is key to responding to changing circumstances and overcoming challenges.





In conclusion, the EntreComp Framework provides a specific lens for viewing entrepreneurial skills, while the broader skill set you listed encompasses essential qualities for success in various aspects of life, including entrepreneurial ventures.

By combining the core entrepreneurial skills outlined in the EntreComp framework with the broader skillset we identified, the curriculum can create a powerful learning experience for aspiring sustainable entrepreneurs.

This comprehensive approach equips SMEs with the knowledge, technical expertise, and personal qualities necessary to:

- Identify and seize business opportunities within the sustainable sector.
- Mobilize resources effectively, including financial resources and partnerships with experts and institutions.
- Develop and implement sustainable practices that are both commercially viable and environmentally responsible.
- Continuously learn and adapt to stay abreast of new technologies and best practices.

Additionally, by integrating EntreComp with ESD pedagogy, educators can develop entrepreneurial skills within a sustainability context:

Contextualization: ESD pedagogy provides the broader sustainability context within which entrepreneurial activities occur. It helps students understand the interconnectedness of economic, social, and environmental systems, fostering a deeper appreciation for sustainable entrepreneurship.

Skill Development: EntreComp offers a structured framework for developing specific entrepreneurial competences. ESD pedagogy enhances this by integrating sustainability-related skills such as ethical decision-making, social responsibility, and environmental stewardship.



Action-Oriented Learning: Both frameworks emphasize experiential learning and action-oriented approaches. Students engage in real-world projects and activities that address sustainability challenges while developing entrepreneurial skills. This hands-on learning approach fosters creativity, innovation, and collaboration.

Critical Reflection: ESD pedagogy encourages critical reflection on the ethical, social, and environmental implications of entrepreneurial endeavors. Integrating EntreComp competences into this reflective process helps students evaluate the sustainability impact of their actions and make informed decisions.

Partnerships and Collaboration: Both frameworks emphasize the importance of partnerships and collaboration with external stakeholders. Students work with businesses, community organizations, and government agencies to address sustainability issues, gaining practical experience and expanding their networks.

This type of curriculum can play a significant role in fostering a generation of sustainable entrepreneurs who can drive positive change in the agricultural sector.



Conclusion

The findings of the studies conducted have provided critical insights that will shape the development of future project initiatives, particularly in the realm of curriculum design.

First and foremost, the studies have shed light on the pressing skills gaps confronting SMEs as they navigate the transition to a more sustainable and inclusive economy. This underscores the immediate necessity for targeted skills development efforts to address these shortages and facilitate the advancement of greener practices. Secondly, the identification of 21st-century skills, encompassing a spectrum of core and contextual competencies such as problem-solving, critical thinking, communication, creativity, collaboration, lifelong learning, self-direction, flexibility, cultural awareness, and ethical awareness, highlights the indispensable role these skills play in empowering SMEs to thrive in the green economy. Moreover, the studies have underscored the pivotal importance of various knowledge domains, spanning environmental accountability, waste management, conservation, recycling, and renewable energy. These areas of expertise are deemed essential for SMEs seeking to embed sustainable practices into their operations. Additionally, the findings have emphasized the significance of all groups of work tasks and highlighted the critical contribution of two key components in green skills development: high-level analytical skills and high-level technical skills. These competencies are fundamental in equipping SMEs with the capabilities necessary to navigate complex environmental challenges and drive innovation in sustainable business practices.

In summary, the findings of these studies offer crucial insights into the precise skill sets and knowledge domains indispensable for SMEs to thrive in the green economy, laying the groundwork for the development of targeted curricula designed to address these needs comprehensively. Among the skills highlighted by respondents as paramount for participation in the green economy, collaboration, communication, and



networking emerged as the most frequently mentioned. Additionally, analytical thinking, innovation, creativity, originality, initiative, leadership, and social influence were identified as key competencies essential for success in this evolving economic landscape. These findings underscore the multifaceted nature of skills required for SMEs to effectively navigate and contribute to sustainability initiatives, emphasizing the importance of cultivating a diverse skill set tailored to the demands of the green economy.

Based on the research conducted for the GMESKILLS project, it's evident that Entrepreneurship Education and Vocational Training (EEVT) in Sub-Saharan African (SSA) countries have fallen short of effectiveness, with learning objectives often not being met. This is primarily attributed to a significant gap between theoretical knowledge and practical application, highlighting the urgent need to bridge this divide. Moreover, there is a pressing need to mainstream entrepreneurship education across all levels of education to foster sustainable development, innovation, creativity, and relevance. To address these shortcomings, several key recommendations have been proposed. Firstly, education and skills development policies must be realigned with the evolving needs of society and the labor market. This entails ensuring that educational initiatives are closely aligned with the principles of a knowledge society and are responsive to the demands of the modern workforce. Furthermore, holistic reforms within Technical and Vocational Education and Training (TVET) systems are imperative to integrate sustainability principles effectively. This involves adapting existing occupational profiles and developing new ones to align with emerging trends in the green economy. Additionally, entrepreneurship education should be made accessible to all students, not just limited to those pursuing business-related studies, thereby democratizing access to entrepreneurial skills and fostering a culture of innovation and entrepreneurship across diverse fields and disciplines.

To enhance the effectiveness of education in Entrepreneurship Education and Vocational Training (EEVT), a multifaceted engagement approach is proposed. This





approach aims to strengthen the goals, target groups, content, and role of educators, while also ensuring adequate access to resources. Key stakeholders such as private sector companies, government institutions, community organizations, and higher education must be actively involved in this process. Technical and Vocational Education and Training (TVET) institutions should forge partnerships with SMEs, private sector companies, and other stakeholders through various means such as industry partnerships, internships, apprenticeships, advisory boards, and incubation centers. These collaborations provide valuable opportunities for hands-on learning, practical experience, and exposure to real-world challenges. The role of educators is crucial in delivering high-quality EEVT. Therefore, continuous upskilling, capacity building, and professional development programs are essential to keep educators updated with the latest pedagogical practices and industry trends. Innovation and entrepreneurship go hand in hand. Establishing innovation hubs and technology parks can further enhance EEVT by providing students with access to cutting-edge technologies, mentorship opportunities, and networking platforms. Addressing issues of inclusivity and diversity is paramount. Special programs and incentives should be introduced to support underrepresented groups and ensure equal access to education and training opportunities. Recognizing and celebrating excellence in EEVT is also important. Jointly conceptualized and hosted recognition and awards ceremonies involving TVETs and businesses can inspire excellence, motivate educators and students, and foster a culture of innovation and entrepreneurship within the education system. The specific pedagogical approach used can vary depending on the educational context, goals, and target audience, while the effective training programmes should use the multifaceted approach to create a dynamic learning environment where aspiring entrepreneurs not only grasp theoretical concepts but also learn how to apply them in practical situations, all while gaining valuable insights from real-world experiences.





International experiences, particularly those gleaned from EU projects utilizing non-formal learning methods, were highlighted as invaluable for informing and enriching educational practices.

Collaborations with Vocational Education and Training (VET) providers are essential for addressing the evolving needs of small-scale enterprises. Emphasizing work-based learning and fostering a culture of continuous learning can significantly enhance the resilience, adaptability, and long-term success of these enterprises in an ever-changing business environment.

In light of digitization and technological advancements, it is imperative for learning methods to keep pace with the demand for new skills. This entails integrating digital technologies into Vocational Education and Training (VET) programs to equip learners with the necessary competencies for success in the digital age.

By integrating the core entrepreneurial skills delineated in the EntreComp framework with the broader skillset identified, the curriculum can offer a comprehensive and impactful learning experience for aspiring sustainable entrepreneurs, empowering them to thrive in the dynamic and competitive business landscape.

This comprehensive approach equips SMEs with the knowledge, technical expertise, and personal qualities necessary to identify and seize business opportunities within the sustainable SME sector, mobilize resources effectively, including financial resources and partnerships with experts and institutions, develop and implement sustainable practices that are both commercially viable and environmentally responsible, continuously learn and adapt to stay abreast of new technologies and best practices. This type of curriculum can play a significant role in fostering a generation of sustainable entrepreneurs who can drive positive change in the agricultural sector.





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