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# Cultural Sustainability Tourism Knowledge and Skills: Lessons from the Amazon to the Mediterranean

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### Abstract

Increasing global sustainability crises and climate change are impacting biodiversity loss. The terms ‘net-zero’, ‘green transition’ and ‘green skills’ are increasingly used, but many employees in the tourism sector do not know what this means, nor the relevance in their own roles. This exploration addresses an overlooked area of workplace learning, competencies development, for the people expected to drive the massive changes required in the tourism sector in Greece. The aim is a multidisciplinary, conceptual framework for knowledge and skills in sustainable tourism management, underpinned by theory in learning transfer and experiential learning, with pedagogy anchored in community-cultural insight, including beekeeping, for making sense of sustainable tourism development. Through an enquiry lens of Greek tourism, the methodology reviews academic and practitioner studies about sustainable tourism education and citizen-science models from The Amazon (Peru). Literature insights are explored through empirical study, targeted surveys and probing interviews. Qualitative data is analysed through discourse analysis coding. Findings suggest a ‘talk-act’ gap as many Greek tourism professionals do not know what green management competencies are but think they do, which can manifest in inadequate skills and inaction. Adaptation of citizen-science style learning and storytelling focused on bees and honey production, could play a ‘sensemaking anchoring’ role in developing sustainability management competencies in the Greek tourism sector, with the potential for adaptation for other countries.

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### Keywords

Sustainability; Tourism; Greece; Green-skills; Citizen-science; Management

### 1. Introduction

This study addresses the speed of change needed in the tourism sector towards: 1. Achieving a net-zero (Intergovernmental Panel on Climate Change, 2018) decarbonized economy, driven by the 2015 COP21 legally binding, international treaty, global pledges to limit global warming to 1.5 degrees by 2050 (UNFCCC Paris Agreement). 2. Addressing the increasing Environmental, Social and Governance (ESG) legislation, compared with a shortfall in organisational management competencies necessary to make transition objectives a reality.

The European Green Deal (EGD) characterizes ‘Green Transition’ as a general concept of moving from a carbon-based economy to a more sustainable economy.’ Although awareness of climate change and net-zero carbon economy objectives is increasing, skills development in the workplace for enacting green objectives has not yet caught up, as reflected by the UN Sustainable Development Goals (SDG) performance indicators (UN SDG). In the case of Greece, its SDG performance lags behind other countries and in the context of sustainable tourism, Greece falls behind its Mediterranean competitors, notably Spain, Italy and Portugal (Kafatos, et al., 2023, p.10.). The EGD aligns with the UNSDGs (Koundouri, et al., 2024), and is estimated to create 2.5 million additional jobs in the EU. Sufficient skills development is pivotal to creating a green economy ‘*There is no green transition without skills*’ (ETF Europa) and sustainability tourism strategies cannot be enacted without parallel skills development and education.

Internationally, the labour market increasingly demands ‘competencies’ to drive green economic activity; thus, ‘*the development of green skills is no longer optional*’ (LinkedIn, 2023). In recruitment across sectors, the terms ‘green transition’ (ETF Europa) and ‘green skills’ are prevalent (LinkedIn, 2023). According to the UN Industrial Development Organization (Arthur, 2022) ‘green- skills’ encompass expertise and strengths including “*the knowledge, abilities, values, and attitudes needed to live in, develop and support a sustainable and resource-efficient society.*”

A 2023 UK Chartered Management Institute (CMI) study on green skills received over 1300 responses from managers in sectors including tourism and hospitality, confirming that green skills, whilst widely discussed, are not well understood outside of the energy sector. The high-carbon-emitting tourism sector, which has one of the largest greenhouse gas (GHG) footprints, is under pressure to change. The World Travel and Tourism Council finds that globally, tourism accounts for 8-11% of all GHG emissions and significantly contributes to climate change.

According to the EU Skills Agenda, ‘Pact for Skills’, in 2019 over 12.5 million employees worked in the tourism ecosystem. A widespread upskilling program in green workplace competencies for these employees could have a significant positive influence on the environmental and climate change impacts of tourism (EU CEDEFOP). Many organisations with espoused sustainability objectives lack robust training plans in green workplace competencies, often relying instead on ‘bolt-on’ tactical CSR and PR initiatives (Frankental, 2001). This has led to the growth of greenwashing (Ramus & Montiel, 2005), ineffective ‘certification’ (Tolkes, 2020) and minimal change in business strategic operations in sectors including tourism (Kafatos, et al., 2023).

This underscores the need for a clearer understanding of green skills in the workplace and vocational educational training (VET) for management competencies in tourism for mitigating environmental and climate emergencies. The 2023 CMI survey revealed consistent manager requests for training to understand sector-specific and role-specific, workplace green skills. This study compares those learning preferences for green-skills training with those of employees in the tourism sector in Greece.

**1.1. This study aims to** understand why, despite objectives set by the EGD, EU Skills Agenda and the Greek Tourism Action Plan 2030 (INSETE, 2023), the enactment of green skills in Greek tourism has not materialised.

Tourism is the largest single contributor to Greece’s GDP, 34.3% as of 2023, making it imperative to address these challenges for sustainable development of the sector. An expert focus group was convened at the European Sustainability Academy in Crete, in June 2023, to examine the ‘on the ground’ implementation of The Greek Tourism Confederation (SETE), National Tourism Strategy (2023). Attendees included tourism educators, practitioners, academic researchers in tourism and policy influencers. A senior tourism professional said, “*In Crete, we say we are doing it but we are not really*”. Further insights highlighted the absence of sustainability literacy in tourism teaching models, resulting in a green competencies deficit in VET programmes, which perpetuates the ‘talk-act’ gap. All attendees agreed on the need for a multidisciplinary VET educator network in tourism and hospitality, supported by new teaching frameworks underpinned by academic study.

In a review of sustainability practices in Greek tourism, in collaboration with SETE, the mismatch between espoused sustainability intentions and workplace reality, with limited or absent plans for measurement or competencies development, is noted by Kafatos, et al., 2023, p.19.). The global impact of COVID-19 on tourism triggered the need

for built-in resilience, future-proofing adaptation strategies and a recognition of green skills as essential for the future of work. However, there is a noticeable lag in the practical implementation of these principles in Greece.

Some existing sustainable tourism global training programmes offer certification and accreditation, but they tend to focus on generic skills development models rather than role-specific workplace training. Frameworks like the European Sustainability Competence Framework, GreenComp, (Bianchi, et al.,2022) offer a framework of sustainability-related, knowledge, skills, and attitudes (KSA) competencies, yet their complexity and not obvious relevance to specific sectors or roles, hinder their adoption in Greece. Projects on Erasmus+ funding platforms are beginning to address the green competencies gap in Greece's tourism sector, with projects targeting the SME supply chain, waste management, higher education institutions (HEIs), and circular economy. However, very few address a workplace, further education (FE), or VET proposition, as outlined in this study.

To address the sensemaking processes (Weick, 1995) contributing to the 'talk-act' gap in sustainable tourism in Greece, this study explores potential 'anchoring' mechanisms, through storytelling, to bridge that gap.

Peru was chosen for this study due to the insightful stingless bee initiatives which have flourished as a viable sustainable economic activity, such that the Peruvian government has realized the potential of 'bees' at the heart of teaching sustainability tourism skills. Beekeeping has been deeply engrained in Greek culture since ancient times and this study explores learning transference parallels between Greece and Peru for anchoring new learning to foster a conscious connection with the climate crisis and biodiversity loss in the Mediterranean region. The Amazon region is known as 'the lungs of the planet', for its critical role in global net-zero aims (WWF), also, both regions rely heavily on tourism and face environmental peril, with the Mediterranean warming 20% faster than the global average (UNEP).

Building on an in-depth understanding of these problems from literature, existing studies and frameworks, the authors propose a conceptual framework (Crawford, 2020) for competency development aimed at addressing the green-skills gap in the Greek tourism sector.

**1.2. Overarching aim** is to identify a conceptual framework for anchoring and enhancing KSA learning through cultural and experiential interventions. To propose a first-stage conceptual framework, built on experience, literature, theory and empirical input. This includes exploring literature on potential transferrable learning outcomes from 'citizen-science' (see 2.1) tourism (Vohland, et al., 2021) with a focus on bees in a sensemaking role for educating tourism sector employees in the workplace. Validation of the proposal is sought through surveys and interviews with professionals and educators within Greece's tourism sector.

## 2. Literature Review

To understand why sustainable tourism in Greece lags behind other Mediterranean countries and to address the identified skills gap and apparent 'talk-act' gap in sustainable tourism aspirations, the study delves into fields of knowledge transfer (2.2), citizen-science (2.1) and sensemaking theory (2.5). Additionally, it explores the potential of cultural heritage (2.3) and beekeeping as teaching mechanisms through a literature search on apitourism (2.4) (Akyürek, 2022; Izquierdo-Gascón & Rubio-Gil, 2023; Topal et al., 2021).

This study explores novel and emerging fields of enquiry, drawing from academic, practitioner, and grey literature to understand the transference of knowledge in cultural and heritage sustainability practices (Brooks et al., 2023; Zhang et al., 2023) citizen-science interventions (Vohland et al., 2021) and the theoretical roles of sensemaking (Weick, 1995) and storytelling (Boje, 2011; Boyce, 1996) in experiential learning transfer (Kolb, 2015).

### 2.1. Citizen-Science

The literature highlights the growing focus on the learning impact of citizen science (CS) (Vohland et al.,2021).

At its core, CS offers participants an active role beyond 'more than just an observer' (Izquierdo-Gascón & Rubio-Gil, 2023; Lynch-O'Brien, et al., 2021). Lynch-O'Brien, et al., (2021) describe CS as '*known for increasing the geographic, spatial, and temporal scale from which scientists can gather data. It is championed for its potential to provide experiential learning opportunities to the public*'.

It is widely acknowledged that early climate change warnings went unheeded because the ‘scientific language’ was not understood by the public and did not make relatable sense in their lives. CS as ‘*a research relationship between professional scientists and the general public*’ offers a mechanism for bridging ‘*communication between the scientific community and the general public about contemporary science topics and environmental issues*’ (Lynch-O’Brien, et al., 2021). Studies suggest that peer group exchanges within CS projects enhance understanding of scientific data on biodiversity conservation and encourage sustainable behaviour change to address climate change (Tönisson et al., 2021).

Whilst the literature lacks consistent agreement on the transferability of CS participants’ learning beyond scientific study objectives (Vohland et al., 2021), some studies suggest potential impacts. Notably, the ‘bumble boosters project’, a 3-year programme aimed at attracting nesting bees through building artificial hives, revealed 5 conceptual categories of transference, including influencing change in individuals outside the project. (Lynch-O’Brien, et al., 2021, p.9.).

## **2.2. Retention and transfer of experiential learning**

There is some consensus that transference can be enabled by a ‘pre-existing interest in nature’ and ‘self-concept of the learner’ (Lynch-O’Brien, et al., 2021; Velardi, et al., 2021). Instances of transference occur when participants ‘*maintained a long-term interest in nature, joined a citizen-science program, shared science knowledge and experiences, acquired an expert role to others, and influenced change in others*’ (Lynch-O’Brien, et al., 2021).

In their study on ‘knowledge transfer with citizen-science’ Tönisson et al., (2021) conclude that changes in individuals’ behaviours toward sustainability can happen through knowledge transfer, awareness building, observation and monitoring in CS projects because civic involvement increases awareness of environmental impacts. However, bridging the apparent gap between awareness and actionable knowledge requires anchoring mechanisms to translate intention into action (Pfeffer & Sutton, 1999; Tolkes, 2020).

In organisational contexts, a short-term vision focused on daily tasks can block learning transfer, leading to a failure to reflect on incongruent actions. This ‘organisational shortsightedness’ contributes to ‘learning myopia’ which can result in overstating success and a ‘systematic denial of wrongdoing’ (Frankental, 2001). This might explain why the identified ‘talk-act’ gap continues unchallenged, requiring specific consideration in competencies teaching design.

A study evaluating learning exchange between maple syrup producers and beekeepers in Maine, (Velardi et al., 2021) found that respondents relied on both formal and informal knowledge exchange, with peer group networks facilitating knowledge transfer. Additionally, Jordan et al. (2012) propose a framework for evaluating citizen-science participant learning outcomes, including the expanded transference of learning across communities which illustrates the learning impact from direct experience (Kolb, 2015).

## **2.3. Culture and Heritage**

A growing body of study suggests the tension between tourism development and natural heritage and culture conservation can be problematic due to impacts on the community and the environment. Aligning the goals of protecting cultural heritage, conserving the environment, and promoting tourism is a growing field of research, with new frameworks proposed (Brooks, et al., 2023; Csurgó & Smith, 2022; Zhang et al., 2023). This includes, ‘*consideration of the impact of tourism activities on the biodiversity, water, geology and landform*’ (Zhang et al., 2023). In a systematic review exploring connections between cultural heritage tourism and the health and well-being of host communities across 6 WHO regions, including the Eastern Mediterranean, between January 2000 – March 2021, Brooks, et al. (2023) found evidence that cultural heritage tourism can significantly reduce poverty in rural areas and low-income countries. However, solely relying on economic measures can obscure and even exacerbate damaging impacts, both culturally and environmentally. The study finds ‘*a lack of understanding about the cultural impacts of tourism on wellbeing*’.

Community ‘participation’ has gained popularity in tourism experiences; however, it can introduce activities that ultimately erode autonomy and self-determination through superficial engagement with community needs and concerns. Terms like ‘community participation’ and ‘capacity-building’ in experiential tourism can mask poor

practice which ‘effectively re-engineers the knowledge of local communities’ rather than support and enhance their original practices and well-being (Brooks, et al., 2023).

Researchers broadly agree that cultural heritage has been under-researched through a holistic lens of ‘cultural ecosystem tourism’. Csurgó & Smith (2022) propose new approaches for tourism development which value the human experiences derived from natural landscapes. The authors posit a firm ‘sense of place’ rooted in cultural heritage is essential for tourism development. A ‘sense of place’ connects people to natural landscapes, triggering a deep feeling of well-being (Wilson, 1984), along with attachment to cultural heritage values, local history and culture. This approach has inadvertently strengthened community cohesion and cultural identity.

#### **2.4. Cultural art of beekeeping and apitourism**

Beekeeping has been deeply engrained in Greek culture since ancient times, dating back to the Minoan era of Crete (Mavrofridis, 2016). The enduring cultural significance of honey across time, and regions, has contributed to the emergence of ‘apitourism’ which offers modern travellers immersive experiences into this ancient tradition and insights into the deep culture of honey production past and present (Topal, et al., 2021, p.4.).

Businesses are starting to realise the economic benefits of their potential to contribute to climate solutions and the green economy. Notable examples in the tourism sector are emerging to overcome superficial green experiences (Ramus & Montiel, 2005). Apitourism is emerging as one of the most sustainable ways of development, blending rural community culture and traditions (Akyürek, 2022). In Spain, it’s even labelled as a ‘regenerative tourism’ activity (Izquierdo-Gascón & Rubio-Gil, 2023). The surge in apitourism interest is attributed to the consumers’ growing desire for sustainable, healthy practices and organic products such as honey which is renewing interest in bee-related activities (Akyürek, 2022). In many developing countries, beekeeping plays an important role in overcoming poverty, through income generated from the sale of bee products, particularly in rural areas, thus also driving the rise of apitourism (Akyürek, 2022).

Understanding that the tourist experience is paramount (Richie et al., 2011), apitourism offers rich, memorable experiences through cognitive and physical activities. For example, visits to beekeeping museums evoke deep emotions about culture. Akyürek’s study (2022) on visitor feedback at beekeeping museums in Turkey revealed descriptions of the ‘emotions and moods’ that visitors felt, with comments expressing gratitude for the museum ‘*shedding light on the history of local beekeeping and the transfer of this culture to future generations*’. It could be said that apitourism represents a steppingstone between more comprehensive CS projects, as both approaches engage tourists to feel more than ‘just an observer’, thus making tangible sense to them in their own world view of reality (Akyürek, 2022; Lynch-O’Brien, et al., 2021).

#### **2.5. Sensemaking and storytelling as mechanisms of learning transfer**

Sensemaking, understood to be reached through words as a ‘subconscious process’, plays a central role in human behaviour, described as an ongoing process stimulated by questioning “What is going on here?” (Weick, 1995, p.43). It involves ‘*a process by which individuals develop cognitive maps of their environment*’ (Basu & Palazzo, 2008), which serves as a springboard for action or inaction. The first stage of sensemaking is the cognitive process that notices and collects data before interpreting and giving meaning to that data. This stage can be influenced by storytelling (Boyce, 1996) which is relatable to the individual’s own worldview. In this study, the theory of sensemaking and the impact of storytelling provide insight into addressing the ‘talk–act’ gap that has been identified in the aspirations towards a sustainable tourism strategy in Greece (Kafatos, et al., 2023).

Jackson’s (2010) study revealed how managers’ sensemaking processes can lead to a gap between sustainability intentions and actions in organisations. Subconscious narratives such as ‘*the action is someone else’s responsibility*’ or ‘*the action can be done later*’ contribute to this disconnect and perpetuate the ‘talk–act’ gap. The empirical part of the study demonstrated how people select information (words) from dominant narratives (informal and formal storytelling) and day-to-day language. When the narratives were anchored in a shared experience or meaningful story, managers were observed to collectively enact the espoused sustainability aspirations. This was a temporal and ‘sense of space’ influenced phenomena.

In 1999 the UN World Tourism Organisation declared that the tourism industry should ensure environmental conservation, benefit local communities and maintain economic viability. These three aims are specifically upheld in the principles of 'ecotourism', defined by the International Ecotourism Society (1990) as '*responsible travel to natural areas that conserves the environment and sustains the well-being of local people*'. However, these principles can be abstract and lack relatability. Complex terms tend to not be memorable for people if not grounded in their own sensemaking reality. This can lead to people guessing what the terms mean or moulding the terms to align with their own 'cognitive maps'. This suggests a need for adaptation to education interventions and learning paradigms for making sense of the emerging narratives and terms about the green transition. Storytelling has been a successful mechanism for transforming sensemaking in organisations and developing collective communication skills, which have been enhanced through the digital age (Boje, 2011).

A study conducted at a beekeeping museum (Akyürek, 2022) highlights the profound and innate human connection with nature (Wilson, 1984), and heritage, which enriches the visitor experience. This connection is vividly brought to life through relatable stories that emphasize the role of bees in biodiversity and everyday life, exemplified by a visitor's remark that "*the bee is life, the bee is honey*".

Sustainability efforts must extend beyond environmental conservation by providing tangible economic benefits and integrating local knowledge and practices. Since biodiversity often goes unappreciated by those who feel disconnected from it, relatable narratives are essential for 'reconnection'. As highlighted in a recent New York Times article "*Without pollination, you don't get good crop yields. Without honey, you don't have a good cup of tea.*" (Miller & Chávez, 2024). This approach demonstrates that sustainable practices are not only about ecological health but also about enhancing human well-being and economic prosperity.

O'Malley (2010) posits that '*Bees work on the same kinds of problems we are trying to solve*' and transposes the knowledge, skills and behaviours of bees to parallel applications in organisations. Through 25 insights, including, '*Bees work to achieve a common goal and simultaneously create a productive and resilient organization*'. Insight No.1. '*Protect the hive!*' holds significant potential as a powerful anchoring endorsement for workplace decision-making, strategic policy-making and sustainability actions that could contribute to reversing climate change.

## 2.6. Summary

The literature provides insight into the potential impact of storytelling about beekeeping, shared across cultures in the Amazon and Greece, as a sensemaking anchoring mechanism for new learning and for establishing a conscious connection with the climate crisis in the Mediterranean region. This insight is valuable for addressing a critical gap in competency development for professionals expected to manage massive levels of change within the Greek tourism sector.

From a comprehensive literature review, several themes emerged:

- Experiential learning transference shows indication of occurring under specific conditions (sense of place and sense of self).
- Involving people through culture and heritage is necessary for relatability and sensemaking.
- Green and climate change terms and definitions are often not memorable to people.
- Biodiversity and cultural heritage are not valued or in some cases not even 'noticed'.
- A desire for connection with nature (biophilia) through travel experiences is growing
- Apitourism and human reconnection with bees and bee products is rising
- The key priority for bees to 'protect the hive' holds potential as a metaphor for learning transference sensemaking anchor

These emerging themes are explored through empirical study using the most appropriate methods of data collection (Kvale, 1996). The empirical exploration of these themes is conducted through qualitative methods, specifically a survey and semi-structured interviews, aligning with principles for social constructionist research. This approach

seeks to uncover how human perception, understanding, and sensemaking impact actions within the tourism and hospitality sector.

### 3. Method

An empirical survey was conducted to gain more understanding of current knowledge regarding net-zero, green transition and green-skills training needs for driving Greek sustainable tourism ambitions. It also sought insight into how the tourism sector values Greek heritage, both culturally and environmentally. A smaller sample from Peru was taken as a comparison to assess the transferability of a VET learning mechanism anchored in beekeeping and honey stories, which are integral to the economic and heritage cultures of both regions.

**A survey** of 13 questions, created on SurveyMonkey, in 3 languages English, Greek, and Spanish, was disseminated by social media and personal invitation in the last week of March 2024 and boosted twice until mid-April (see Table 1.) The Greek survey was offered in both English (Eng) and Greek (Gr) to observe any impact of translation on the interpretation of terms. Ethical approval for primary data collection was received.

**Target groups:** Existing tourism VET educators, tourism and hospitality professionals, policymakers, and local government. With levels of authority: Senior Executives (Board), Senior Managers, Operational Managers, Staff.

Respondents were evenly distributed across gender (F 43.75%, M 56.25%) and ages (between 45 and 64). In Greece, most responses were from the Attica region (31.6%) and Crete (21.5%) with the rest evenly spread across other areas. In Peru, responses were evenly divided between Lima (city) and the Amazon rural region.

The total ‘reach’ of the survey was 27075 people, resulting in 51 surveys completed: 27 in English and 16 in Greek from Greece, with 8 in Spanish from Peru.

Table 1: Summary of survey reach and responses

Impressions/ Reach	Greece Eng. version	Greece Gr. version	Peru Spanish version	TOTALS
LinkedIn Boosted	2779	Not available	0	2779
Facebook Boosted	19542	564	0	20106
SM Organic	2890	486	389	3765
Instagram	0	0	280	280
Personal invitation	60	10	75	145
<b>Total reach</b>	<b>25271</b>	<b>1060</b>	<b>744</b>	<b>27075</b>
<b>Total Engagement (survey taken)</b>	<b>27</b>	<b>16</b>	<b>8</b>	<b>51</b>

Post-survey, semi-structured qualitative interviews were planned to test the findings and probe deeper. 20 people from hospitality, VET teaching and policy making were identified, however, only 4 agreed to 1:1 virtual interviews, which were recorded and transcribed. Further data were gathered through informal, naturally occurring dialogue with 4 additional respondents from the same target groups.

### 4. Findings

**4.1 The survey** received a very low response (51 total), although 1 SM post gained 72 ‘likes’. Whilst responses were fewer than anticipated, the qualitative content was rich and informative. Data were analysed using discourse analysis and theme coding.

**Do you know what Net-Zero means?** YES responses: Greece (Eng) 63%, Greece (Gr) 28.5%, Peru (Sp) 75%.

The 2050 goal for a Net-Zero carbon economy drives the green transition, therefore, understanding of Green Transition and Green-skills reflects on a genuine grasp of the term ‘Net-Zero’.

**Have you heard the term Green-Skills?** YES: Greece (Eng) 74%, Greece (Gr) 71.5%, Peru (Sp) 33%.

Given the small sample, we can only cautiously surmise, that the term ‘Green-Skills’ is more embedded in EU vocabulary through the EGD, whereas Net-Zero is a global UN, IPCC term.

**What does Green Transition mean?** See Table 2.

Table 2: Select responses to the survey question ‘What does Green Transition’ mean?

Theme	Responses: Greece Greek (Gr), Greece English (Eng), Peru Spanish (Sp)
<b>Carbon (CO<sup>2</sup>)</b>	<ul style="list-style-type: none"> <li>Climate neutral by 2050, boost the economy through green technology, create sustainable industry and transport, and cut pollution. (Eng)</li> <li>Economic transition to net-zero carbon. (Eng)</li> <li>Like almost everything these days, it is surely linked to emissions reduction. (Sp)</li> <li>Mitigate climate change. (Sp)</li> </ul>
<b>Shift to renewable energy</b>	<p>A way out of the need for fossil energy sources. (Eng)                      From non-renewable to non-renewable energies. (Sp)</p>
<b>Systemic change</b>	<p>the transition to an economic development not based on the use of fossil fuels and the overexploitation of natural resources, but on the use of new environmentally friendly technologies. (Eng)                      Implementation of sustainability practices &amp; economic activities. (Sp)                      Change our current model to one that avoids pollution and destruction of the ecosystem. (Sp)</p>
<b>Generic ‘eco friendly’</b>	<p>A transition towards eco-friendly tourism. (Eng)                      The transition, one's change to eco-friendly. (Gr)                      The change to something eco-friendly. (Gr)</p>

Only 2 Greece responses, in English, mentioned carbon (CO<sup>2</sup>). The Greek survey responses mostly focused on tactical, transactional activities including recycling and electric bikes, therefore suggesting a lack of systemic, strategic perspective. This also suggests a lack of genuine understanding of Net-Zero and the Green Transition.

**What does Green-skills mean?** See Table 3.

Table 3: Select responses to the survey question ‘What does ‘Green skills’ mean?’

Theme	Responses: Greece Greek (Gr), Greece English (Eng), Peru Spanish (Sp)
<b>Economic transition</b>	<ul style="list-style-type: none"> <li>They empower individuals to make decisions and take actions that reduce environmental impact across various sectors. (Eng)</li> <li>Skills to support and nurture the green economy. (Eng)</li> <li>The skills required to drive the green transition. (Eng)</li> <li>Those that enable environmental sustainability in various economic activities. (Sp)</li> <li>It is possible that they have the skills to manage tourism in a more sustainable way. (Sp)</li> <li>Skills of people linked to the sector that generate enabling conditions for the green transition. (Sp)</li> </ul>
<b>Technology</b>	<ul style="list-style-type: none"> <li>Technical knowledge to expertise and abilities that enable the effective use of green technologies. (Eng)</li> <li>The Knowledge that permits you to use effectively new technologies to promote sustainability. (Eng)</li> </ul>
<b>Generic ‘eco friendly’</b>	<ul style="list-style-type: none"> <li>Ability to manage waste, recycling and composting. (Eng)</li> <li>Ways to make something more environmentally friendly. (Gr)</li> <li>Environmental sustainability, climate change. (Sp)</li> </ul>

1 Greek and 1 Peru respondent connected the need for green skills with the Green Transition. Many associated the term with practical activities like recycling, composting and actions perceived as tactical rather than strategic, or related to climate or carbon/ GHG reduction. The responses lacked a management or strategic focus and were often

related to technology elements of the energy sector, rather than a broader interpretation applicable to mainstream management in other sectors.

In response to the definition of the term ‘ecotourism’, Greek responses varied widely, including a mix of broad terms such as ‘eco-friendly’, and ‘sustainable’ and activities including hiking, backpacking, and river kayaking. ‘Responsibility’, ‘conservation’ and ‘local people’ were not mentioned.

**What would be your preferred way to learn sustainability skills?** The options were taken from the 2023, UK CMI study on green-skills list of training preferences from 1300 respondents. In the survey for this study in Greece, ‘Sustainability added to all workplace training’ was the preferred response, (Eng) 38.46%, (Gr) 28%. The responses from Peru favoured equally ‘A community for the exchange of practices and knowledge’ and ‘Short and concise online learning materials’(43%).

**What do you think is the most important area for tourism to make improvements?** Climate Change and Food Waste were equal in the Greek (Eng) respondents and Climate Change and Ocean Health for the Greek (Gr) respondents. Neither Greek responses included Biodiversity. Culture and Heritage was very low. In contrast, the responses from Peru favoured Culture and Heritage (43.75%), Biodiversity (25%) and Climate Change (18.75%).

#### 4.1.1. Semi-structured interviews

The interviewees (tourism educators, hotel managers/owners, restaurant owners, and ESG experts) were asked why they thought the survey response rate was low. Responses included;

-“Perhaps a sense of self-perception and afraid of being seen to not know” (Tourism Educator)

-“People in tourism are tired and weary” (Tourism Educator)

-“Due to the lack of knowledge of information...lack of trust in general” (Large hotel owner)

In comparison, the UK CMI green-skills survey in 2023 was the quickest, largest response to any CMI managers’ survey. Therefore, suggesting a difference in the level of understanding of the importance of green-skills development for managers in organizations.

Other select 1:1 interview responses relating to themes emerging from literature are shown in Table 4.

Table 4. Select interview responses

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#### **Bees as a mechanism for sustainability learning**

*“The narrative, the role, the importance, and example of the bee, show us the way to protect nature”.*

*“The bee from the Minoan civilization still holds a primary and central role for the environment and its sustainability”.* (Large hotel owner)

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#### **Greece tourism, low knowledge and skills, dominated by ‘talk-act’ gap**

*“They think they know what these terms mean because they have heard them, but they don’t know”.* (Tourism Educator)

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#### **Greek tourism is not ready for (does not understand) impending ESG reporting regulations.**

*“Some of the big players are talking about it. Many are cynical”.* (Tourism Educator)

*“...they have no idea of the train that is coming down the line right at them, despite all the warnings they have been hiding behind ignorance and greenwashing that is all coming back at them – they will make excuses, leave it all too late...and then ‘panic’.* (ESG expert)

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#### **Weak management skills in the tourism sector, therefore a weak base for building green skills.**

*“Most people in the hospitality/ tourism sector have no management or business training”.* (Tourism Educator)

*“Internal stakeholders (influencers) don’t yet realize the skills gap is there....”.* (Small Hotel Owner)

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## 4.2. Training Methods

The 2023 CMI, UK green-skills survey responses showed preferred training methods including ‘Sustainability added to all workplace training’, which is the top result from the Greek responses. However, the UK managers also favoured ‘A community for the exchange of practices and knowledge’ (as did the Peru respondents) and a ‘jargon buster’ for explanation of terms. Notably, in both cases, the total Greek responses were zero. This study suggests there is a very low understanding of terms/jargon around green skills in Greece, however, if Greek tourism professionals ‘think that they understand’, they probably see no need for explanation. One interviewee said: *“training for change needs a systemic approach across the full value chain. This can only be done through collaboration and knowledge exchange”*. (Tourism Educator).

## 5. Discussion

This study aims to propose a conceptual framework for sustainable tourism management and leadership competencies development, underpinned by theory in learning transfer and experiential learning. It advocates for pedagogical cross-pollination of community cultural insights for developing competencies for driving the sustainable tourism transition in Greece. Synthesizing literature and empirical exploration indicate a demand for such a framework. The survey and 1:1 interview findings endorse those of the 2023 Greek Tourism survey (Kafatos, et al., 2023), in particular, ‘60% of the survey participants don’t gauge their sustainability progress, mostly because they don’t know how to’. This study suggests this knowledge and skill gap is filled with ‘guessing’.

The authors propose an innovative non-formal, workplace-relevant learning approach, on-demand and easily accessible through digitalization. Focused on green skills within VET and apprenticeships frameworks, supplemented with microcredentials, with blended learning interventions for encouraging peer interaction, inclusivity and limiting carbon emissions.

This approach underlies a novel learning method to cultivate critical workplace competencies for driving net-zero transformation in tourism and hospitality and mitigating the environmental damage and climate change impacts of tourism. Vital issues to address include re-connection with biodiversity and cultural heritage and bridging the ‘talk-act’ gap between rhetoric and action, through adequate competencies development.

The Greece Sustainable Tourism Strategy 2030, ‘connects its strategy and action plans for the next years with the UN SDGs’. Studies show that tourists are prepared to pay up to 38% more to ensure that their travel is more sustainable (Kafatos, et al., 2023, p.27), therefore, biodiversity and natural heritage are of intrinsic economic importance to the future tourism sector and a potential driver for change that does not appear to be noticed in Greece. Shortfalls in sustainability training and lack of green skills in Greek tourism have been noticed, in particular measurement and auditing, however, other than generic points about ‘*strengthening skills and developing entrepreneurship*’, studies lack any tangible recommendations for skills development planning.

### 5.1. The concept of bees as educators

Drawing on the work of CMI, EGD, EU GreenComp and EU Pact for Skills, this study explores the potential of citizen-science transfer of learning and anchoring mechanisms, through projects like beekeeping, as a conceptual mechanism of sensemaking theory for skills development.

Entomologist César Delgado, at the Research Institute of the Peruvian Amazon, says *“Beekeeping is a very good way for the forest and communities to adapt to climate change”*. Building an economy around stingless bees, which pollinate much of the Amazon’s native flora, helps combat deforestation. The stingless bee project has revealed how indigenous knowledge and cultural lifestyles must be included for the collective environmental effort to have an impact. It must be “a process that is self-sustaining, and aligned with the culture of the communities”(Miller & Chávez, 2024).

As a sensemaking pathway, these projects are underpinned by a framework of cultural storytelling about the importance of bees to the community alongside pioneering scientific work which underscores their ecological, medicinal, and economic value in the Peruvian Amazon (Delgado and Espinoza, 2023). The stingless bee initiatives were triggered by the COVID-19 pandemic and have seen such success that they have continued and flourished. The

Peruvian government has since expressed interest in a sustainability skills training initiative with ‘bees’ at the heart of the teaching, with micro-credential accreditation.

## 5.2. Learning transference parallels between Greece and Peru

In Greece, biodiversity’s value in tourism is generally overlooked. Contrastingly, Peruvian bee initiatives show a transformative appreciation for biodiversity in tourism, incorporating beekeeping tours and showcasing stingless bee honey as a culinary delicacy. The narrative of a *‘loss of wildflowers means no bees and broader ecological decline’* can be woven into the CF pedagogy as a sensemaking anchor and connector for learning.

The Amazon is one of the most biodiverse regions in the world, but deforestation threatens its life web, including indigenous communities and wildlife. Educators from the Amazon bee project have extended their work to the Arctic, demonstrating the adaptability of their teaching methods. Similarly, the Mediterranean climate’s shift toward North African patterns, largely unnoticed by locals, underscores the urgency for educational engagement. Athens is now Europe’s hottest city with its own ‘Heat Minister’ in Government. This epitomises the dire effects of climate change, accelerated by tourism, which suggests the need for mitigating action through well-informed training for policy-makers. Tourism has been a major contributor to increased warming and has the potential to play a corrective role if the employees are adequately trained and educated.

While international trends show a growing interest in apitourism, biodiversity and land appreciation tourism, this study suggests Greece lags behind, in an outdated paradigm *“The concept of tourism in Greece is sun, sea, beach”* (Tourism Educator) occasionally adding ‘gastronomy’ that does not always fully celebrate cultural or environmental heritage, *“biodiversity is not understood, not noticed and not valued in Greece... culture and heritage in Greece are taken for granted...even considered boring”* (Tourism Educator). Nevertheless, the response from tourism students to a beekeeper’s lecture indicates a shift towards embracing a more biodiverse-centric tourism approach, *“we recently held a seminar for the college students...the response and participation from the students was surprisingly good. By sharing his passion and expertise in Precision Beekeeping and its disciplines, students had the opportunity to appreciate first-hand the ecological value of the bee”*.

## 6. Conceptual Framework

A conceptual framework (CF) is described as a model which *‘illustrates the main things to be studied - key factors, variables or constructs and the presumed relationships among them’* (Miles et al., 2014, p.20.), and explains the rationale and importance of the study to the audience (Crawford, 2020).

Focusing on upskilling in the area of green skills to address the ‘talk-act’ gap, Figure 1 illustrates a first draft of a potential CF for workplace competencies development, including sustainability literacy, communications, carbon measurement/ management and life cycle analysis skills which are role relevant and identified as necessary (Kafatos, et al., 2023). This model draws on key lessons from the Amazon region's sustainable tourism models around beekeeping, it is grounded in a review of literature, and empirical findings and underpinned by theories in sensemaking (Weick, 1995), storytelling (Boje, 2011; Boyce, 1996) learning transference through direct experience, anchored by relatable stories (Kolb, 2015).

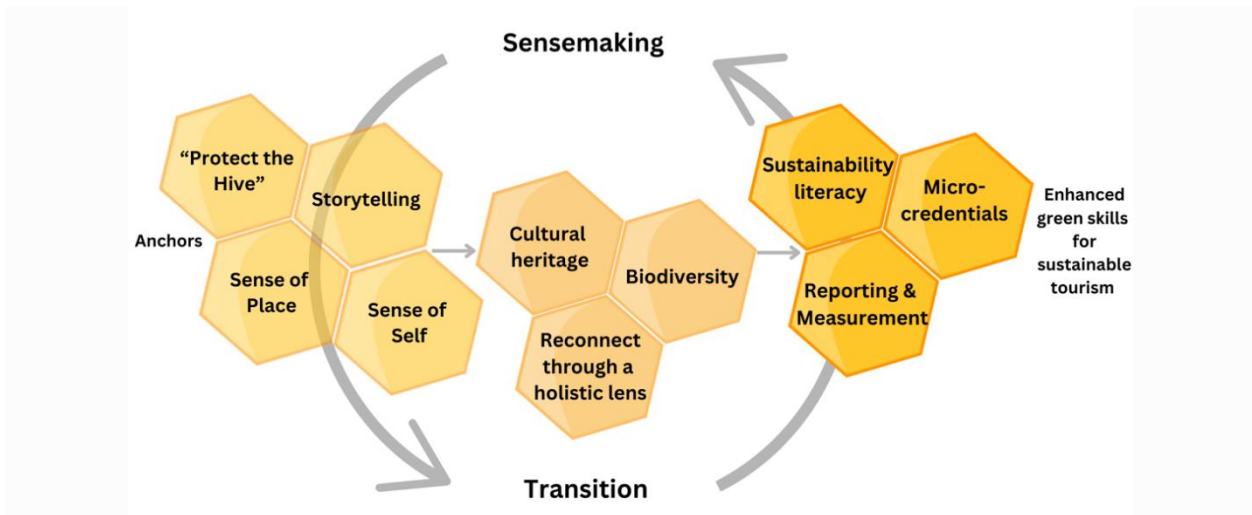


Figure 1: Conceptual Framework for learning green management competencies in tourism.

As a first draft concept, the practical application of this framework requires further study and pilot testing.

## 7. Conclusion

This study aimed to understand why, despite objectives set by the EGD, EU Skills Agenda and the Greek Tourism Action Plan 2030 (2023), the enactment of green skills in Greek tourism has not materialised.

The apparent reluctance of a large number of systematically targeted respondents to contribute to empirical data gathering was unexpected. This may be because this study is an 'early mover'. Lack of engagement was suggested to be due to '*afraid of being seen to not know*', which can be related to another key finding of a 'talk-act gap', which can manifest in 'biodiversity and cultural heritage not valued' and frequently 'not noticed' in Greece. A greater number of personal invitations to take the survey may have achieved a greater response rate. These observations merit further exploration and support the authors' hypothesis of needing a new approach to developing knowledge and skills competencies for sustainable tourism.

Our approach for activating the CF is a hybrid taught, workplace-relevant pedagogy which leverages sensemaking and storytelling anchors, underpinned by a knowledge and skills framework that combines evidence-based learning with FE, vocational apprenticeship style approaches with microcredential certification. Amazon beekeeping narratives are core to our proposition as a catalyst for learning and cognitively reconnecting Greek tourism professionals to their cultural and natural heritage. Limitations to this study include the small participant sample and the short timescale of the study. However, it would be reasonable to suggest that a baseline of new understanding, in an area that has not been extensively studied, has been gathered as an indication of proof of concept to be taken to a further stage of enquiry.

The next step is a pilot study to test the conceptual framework through practical adaptation and iteration with insight from a wider group of stakeholders including Tourism Educators. Policymakers at both National and EU levels should be engaged to explore the potential of further development of the Conceptual Framework within Apprenticeship and microcredential frameworks along with collaboration with other studies to escalate and advance understanding and practice.

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### **Conflict of interest:**

The authors declare that there is no competing interest.

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