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Sustainable Education in Tourism: Students' Perceptions, Challenges, and the Path to Effective Integration in Portuguese HEIs

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Master's in Hospitality and Tourism Management

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And to Rui, whose presence reminds me each day that living is a consequential signifier.

ABSTRACT

Tourism faces a paradox: it depends on the world's natural and cultural resources while contributing to their depletion. Within this tension, higher education plays an important role in preparing professionals to promote sustainable practices.

This dissertation investigates the integration of sustainability in Portuguese tourism higher education and its influence on students' awareness, attitudes, and preparedness to apply sustainable practices in their careers. Using the Theory of Planned Behavior and Creativity, Professional, Personal, Systemic, and Sociocultural Framework, the study combines qualitative and quantitative methods to examine how courses shape sustainable professional confidence.

The qualitative phase analyzed 96 programs, revealing uneven and lecturer-dependent integration of sustainability, while 27 coordinator interviews highlighted a structural mismatch between discourse and pedagogical reality. The quantitative phase, based on a student survey, confirmed that greater curricular exposure and higher awareness are directly associated with increased confidence in applying sustainability principles. However, curricular exposure did not moderate the relationship between students' attitudes and confidence, indicating that current exposure lacks the depth and continuity required to transform knowledge into perceived professional confidence.

The study concludes that tourism higher education in Portugal has embraced the concept of sustainability but must strengthen pedagogical coherence, practical learning, and assessment to ensure graduates are prepared to lead sustainability transitions in the sector.

Keywords: Sustainable Development; Sustainability education; Tourism students; Portuguese HEIs; *Curriculum* integration

JEL Codes: I23 (Higher Education); Q01 (Sustainable Development)

RESUMO

O turismo enfrenta um paradoxo: depende de recursos naturais e culturais, mas contribui para a sua degradação. Neste contexto de tensão, o ensino superior assume um papel decisivo na formação de profissionais capazes de promover práticas sustentáveis.

Esta dissertação investiga a integração da sustentabilidade nos cursos superiores de turismo em Portugal e a sua influência na consciência, nas atitudes e na preparação dos estudantes para aplicarem, futuramente, práticas sustentáveis.

Com base na Teoria do Comportamento Planeado e no modelo de Competências Criativas, Profissionais, Pessoais, Sistémicas e Socioculturais, este estudo combina métodos qualitativos e quantitativos para analisar de que forma o currículo molda a confiança profissional orientada à sustentabilidade.

A fase qualitativa analisou 96 programas, revelando que a sustentabilidade continua a ser integrada de forma desigual, e 27 entrevistas com coordenadores que evidenciaram um desfasamento estrutural entre o discurso e a prática. A fase quantitativa, baseada em inquéritos a estudantes, confirmou que maior exposição curricular e níveis superiores de consciência estão positivamente diretamente associados a maior confiança na aplicação de princípios de sustentabilidade. Contudo, a exposição curricular não reforçou a relação entre atitudes e confiança, sugerindo que a visibilidade da sustentabilidade ainda não é suficiente para potenciar a conversão do conhecimento em confiança percebida.

O estudo conclui que o ensino superior português em turismo incorporou a sustentabilidade no plano declarativo, mas necessita de maior coerência pedagógica, de experiências de aprendizagem aplicadas e de mecanismos claros de avaliação para garantir que os futuros profissionais estejam efetivamente preparados para liderar a transição sustentável.

Palavras-chave: Desenvolvimento Sustentável; Educação para a Sustentabilidade; Estudantes de Turismo; IES Portuguesas; Integração Curricular

Códigos JEL: I23 (Educação Superior); Q01 (Desenvolvimento Sustentável)

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A3ES: *Agência de Avaliação e Acreditação do Ensino Superior* (Agency for Assessment and Accreditation of Higher Education)

C2P2S: Creativity, Professional, Personal, Systemic, and Sociocultural

CTSP: *Cursos Técnicos Superiores Profissionais* (Short Cycle Higher Technical Programs)

CSR: Corporate Social Responsibility

DGES: *Direção-Geral do Ensino Superior* (Directorate General for Higher Education)

DGEEC: *Direção-Geral de Estatísticas da Educação e Ciência* (Directorate General of Education and Science Statistics)

ECTS: European Credit Transfer System

EFA: Exploratory Factor Analysis

EHEA: European Higher Education Area

ESD: Education for Sustainable Development

FUCs: *Fichas de Unidades Curriculares* (Course Syllabi)

GDPR: General Data Protection Regulation

GSTC: Global Sustainable Tourism Council

HEIs: Higher Education Institutions

INE: *Instituto Nacional de Estatística* (National Statistics Institute, Portugal)

SD: Sustainable Development

SDGs: Sustainable Development Goals

TBL: Triple Bottom Line

TPB: Theory of Planned Behavior

UNESCO: United Nations Educational, Scientific, and Cultural Organization

CHAPTER 1

Introduction

Tourism is among the fastest-growing economic sectors, shaping employment opportunities, cultural exchange, and national development strategies (Wijesekara *et al.*, 2022). In Portugal, its importance is particularly pronounced, reaching €34 billion in 2024 and accounting for 11.9% of national Gross Domestic Product (*Instituto Nacional de Estatística*, 2025). However, rapid growth intensifies ecological pressures and socio-cultural tensions, revealing how progress and vulnerability can become intertwined when development is pursued without responsible governance (Halkos & Ekonomou, 2023). This paradox makes sustainability an existential condition for the future of tourism.

The United Nations' 2030 Agenda explicitly positions tourism as a transformative driver of sustainable development (SD), particularly through Sustainable Development Goals (SDGs) 8.9 (sustainable tourism for jobs and culture), SDG 12.b (monitoring sustainability impacts), and SDG 14.7 (marine tourism benefits) (United Nations, 2015; El Archi *et al.*, 2023). Complementing this global mandate, the Global Sustainable Tourism Council (GSTC) has advanced criteria that frame tourism's contribution to environmental stewardship, cultural preservation, and socio-economic equity (GSTC, 2016a; GSTC, 2016b; GSTC, 2019). Yet, despite ambitious frameworks, critics observe that certification often prioritizes compliance and marketing incentives over reflective organizational transformation (Elhoushy *et al.*, 2025).

In this tension between what is said and what is done, Education for Sustainable Development (ESD) acquires strategic significance, as it can prepare graduates with the knowledge that translates sustainability principles into practice (Berchin *et al.*, 2021; Ruiz, 2024). Research suggests that students' perceptions of sustainability evolve across their academic journey, with practical learning approaches such as internships, fieldwork, and problem-based projects, building skills more effectively than traditional lectures (Hamón *et al.*, 2020; Tavitiyaman & Zhang, 2022; Fuchs, 2023). For this reason, curricular integration is essential to this process, which can either be vertical or horizontal. Vertical integration refers to the progressive reinforcement of sustainability learning outcomes across study cycles and academic years, allowing students to develop increasingly complex and applied understandings of sustainability principles as they advance through their degree. Conversely, horizontal integration involves embedding sustainability transversally across different disciplines and

course units within the same study cycle, ensuring that environmental, social, and economic dimensions are treated as interconnected rather than as isolated topics. Together, vertical and horizontal integrations foster systemic understanding and prevent sustainability from being introduced in fragmented or peripheral ways (Severino, 2023).

At the same time, research also highlights that students often misjudge their own sustainability knowledge, a dynamic captured by the Dunning–Kruger effect, in which limited understanding can produce unwarranted confidence, while deeper learning heightens awareness of complexity (Fuchs, 2023). This distortion has important implications for sustainability education: inflated confidence may reduce motivation to pursue further training, whereas underestimated knowledge may hinder capacity for leadership in sustainable practice. Therefore, self-reported awareness levels do not always reflect actual learning outcomes, reinforcing the need for pedagogical strategies that include formative feedback, reflexive assessment, and opportunities for applied learning to calibrate students' self-perceptions against demonstrable skills (Ehrlinger *et al.,* 2008; Fuchs, 2023).

In Portugal, a growing body of research has surveyed students' perceptions of sustainability, primarily led by the works of Aleixo, Leal, and Azeiteiro (2018, 2020, 2021, 2024), though most studies focus on higher education broadly. Little attention has been explicitly directed to tourism programs, even though the sector depends heavily on environmental and cultural resources while simultaneously contributing to their vulnerability (Gössling *et al.*, 2015; UNWTO, 2017). This gap is especially striking given that tourism is not only a strategic economic pillar but also a policy priority in Portugal's *Estratégia Turismo 2027*, which openly links competitiveness to sustainability (Turismo de Portugal, 2017). The enthusiasm of future graduates is therefore decisive: without adequate preparation, tourism professionals may reinforce unsustainable practices rather than mitigate them.

To address this challenge, the present dissertation employs a mixed-methods approach that connects structural analysis with student experiences. A qualitative analysis of tourism curricula and interviews with program coordinators seek to understand how sustainability is institutionally embedded. In contrast, a quantitative survey of tourism students in Portuguese Higher Education Institutions (HEIs) evaluates awareness and attitudes as determinants of confidence for professional action, drawing on the Theory of Planned Behavior (TPB) (Azjan, 1991) and the Creativity, Professional, Personal, Systemic, and Sociocultural (C2P2S) framework (Risopoulos-Pichler *et al*., 2020).

Accordingly, this research contributes with original evidence on the effectiveness of sustainability integration in Portuguese tourism higher education, a field where empirical

research remains limited. The findings offer actionable guidance for curricula reform and policy implementation in alignment with national sustainability priorities.

Considering the above, this study asks: *How do tourism students in Portuguese Higher Education Institutions perceive their curricular exposure to sustainability education, their awareness and understanding of sustainability principles, and the attitudes and social expectations they attribute to sustainability, and how do these perceptions relate to their professional confidence in applying sustainability practices?*

1.1. Research objectives

The study aims to assess how ESD is integrated into tourism programs in Portuguese HEIs and to analyze how students perceive its relevance to their education and future careers. Through the alignment of curricula evidence, program coordinators' insights, and learner perspectives, the specific objectives are as follows:

1. Evaluate the extent and manner in which sustainability education is embedded within the curricula of tourism programs across Portuguese HEIs.
2. Examine tourism students' awareness and understanding of sustainability principles, specifically self-reported knowledge of environmental, social, and economic dimensions.
3. Assess students' attitudes toward sustainability and perceived social expectations in the context of their academic journey and professional preparation.
4. Investigate the relationship between students' sustainability knowledge and their professional confidence in applying sustainability practices.
5. Analyze the extent to which curricular exposure conditions the relationship between sustainability intentions and professional confidence.

1.2. Conceptual Framework of the Research

Figure 1.1 presents the conceptual framework of this dissertation. It positions tourism education within global and national sustainability agendas, while highlighting key institutional challenges that constrain the effective implementation of ESD in HEIs.

The research adopts a mixed-methods approach that connects the structural and perceptual dimensions of sustainability education: a qualitative curricular analysis of tourism syllabi, as well as interviews with program coordinators, and a quantitative survey of tourism students in Portuguese HEIs. These two strands are conceptually framed by the TPB, which explains attitudinal and motivational drivers of sustainable behavior, and by the C2P2S framework,

which conceptualizes professional confidence as a function of integrated competencies. The framework thus links the research objectives to the research question, illustrates the gap between policy and educational practice, and outlines the analytical pathway through which this study examines the integration and impact of ESD in Portuguese higher education for tourism.

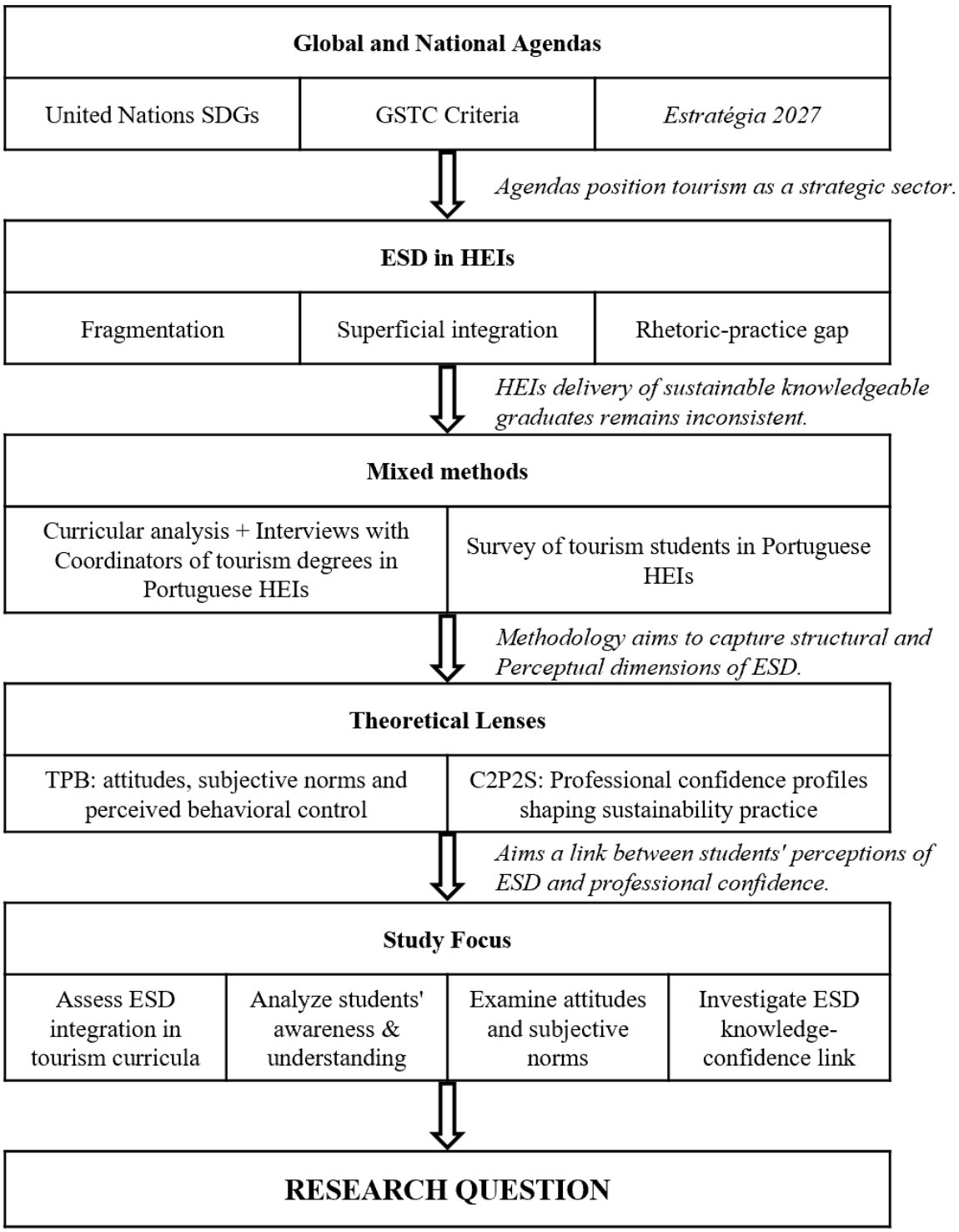

Figure 1.1: Conceptual Framework of the Dissertation

CHAPTER 2

Literature Review

2.1. Sustainable Development

SD has become a cornerstone of international policy discourse since the Brundtland Report (World Commission on Environment and Development, 1987, p. 37) famously defined it as *"...development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*" While widely cited, this definition has been criticized for its normative vagueness, which enables actors to selectively emphasize economic growth while downplaying ecological and social dimensions (Purvis *et al.*, 2018).

The dominant conceptualization of SD rests on the three-pillar model, or Triple Bottom Line (TBL), which frames sustainability in economic, social, and environmental terms (Elkington, 1994; Fig. 2.1).

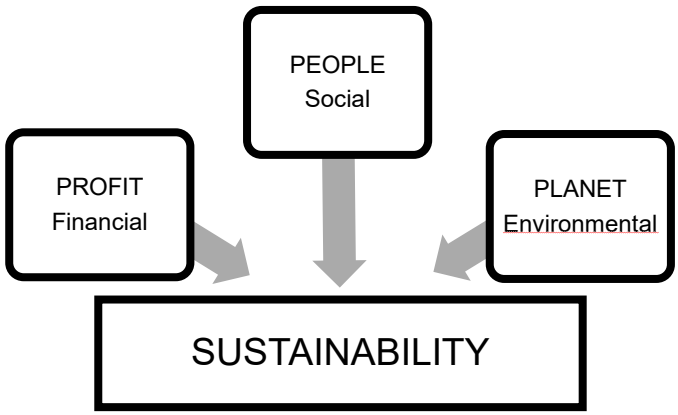

Figure 2.1: *Triple Bottom Line*
(Elkington, 1994)

Although appealing for its simplicity, scholars have questioned whether this model adequately captures the complex interdependence among these domains. For instance, Pisani (2007) and Zizka (2017) highlight the persistent tensions between economic imperatives and social equity, while Maiorescu *et al.* (2020) argue that empirical studies continue to treat the three pillars in isolation rather than as an integrated system.

Recent work calls for more integrated and systemic approaches, emphasizing cross-sectoral collaboration and recognition of ecological limits (Madanaguli *et al.*, 2023). In fact, the

persistence of the three-pillar framing reflects both its political utility and analytical limitations. It offers a common language for diverse stakeholders, but one that may obscure power relations and value choices underlying sustainability debates. For this reason, SD should be understood less as a settled framework and more as a contested concept, continually reshaped by academic review and policy practice.

One of the most influential frameworks for guiding SD efforts is the United Nations SDGs, introduced in 2015. The 17 SDGs address interconnected challenges such as poverty, inequality, climate change, and environmental degradation (United Nations, 2015). While widely hailed as a comprehensive roadmap for governments, businesses, and civil society (Ruiz, 2024), scholars note that the SDGs' broad scope and aspirational language, though politically advantageous, often lead to implementation gaps, uneven national commitments, and measurement challenges (Hickel, 2019). Moreover, the goals can reproduce a growth-oriented logic, raising questions about their compatibility with environmental limits. Thus, the SDGs function less as a prescriptive plan than as a negotiated compromise, balancing global consensus with significant trade-offs (Fig. 2.2)

Figure 2.2: Sustainable Development Goals
(United Nations, 2025)

Nevertheless, SD encompasses economic, social, and environmental dimensions that must be pursued in tandem. Economically, SD requires moving from linear production toward circular models that reduce waste and maximize resource efficiency through innovation and responsible practices (Bettencourt & Kaur, 2011; Correia *et al.*, 2020). Companies are increasingly integrating sustainability into supply chains, emphasizing ethical labor standards,

low-carbon logistics, and waste reduction (Aleixo *et al.*, 2021). Corporate social responsibility (CSR) reinforces this shift by linking profitability to environmental safety and community well-being (Zizka, 2017).

Social sustainability emphasizes equity, inclusivity, and quality of life, particularly through fair access to resources and community engagement. In tourism and service industries, it is closely tied to local empowerment, cultural heritage preservation, and equitable benefit-sharing. ESD is essential here, as HEIs foster critical thinking that trains graduates to act as change agents (Duarte & Silva, 2023; Leal *et al.*, 2024).

All considered, environmental sustainability remains the most urgent dimension, with climate change mitigation and biodiversity protection at its core (Akinci & Kasalak, 2018). Global agreements such as the *Paris Accord* demand systemic reductions in carbon emissions (United Nations, 2015). Progress depends not only on government policy but also on Corporate Social Responsibility (CSR) embedded in organizational culture, supported by employee competencies and motivation (Duarte & Mouro, 2022; Henriques *et al.*, 2024). In the case of tourism, operational choices directly affect ecological and social outcomes.

Finally, SD requires cross-sectoral collaboration. Governments, enterprises, NGOs, and communities must coordinate through governance frameworks and public–private partnerships, though policy fragmentation and institutional resistance persist as barriers (Maiorescu *et al.,* 2020; Madanaguli *et al.*, 2023; Bonilla-Jurado *et al.*, 2023). Achieving meaningful transformation, therefore, demands not only technical solutions but also a renegotiation of institutional priorities and governance practices (Fig. 2.3)

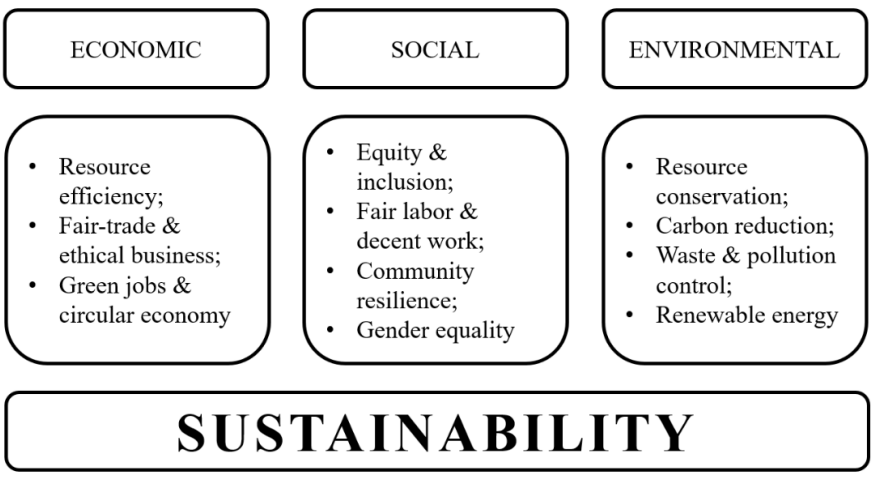

Figure 2.3: Sustainability Construction

(Own elaboration based on the United Nations, 2025)

2.1.1. Sustainability in the Tourism Sector

Tourism is a major driver of the global economy, but its growth has magnified environmental and social pressures, making sustainability indispensable to industry debates (Ruiz, 2024). Sustainable tourism emerged in response to environmental degradation, resource depletion, and socio-cultural disruptions linked to mass tourism (Madanaguli *et al.*, 2023). However, implementation remains contested, as competing interests between governments, businesses, communities, and tourists frequently undermine consensus (Bonilla-Jurado *et al.*, 2023).

Environmental impact management is the most visible challenge. Tourism significantly contributes to carbon emissions, biodiversity loss, and excessive resource use (Ekonomou & Halkos, 2023). While initiatives such as eco-certifications, renewable energy adoption, and waste reduction have proliferated, critics highlight their limited transformative impact due to weak enforcement and the absence of standardized indicators (Fonseca *et al.*, 2025).

Socio-cultural sustainability is equally complex. Tourism can empower communities through heritage preservation, fair wages, and participatory governance, but it also risks exploitation and cultural commodification (Pisani, 2007; Henriques *et al.*, 2024). The persistence of economic leakage, where profits bypass local populations (Zizka, 2017), along with the rise of overtourism, reflects tensions between revenue and protection (Severino, 2023).

Based on the above, agendas and frameworks are important but remain inconsistent. Governments are called upon to enforce environmental protections and promote sustainable practices (Akinci & Kasalak, 2018), yet economic pressures often dilute enforcement capacity (Correia *et al.*, 2020). Meanwhile, technological innovation has opened new opportunities: smart tourism tools, AI-based optimization, and blockchain systems that promise greater resource efficiency, with Destination Management Organizations experimenting with data-driven visitor regulations. However, technological implementation is uneven and risks deepening inequalities between destinations (Camargo & Gretzel, 2017; Leal *et al.*, 2024).

The COVID-19 pandemic further exposed tourism's vulnerability and underscored the need for resilience strategies that integrate sustainability into recovery plans (Fuchs, 2023). For tourism, these tensions are particularly acute, as SDGs highlight tourism as a means of inclusive growth (SDG 8.9), yet empirical evidence reveals policy-practice gaps, in which sustainability discourse masks unsustainable expansion models (Gössling *et al.*, 2015; Ekonomou & Halkos, 2023). While expansions in policy, governance, and innovation suggest progress (Sørensen & Grindsted, 2021; Elgin & Elveren, 2024), unresolved contradictions remain a defining challenge, which strengthens the need for ESD.

2.2. Education for Sustainable Development

The UNESCO Decade of ESD (2005–2014) highlighted embedding sustainability principles into curricula at all levels (Menon & Suresh, 2020), and evidence suggests that ESD enhances students' environmental awareness, critical thinking, and ethical decision-making (Zizka, 2017), positioning it as the basis of global sustainability strategies (Madanaguli *et al.*, 2023).

Nonetheless, higher education often falls short of this ambition. Traditional lecture-based formats dominate, limiting opportunities for active engagement (Maiorescu *et al.*, 2020). Practical learning approaches, however, strengthen students' capacity to apply sustainability principles in practice (Fonseca *et al.*, 2018; Leal *et al.*, 2024). Institutional commitment is decisive: faculty training in sustainability pedagogy has been shown to expand professors' ability to integrate these concepts effectively (Leal *et al.*, 2024). On the other hand, digital technologies are increasingly promoted as innovative pathways for ESD, including online platforms, simulations, and gamification (Castro & Zermeño, 2020). Still, adoption has often outpaced evaluation, raising concerns that digital tools may repeat traditional pedagogies rather than foster deeper competencies. Collaborative learning models yield better results by enabling student-led initiatives and peer engagement (Camargo & Gretzel, 2017).

Despite advances, systemic barriers persist. Market-driven curricula repeatedly marginalize sustainability content (Lim *et al.*, 2022), and the absence of standardized accreditation frameworks generates inconsistencies (Henriques *et al.*, 2024). Moreover, the theory-practice gap remains pronounced: students in tourism programs report awareness of sustainability but limited ability to enact it professionally (Figueiró & Raufflet, 2022; Ekonomou & Halkos, 2023; Shafieieh *et al.*, 2024). These findings suggest that awareness is necessary but insufficient. Additionally, outcomes vary across institutions and programs (Asriyani *et al.*, 2024), highlighting the role of contextual factors such as curricular integration and real-world engagement. From a behavioral perspective, the TPB helps explain this gap: awareness and understanding constitute the cognitive foundations that shape attitudes, inform perceptions of social expectations, and influence perceptions of behavioral control, thereby determining students' readiness to act sustainably.

Previous research suggests that students' levels of sustainability awareness and understanding are not uniform but shaped by multiple contextual and institutional factors. Variations often reflect the degree to which sustainability is embedded in the curriculum (Lim *et al.*, 2022), the presence of experimental or practice-oriented learning opportunities (Fonseca *et al.*, 2018; Leal *et al.*, 2024), and the extent of faculty engagement and institutional

commitment to sustainability education (Leal *et al.*, 2024). Also, exposure to digital and collective pedagogies has been linked to differences in students' cognitive and attitudinal development regarding sustainability (Camargo & Gretzel, 2017; Castro & Zermeño, 2020).

Across these studies, students generally demonstrate moderate to high levels of sustainability awareness, particularly regarding visible and policy-related domains such as environmental sustainability and the SDGs. However, their understanding of the social and economic pillars and their interconnections tends to be less developed, revealing a persistent gap between declarative knowledge and systemic comprehension (Figueiró & Raufflet, 2022; Ekonomou & Halkos, 2023; Shafieieh *et al.*, 2024). In line with TPB, awareness and understanding are thus treated as cognitive antecedents that underpin the formation of pro-sustainability attitudes and confidence. These structural and pedagogical disparities justify the expectation that tourism students in Portuguese HEIs will exhibit moderate overall awareness, with meaningful variation across specific sustainability dimensions and institutional contexts.

H1: *Tourism students in Portuguese HEIs demonstrate moderately high levels of awareness and understanding of sustainability principles, with variation expected across different sustainability dimensions and academic contexts.*

2.2.1. Integration of Sustainability Education in HEIs

HEIs are often portrayed as decisive actors in advancing sustainability agendas, particularly through the influence of the United Nations' SDGs. They are expected to prepare alumni with the competencies needed to address systemic economic, social, and environmental challenges (Leal Filho *et al.*, 2025). Nonetheless, this expectation rests largely on normative claims rather than systematic evidence of transformative outcomes. Much of the literature assumes that HEIs can uniquely embed sustainability, but few studies examine how institutions reconcile market-oriented mandates with sustainability missions (Figueiró & Raufflet, 2015).

Curricular design reflects this tension. Two dominant models are evident: the stand-alone course model, where sustainability is addressed in discrete modules, and the integrative model, which embeds sustainability across disciplines (Tasdemir & Gazo, 2020). While the latter is celebrated for fostering interdisciplinarity and problem-solving (Lim *et al.*, 2022), critics argue that it often results in superficial engagement with sustainability, producing what Barth and Rieckmann (2012) describe as "*thin sustainability*." In practice, integrative approaches may dilute rather than deepen learning, particularly where faculty lack expertise or incentives.

Beyond curriculum, structural barriers shape outcomes, as disciplinary silos constrain collaboration, rendering sustainability education fragmented (Menon & Suresh, 2020).

Financial and bureaucratic constraints may exacerbate the problem, as sustainability programs often rely on external project funding (Basheer *et al.*, 2025).

A further challenge is the gap between rhetoric and practice. Many institutions make bold commitments to the SDGs, but governance structures and pedagogical strategies often fail to deliver on these promises. As Weiss *et al.* (2021) note, HEIs excel at discursive positioning yet lag in embedding sustainability into learning. This disconnect undermines credibility and shapes student perceptions: when sustainability is treated as marginal, students' sense of professional preparedness diminishes (Aleixo *et al.*, 2021).

Institutional culture is equally decisive. HEIs that integrate sustainability into governance, decision-making, and co-curricular initiatives cultivate more authentic student engagement. The literature says such cases are rare and that integration remains fragmented; in most contexts, sustainability appears as an add-on, and leaders still prioritize employability rankings, revenue, and visibility over sustainability (Lozano *et al.*, 2015). While studies demonstrate the centrality of HEIs in sustainability transitions, they also reveal a sector caught in inertia, where institutional statements frequently outpace pedagogical realities. Empirical research conducted in European contexts suggests that ESD integration within higher education curricula remains moderate and uneven. Although most HEIs reference the SDGs and ESD principles in strategic documents, these commitments are only partially reflected in course content and pedagogical practice (Aleixo *et al.*, 2021; Weiss *et al.*, 2021; Henriques *et al.*, 2024; Leal Filho *et al.*, 2025).

Tourism programs, in particular, tend to emphasize economic dimensions while providing limited engagement with social or environmental aspects (Figueiró & Raufflet, 2022). Consequently, students are typically exposed to sustainability through isolated modules rather than cross-curricular content. Within the TPB framework, such uneven exposure can be read as a structural antecedent that shapes the cognitive foundations of sustainable behavior: it provides students with partial opportunities to internalize sustainability values, influencing their attitudes, perceived social expectations, and ultimately their confidence to act sustainably.

Based on this evidence, a moderate level of curricular exposure is expected, with significant variation across study cycles and institutional types.

H2: Tourism students in Portuguese HEIs report moderate but uneven curricular exposure to sustainability, reflecting differences in how ESD principles are integrated across study cycles and institutions.

2.3. Students' Perceptions of Sustainability in Education

Students' perceptions of sustainability in higher education are shaped by institutional commitment, pedagogy, and exposure to real-world challenges (Aleixo *et al.*, 2021). Research shows that while most students are aware of sustainability issues, their depth of understanding varies by discipline and institutional context (Saqib *et al.*, 2020). In Portugal, a survey of 1,257 students revealed that although sustainability is highly valued, many felt their education offered limited preparation for applying these principles professionally, highlighting a gap between theoretical coverage and confidence (Aleixo *et al.*, 2021). Similar results in Spain suggest that stronger institutional integration of sustainability into campus life correlates with more positive student attitudes (Hamón *et al.*, 2020).

Pedagogy is a critical determinant, as traditional lecture-based methods often disengage students (Howell, 2021), whereas active, practical approaches foster critical thinking and problem-solving (Serafini *et al.*, 2022). Engagement also reflects personal values, socio-economic background, and experiences beyond the classroom: students involved in extracurricular initiatives or community projects show a higher commitment to sustainability (Badea *et al.*, 2020; Weiss *et al.*, 2021).

Disciplinary variation is especially significant, and fields like environmental sciences and engineering treat sustainability as a core curricular principle, while business education emphasizes it through CSR and management practices. In contrast, humanities and social sciences often engage with sustainability peripherally, leading to lower perceived relevance (Saqib *et al.*, 2020; Abo-Khalil, 2024). Tourism represents a distinctive case: sustainability is increasingly important to responsible destination management, ecotourism, and heritage preservation (Handayani, 2019; Figueiró & Raufflet, 2022). This aligns with SDG 8.9, which links sustainable tourism to decent work, local culture, and inclusive economic growth.

Despite this growing recognition, a persistent theory-practice gap remains (Zizka, 2017). According to TPB, students' evaluations of the importance of sustainability influence their attitudes and intentions toward sustainable behavior. These psychological mechanisms help explain how educational experiences shape professional confidence. The C2P2S framework enriches this view by conceptualizing confidence as the readiness to apply sustainability principles creatively and systematically, although competence itself is not measured as a separate construct.

In this study, positive attitudes toward sustainability are operationalized through students' favorable evaluations of sustainability's relevance to tourism and their own career preparation.

Higher mean scores indicate more positive attitudes and stronger recognition of sustainability as a key component of their educational and professional trajectory.

H3: Tourism students in Portuguese HEIs demonstrate positive attitudes towards sustainability, viewing it as an essential part of their education and a source of professional confidence.

2.4. Theoretical Framework: TPB-C2P2S Model for ESD in Tourism

Sustainability education in HEIs has been shown to foster students' awareness, shape pro-sustainability attitudes, and influence perceptions of social expectations, thereby strengthening their readiness to act sustainably (Aleixo *et al.*, 2021; Weiss *et al.*, 2021; Duarte & Silva, 2023; Leal *et al.*, 2024). These elements align with constructs of the TPB (Ajzen, 1991), namely attitudes and subjective norms, which together can explain how educational experiences become psychological determinants of sustainable action. In this research, the TPB constructs are treated as proximal antecedents, clarifying how the knowledge and exposure gained through ESD translate into students' professional confidence in applying sustainable practices.

While TPB highlights the psychological antecedents of intention, it does not fully address whether such intentions are effectively enacted in professional contexts. To capture this applied dimension, the study draws conceptually on the C2P2S Framework (Risopoulos-Pichler *et al.*, 2020), which identifies creativity, professional, personal, systemic, and sociocultural domains. These dimensions represent the creative thinking, adaptability, systems perspective, and intercultural awareness necessary to act sustainably in tourism environments.

In this research, however, the C2P2S framework is not used to measure discrete abilities but rather to theoretically enrich the construct of professional confidence, conceptualizing it as the perceived readiness to apply sustainability principles in professional contexts. The framework thus shapes the qualitative nature of that confidence by linking TPB to broader capabilities for critical, creative, and systemic thinking about sustainability challenges professionals may encounter in the tourism industry.

Bringing TPB and C2P2S together provides a dual and complementary lens: TPB explains the cognitive and motivational processes shaping sustainability intentions, while C2P2S illuminates the conceptual attributes of confidence and action-oriented engagement with sustainability. Together, they portray both the psychological readiness and the conceptual depth underpinning sustainable professional practice in tourism, enabling a richer understanding of how learning experiences translate into confidence for transformative sustainability.

2.4.1. Theory of Planned Behavior

The TPB (Ajzen, 1991) remains one of the most widely applied frameworks for explaining how cognitive and motivational factors shape intention and action. It theorizes that behavior is predicted by three determinants: attitudes toward the behavior, subjective norms, and perceived behavioral control. Within the context of sustainability education, TPB provides an analytical lens for examining how higher education experiences translate into students' readiness to engage with sustainability. Curricular exposure is expected to strengthen favorable attitudes toward sustainability, reinforce perceptions of normative support from peers and lecturers, and enhance students' sense of control over their ability to apply sustainable practices (Boca & Saraçlı, 2019; Henriques *et al.*, 2024).

In this research, professional confidence is conceptualized as an applied form of PBC, reflecting students' perceptions of control over enacting sustainability in professional contexts. This operationalization aligns with prior research demonstrating that sustainability literacy is positively associated with self-efficacy and confidence in addressing complex environmental and social challenges (Heeren *et al.*, 2016; Simonsmeier *et al.*, 2021; Nielsen *et al.*, 2025). By integrating sustainability awareness and understanding into the TPB framework, this research tests whether knowledge functions as an introductory driver of perceived behavior, thereby reinforcing professional confidence and competence.

Although professional confidence and competence are closely related, they represent conceptually distinct constructs. Competence refers to an objectively demonstrable set of skills, knowledge, and abilities required to perform sustainability-related tasks effectively. It is performance-based and can be externally validated or observed in practice (Mulder, 2014). On the other hand, professional confidence denotes a subjective belief in one's ability to apply sustainability principles successfully in professional situations. Within TPB, this aligns directly with perceived behavioral control, emphasizing belief rather than performance.

Accordingly, this study treats professional confidence as an attitudinal manifestation of perceived behavioral control rather than a measure of competence. It captures students' perceived capability to apply sustainability knowledge and principles, without claiming to assess their actual technical or managerial proficiency. While the C2P2S framework conceptually develops this perspective by framing confidence as readiness to act through creative, critical, and systemic engagement with sustainability challenges, competence domains are not empirically measured. Thus, the model positions confidence as the psychological outcome of awareness, attitudes, and perceived norms.

Operationally, higher levels of sustainability awareness and understanding are characterized by stronger self-reported comprehension of key sustainability concepts, which are hypothesized to predict greater professional confidence in applying sustainability practices. H4: *Higher levels of sustainability awareness and understanding are positively associated with students' professional confidence in applying sustainability practices*.

2.4.2. C2P2S Framework

While the TPB explains how cognitive and motivational factors generate sustainability intentions, intention alone does not ensure effective professional practice. Transforming intention into confidence to action requires multidimensional capacities that enable graduates to address sustainability challenges. To capture this applied dimension, the present study draws on the C2P2S Framework (Risopoulos-Pichler *et al.*, 2020), which delineates five interrelated competence areas: creativity, professional, personal, systemic, and sociocultural. Collectively, these domains represent the combination of innovative thinking, technical proficiency, adaptive disposition, systemic understanding, and intercultural awareness necessary for effective sustainability engagement.

In this research, the C2P2S Framework serves a conceptual rather than operational function. It does not measure specific competences empirically; instead, it provides a theoretical lens for interpreting the qualitative nature of professional confidence. Within this perspective, confidence is understood as the perceived readiness to mobilize these competence domains in practice, that is, to think systemically, act ethically, and adapt creatively to complex sustainability demands. This concept extends the TPB by linking its psychological antecedents (attitudes and subjective norms) to the broader architectural expertise that underpins sustainable professional behavior.

From this perspective, the model suggests that positive sustainability attitudes and supportive subjective norms, formed through the TPB constructs, are more likely to translate into professional confidence when students experience substantial curricular exposure to sustainability. Such exposure strengthens their familiarity with applied contexts, enabling them to visualize how abstract values and intentions can be enacted through the competences represented in the C2P2S framework. In statistical terms, curricular exposure is treated as a moderating variable, expected to amplify the positive association between TPB-based attitudinal predictors and professional confidence.

H5: *The relationship between TPB-based attitudinal predictors ((a) attitudes and (b) subjective norms) and professional confidence in applying sustainability practices is moderated by curricular exposure, such that stronger exposure strengthens this relationship.*

2.5. Analytical Model of the Quantitative Phase

The analytical model presented in Figure 2.4 synthesizes the hypotheses tested in the quantitative phase of the study, integrating key TPB constructs with the conceptual contribution of the C2P2S framework. In this model, sustainability awareness and understanding function as a central cognitive construct, which is descriptively assessed (H1) and subsequently tested as a direct predictor of professional confidence (H4). Attitudes and subjective norms are conceptualized as TPB-based attitudinal predictors of professional confidence and are empirically examined through their direct association with professional confidence (H5). Curricular exposure is conceptualized as a structural characteristic of the educational context and is descriptively assessed as H2, while its inferential role is examined exclusively as a moderating variable that conditions the relationship between TPB-based attitudinal predictors and professional confidence (H5). While curricular exposure and awareness are discussed in the literature as sequentially related, the present quantitative model deliberately restricts its analytical scope to relationships that are empirically tested in the statistical analysis.

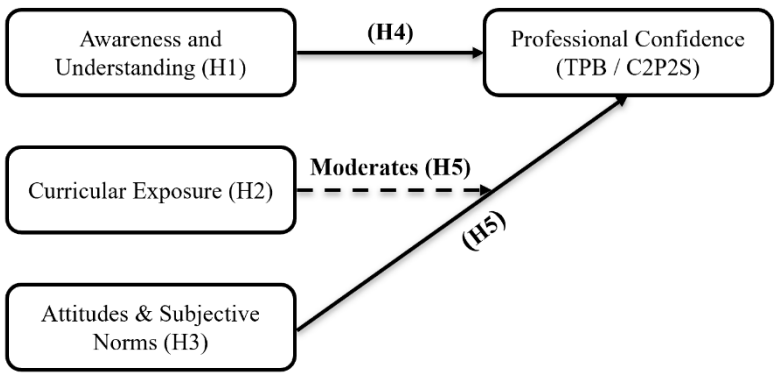

Figure 2.4: Analytical Model of the Quantitative Phase
(own elaboration based on Ajzen, 1991; Risopoulos-Pichler *et al.*, 2020; Aleixo *et al.*, 2021)

This model enables the visualization of the theoretical logic linking exposure, cognition, attitudes, and professional confidence, serving as the bridge between the theoretical framework and the methodological procedures presented in the next chapter. Chapter 3 details how each construct was operationalized, measured, and statistically tested to evaluate the relationships hypothesized in this model.

CHAPTER 3

Research Methodology

3.1. Research Design

The methodological framework of this study employs a structured, mixed-methods approach comprising two complementary phases: qualitative and quantitative. The first phase uses a qualitative design integrating two interrelated strategies: (a) documentary analysis of tourism curricula and (b) semi-structured interviews with program coordinators. Together, these approaches provide a comprehensive understanding of how ESD is integrated, represented, and operationalized in Portuguese higher education (Specific Objective 1). The second phase adopts a quantitative design, consisting of a structured questionnaire administered to students enrolled in tourism programs, to test the hypotheses related to Specific Objectives 2 to 5.

3.2. First Phase: Qualitative Analysis

The first phase of this study employed a qualitative approach combining documentary and interview data. Based on data from the Directorate-General for Higher Education (DGES, 2025b), 104 higher education programs in Portugal were initially identified as containing the term *Tourism* in their full or partial titles (Appendix A).

To complement this structural mapping, 27 semi-structured interviews were conducted with coordinators of tourism programs in Portuguese HEIs. The interview guide (Appendix D) was created to explore coordinators' perceptions of how sustainable development is integrated, encompassing its pedagogical, institutional, and policy dimensions.

3.2.1. Data Sources

A total of 104 tourism-related degree programs were initially identified. However, upon verification of the official websites of Portuguese HEIs, only 96 programs were open and had publicly available curricular information. Of the 96 programs assessed, all presented official study plans, but only 44 also made *Fichas de Unidades Curriculares* (FUCs) available (Appendix B). In addition to the documentary corpus, the qualitative dataset included interviews with coordinators of tourism programs in Portuguese HEIs. Coordinators responsible for the 96 active programs were contacted via institutional email, and 27 of them agreed to participate, providing insights into the pedagogical and institutional scopes.

3.2.2. Data Collection

The collection of curricular documentation was carried out between April and July 2025, through a systematic search of official HEIs' websites (Appendix C), complemented by the DGES (2025b) database to ensure comprehensive coverage. Curricular materials were downloaded directly from institutional repositories whenever available and subsequently organized into a structured database.

The interview data were collected in April and June 2025. Each interview was conducted individually and online via *Zoom*, with prior informed consent (Appendix E). All sessions were recorded with authorization, transcribed *verbatim,* and anonymized through an alphanumeric pseudonym system to ensure confidentiality.

3.2.3 Procedure

For the curricula assessments, all materials were cataloged and standardized before being imported into *NVivo 14* to facilitate coding and thematic analysis. The evaluation was conducted at two levels: at the program level, study plans for all 96 degrees were examined; at the course level, available FUCs were analyzed. The same procedure was applied to the interview data. After transcription and anonymization, all interviews were imported into *NVivo 14* and coded according to the analytical framework described in the following section.

3.2.4. Data Analysis

The analysis of the curricula and the interviews followed the principles of qualitative content analysis proposed by Bardin (2011), combining deductive and inductive coding to capture both predefined dimensions of sustainability and emerging themes identified in the curricula. For the curricula, the deductive coding was guided by the SDGs and the sustainability model adapted from Wu *et al.* (2019), which conceptualizes sustainability across economic, social, and environmental dimensions and their intersections (Figure 3.1).

For the interview data, the deductive level drew on the sustainability dimensions established, while the inductive data allowed additional analytical dimensions to emerge. These emergent themes captured institutional, pedagogical, and student dynamics that shaped the integration of sustainability in tourism programs in HEIs. The final structure presented in Table 3.1 synthesizes the seven themes analyzed and their respective subcodes.

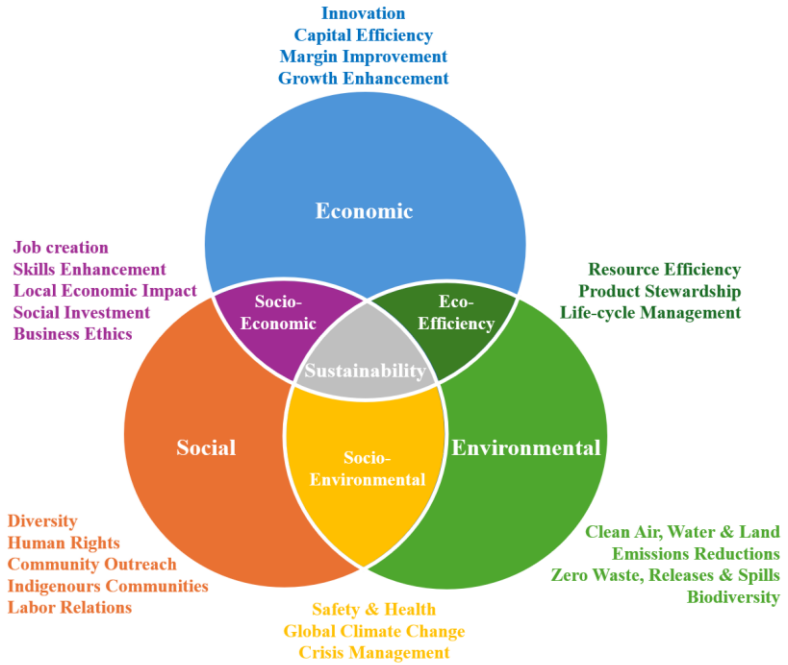

Figure 3.1: Thematic Dimensions of Sustainability (Adapted from Wu *et al.*, 2019)

Table 3.1

Thematic Coding Framework Used for the Interviews

Theme / Category	Subcodes (Nodes)	Analytical Type	Description / Interpretation
1. Sustainability Dimensions	*Environmental, economic, social, socio-economic, socio-environmental, Circular Economy*	Deductive	Identify which sustainability pillar is emphasized or neglected in coordinators' discourse and curricula.
2. Integration Approaches	*Curricular (explicit UC), interdisciplinar or extracurricular.*	Inductive	Capture how sustainability is incorporated into programs.
3. Barriers	*Bureaucratic / Accreditation, Resource Constraints, Faculty Training / Literacy*	Inductive	Interviewees' reports of structural, procedural or human obstacles to sustainability integration.
4. Institutional Culture	*Leadership & Strategy, Faculty Autonomy, Communication & Branding*	Inductive	Organizational ethos, governance models and communication strategies to integrate sustainability.
5. Pedagogical Innovation	*Project-based Learning, SDG Integration, Partnerships / Stakeholders*	Inductive	Reflects innovative teaching practices and collaborations adopted to help integrate sustainability
6. Student Dimension	*Awareness, Engagement, Professional Readiness*	Inductive	Students' affective relation to sustainability, as well as their professional confidence.
7. Best Practices	*Reform Proposals, Successful Experiences*	Inductive	Coordinators' suggestions and examples of effective practices that can strengthen sustainability integration.

3.3. Second Phase: Quantitative Analysis

This phase aimed to test the analytical model developed in Chapter 2 empirically. The quantitative phase examined tourism students' perceptions of the importance and integration of sustainability principles within Portuguese HEIs. This assessment tested whether greater exposure to sustainability education enhances students' awareness, attitudes, and professional confidence. The model's hypotheses (H1–H5) were operationalized through a structured questionnaire and tested using statistical procedures detailed in the following subsections.

3.3.1. Population and Sample

The target population for the quantitative phase comprises all students enrolled in higher education programs in Portugal who explicitly include the term Tourism in their full or partial title during the academic year 2024/2025. Based on data compiled in Appendix A, a total of 96 active programs were identified, offering 3,204 yearly vacancies and with 4,603 students registered, according to information collected from institutional websites (Appendix C) and *Dados e Estatísticas de Cursos Superiores* (2025). For 20 programs, enrollment data were not publicly available: six CTSPs, two bachelor's programs, seven master's programs, and five doctoral programs.

3.3.2. Procedure

This study employs a quantitative, cross-sectional design using a structured questionnaire to collect data from tourism students enrolled in Portuguese HEIs. The survey titled *Tourism Students' Perceptions and Competencies for Sustainability* (Appendix F) / *Perceções e Competências para a Sustentabilidade entre Estudantes de Turismo em IES portuguesas* (Appendix G) was available in English and Portuguese and was administered online via Qualtrics. It builds upon instruments previously validated in sustainability education research, particularly the work of Aleixo *et al.* (2021), which is itself based on the studies by Chuvieco *et al.* (2018) and Dagiliūtė *et al.* (2018) and is already adapted to the Portuguese context. Participants were recruited by invitations via institutional mailing lists and direct outreach to program coordinators across various Portuguese HEIs. A non-probability convenience sampling strategy was employed, complemented by purposive outreach to ensure representation across HEI types and study cycles, given the absence of centralized access to student-level enrollment data.

Data collection occurred between May and August 2025. Prior to starting, participants were informed of the study's objectives, their right to withdraw at any point, and the confidentiality measures in place. The instrument was pre-tested with a small group of students (n = 5).

The study was conducted in alignment with the ethical guidelines of ISCTE – Instituto Universitário de Lisboa, no incentives were offered for participation, and informed consent was obtained from all participants, ensuring compliance with the General Data Protection Regulation. No personal identifying data was collected. Upon completion, participants were debriefed through an online message that reiterated the study's purpose and provided the researcher's institutional contact information for any follow-up questions.

3.3.3. Measures

The questionnaire was structured into five sections, each corresponding to one or more of the study's hypotheses (H1-H5). For all constructs, responses were collected using 5-point *Likert*-type scales, and composite indices were calculated.

Section 1: *Curricular Exposure to Sustainability Education*

Six items adapted from Aleixo *et al.* (2021) assess the presence of mandatory sustainability courses, transversal integration across curricular units, lecturers' incorporation of sustainability content, and reflection of sustainability within program objectives. In addition, one item included initially in Section 3 (asking whether sustainability is perceived as a strategic priority of the institution) is conceptually aligned with curricular exposure and therefore joins this index. Seven items form the curricular exposure scale. Responses ranged from 1 ("*strongly disagree*") to 5 ("*strongly agree*").

Section 2: *Awareness and Understanding of Sustainability Principles*

Seven items adapted from Dagiliūtė *et al.* (2018) assess understanding of environmental, economic, and social sustainability; the interdependence between these pillars; sustainable tourism practices and management; the SDGs; and the role of tourism in the 2030 Agenda. Responses ranged from 1 ("*no understanding*") to 5 ("*very high understanding*").

Section 3: *Attitudes and Subjective Norms*

Attitudes (5 items) assess students' evaluations of sustainability in tourism, including the importance of integrating sustainability into degree programs, the role of sustainability training in preparing students for professional challenges, and alignment of personal values with sustainability, Subjective norms (2 items) measure the perceived influence of peers and

lecturers in encouraging sustainable behaviors. Adapted from Chuvieco *et al.* (2018), responses were collected from 1 ("*strongly disagree*") to 5 ("*strongly agree*").

Section 4: *Professional Confidence in applying Sustainability Practices* (PBC/C2P2S)

It operationalizes perceived behavioral control (PBC) through an adapted version of the C2P2S framework (Risopoulos-Pichler *et al.*, 2020). These items capture students' perceived confidence in their ability to apply sustainability principles across five professional domains: innovative thinking, technical expertise, adaptability, systems perspective, and intercultural understanding. This operationalization treats confidence as an applied form of self-efficacy. Responses were recorded from 1 ("*not confident at all*") to 5 ("*highly confident*").

Section 5: *Demographic Information*

This section collects background characteristics used for sample description and subgroup analyses. Variables include age group (18–24, 25–34, 35–44, 45+), gender (female, male, other), level of study (CTSP, bachelor's, master's, PhD), type of HEIs (public, private, polytechnic or university), year of entry into higher education, attendance regime (part/full-time) and previous professional experience in the tourism sector (yes/no). In the English version of the survey, there is an extra item: it asks if the student is a Portuguese or an international student.

3.3.4. Data Analysis

Quantitative data were analyzed using *IBM SPSS Statistics* (version 29) in accordance with the hypotheses and the model developed in Chapter 2. The analysis combined descriptive and inferential procedures to examine relationships between curricular exposure, sustainability awareness and understanding, attitudes, subjective norms, and professional confidence. After assessing the reliability and validity of the measurement scales, correlation and regression analyses were performed to test the proposed associations and predictive effects. In contrast, moderation analysis explored the conditional influence of curricular exposure on the relationship between attitudinal variables and professional confidence. Moderation was examined using hierarchical regression with interaction terms, consistent with standard regression assumptions. All analyses were conducted with a 95% confidence level, and the detailed results are presented in Chapter 5.

CHAPTER 4

Qualitative Results

4.1. The structure of the Portuguese HEIs

Portugal's higher education system follows a binary model comprising universities and polytechnics, operating under both public and private governance. Private institutions must receive government recognition of public interest before beginning official operations (DGEEC, 2025; DGES, 2025a) (Fig. 4.1).

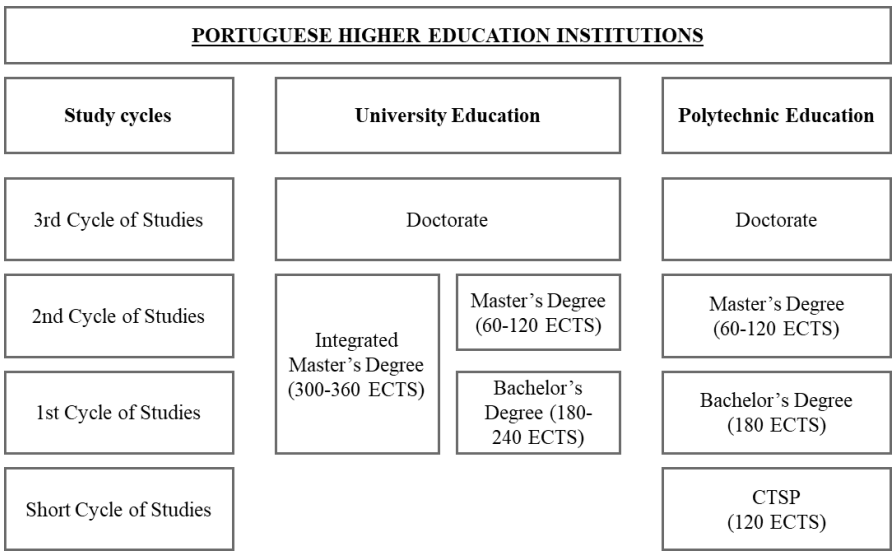

Figure 4.1: Schematic Representation of Portuguese HEIs
(Own elaboration based on DGES (2025a)

As for both subsystems mentioned, the university is primarily research-oriented, focusing on advancing scientific knowledge and theoretical foundations. In contrast, the polytechnic subsystem is more applied and practice-based, emphasizing technological development and real-world problem-solving (DGES, 2025a).

To ensure the quality and accreditation of HEIs and their degree programs, Portugal relies on an independent regulatory body, the Agency for Assessment and Accreditation of Higher Education, which conducts regular evaluations and accreditations in accordance with the legal and quality frameworks (DGES, 2025a).

Regarding higher education statistics, data from the *General Directorate of Education and Science Statistics* (DGEEC) and the *RAIDES23* survey for the 2023/2024 academic year

indicate that 448,235 students were enrolled in Portuguese HEIs. Of these, 359,395 students (80.2%) attended public institutions, 224,622 (62.6%) in universities, and 134,773 (37.4%) in polytechnics, while the private sector accounted for 88,840 students (19.8%), including 60,234 in private universities and 28,606 in private polytechnics (DGEEC, 2025).

4.2. Overview of Sustainable Integration in Tourism Curricula

The first stage of the qualitative analysis created a documentary overview of the 96 tourism programs offered by 58 Portuguese HEIs, providing a structural view of how sustainability is represented within formal curricula. The analysis showed that only 39 programs (41%) included at least one required course that explicitly addressed sustainability. Bachelor's degrees had the highest rate of explicit integration (41%), followed by master's degrees (33%), CTSP (18%), and doctoral degrees (8%). Differences also emerged across institutional types: public polytechnics (44%) demonstrated the most significant engagement with sustainability, followed by private polytechnics (23%), public universities (21%), and private universities (12%). These numbers suggest that both the institutional mission and the level of professional focus influence the extent to which curricula incorporate sustainability.

Regarding available documents, 44 programs (46%) provided complete curricular syllabi (FUCs) online, four (4%) offered partial access, and 48 (50%) had no syllabi publicly available. This lack of transparency limits visibility of sustainability-related content and highlights the absence of uniform standards for curricular disclosure across institutions. Nonetheless, the mapping of available FUCs showed that public institutions tend to exhibit higher levels of transparency, suggesting a greater commitment to accountability (Appendix H).

Among the programs for which FUCs were available, nearly all bachelor's, master's, and doctoral degrees (≥95%) contained at least one explicit reference to sustainability, compared with 80% of CTSPs (Appendix I). Although there is a considerable presence of sustainability addresses, references were often concentrated in isolated course units. Consequently, integration tends to be fragmented, with public master's programs exhibiting the highest number and density of mentions. This pattern reinforces the idea that sustainability is often positioned as a specialized or elective topic rather than as a transversal competence.

In addition to explicit mentions, the implicit analysis of FUCs showed that economic themes such as *innovation, entrepreneurship*, and *circular economy* appeared in 87% of programs. In contrast, social aspects such as *ethics, diversity*, and *inclusion* were present in 73%, whereas environmental dimensions such as climate, biodiversity, and resources were present in only 58%. The dominance of economic framing suggests that sustainability is still

primarily viewed through a market-oriented lens. Although master's programs scored higher on average across all three areas, especially in the economic sector, CTSP programs remained the least developed, providing only limited exposure to sustainability themes.

Finally, the synthesis of explicit and implicit findings revealed that keywords associated with economic and managerial paradigms, particularly innovation (n=689) and entrepreneurship (n=249), dominate Portuguese tourism curricula, followed by environmental (n=333) and social (n=132) references. Thematically, this indicates that sustainability in tourism education reflects compliance with institutional and policy expectations rather than a transformative pedagogical commitment (Appendix J).

Overall, these findings portray a higher education landscape where sustainability is unevenly embedded across levels and institutional types. Its curricular expression tends to favor economic efficiency and employability over ecological, ethical, or social justice, aligning more closely with competitiveness than with the principles of the 2030 Agenda.

4.3. Presentation of Qualitative Results: Interviews with Program Coordinators[1]

While curricular mapping offers a structural overview of how sustainability is officially integrated into tourism programs, it does not capture the institutional and pedagogical dynamics that influence this integration in practice. To fill this analytical gap, Appendix K provides a detailed summary of the *NVivo* coding results from the interviews with program coordinators, consolidating the thematic categories, their corresponding subcodes and frequencies, and an interpretative overview of how coordinators view the integration of sustainability.

To frame these thematic findings, Appendix L includes a profile of the interview participants, specifying the pseudonyms assigned, institutional type, and study cycle. This contextual information highlights the diversity of backgrounds represented in the study.

Theme 1. Sustainability Dimensions

Coordinators consistently framed sustainability as an evolving set of responsibilities that tourism education must address across environmental, social, and economic dimensions, though with uneven emphasis. Most frequently, sustainability was associated with environmental protection, reflecting dominant sector perceptions. As one coordinator said,

[1] All interviews were conducted in Portuguese and subsequently translated into English by the author of the dissertation. Short quotations included in this section were translated to preserve the original meaning and tone as faithfully as possible. Minor linguistic adjustments were made to ensure readability in academic English without altering the substance or intent of participants' statements.

"…tourism without nature dies, so we must teach them to protect what they will manage tomorrow" (P-Pub-Bachelor18). Institutions especially stressed carbon reduction, biodiversity preservation, and responsible resource management as foundational learning priorities.

The social dimension emerged with growing relevance, though often implicitly through community engagement and cultural preservation. One interviewee stated that sustainability means *"…respecting local identities, avoiding the spectacle of culture…"* (U-Pub-Master22), and another emphasized equity by saying that *"…tourism must give back more than it takes from communities*…" (P-Priv-Master08).

The economic pillar emerged least frequently, primarily through a market-driven rationale. A private polytechnic coordinator described sustainability as "…a competitive asset, because companies want people who know how to reduce waste and increase efficiency…" (P-Priv-Bachelor01). This framing reveals a utilitarian view of sustainability, where financial performance legitimizes environmental or social initiatives.

Critically, several participants argued that sustainability should not be compartmentalized into isolated pillars but rather understood systemically: "*Students must grasp that sustainability is not three topics; it's one challenge with many consequences*…" (U-Pub-PhD23). This integrative perspective aligns with ESD's agenda while highlighting current pedagogical fragmentation. Overall, while there is broad recognition that sustainability includes environmental, social, and economic concerns, the ecological dimension remains dominant.

Theme 2. Sustainability Integration Approaches

All coordinators reported that sustainability is present in curricula, but its integration is predominantly transversal rather than confined to a single dedicated unit. It appears embedded in subjects such as tourism planning, marketing, or project management. A coordinator described this approach as *"…a thread that appears in several classes, depending on how each professor interprets sustainability…"* (U-Pub-Bachelor13). This mode of delivery aligns with the strong emphasis on interdisciplinarity found in the coding results (27/27; 100%).

However, transversal integration often leads to variability and fragmentation. As one polytechnic coordinator noted, *"…tourism is taught as an applied science, yet sustainability is still treated as an accessory topic instead of a competence that connects everything…*" (P-Pub-Master11). Without program-wide coordination, sustainability emerges inconsistently, relying heavily on personal choices and the familiarity of individual lecturers.

Coordinators also stressed that more advanced study cycles allow for greater depth and critique. In master's programs, sustainability is often operationalized through project-based

learning and case studies that involve real stakeholders. One interviewee highlighted that *"…students work with municipalities on practical sustainability challenges, bringing real impact into the classroom…"* (U-Pub-Master16). These experiences contribute to interdisciplinary collaboration, which many describe as the most meaningful involvement.

Extracurricular initiatives, such as field trips, SDG-focused events, or guest speakers, also act as complementary strategies for integration. A CTSP coordinator explained, *"…we don't have a formal sustainability course, but it appears in our visits, our partnerships, and discussions about local impact…"* (P-Priv-CTSP12). These initiatives improve practical learning but still lack a structured approach.

While transversal and interdisciplinary integration were recognized as strengths, several participants pointed to the absence of a structured curricular framework. As one coordinator from a private university observed, *"…we all include sustainability in some way, but no one ensures that all students finish their degree with the same understanding*…" (U-Priv-Bachelor20). This sentiment reflects a widespread perception that sustainability is enacted more through informal pedagogical will than institutional design.

Looking at interviews, findings suggest that integration approaches are in transition: sustainability is recognized as cross-cutting within tourism education, especially in master's cycles, yet still lacks coherent mapping and formal learning outcomes. While innovation exists, its success depends on individual leadership, creating disparity across institutional contexts.

Theme 3. Perceived Barriers

The largest cluster of coded comments referred to institutional and bureaucratic constraints. Many described rigid accreditation processes that hinder curricular redesign. As one coordinator noted, *"…we want to innovate, but every change requires approvals that take months, sometimes years, so it is easier to keep the old syllabus…"* (P-Pub-Bachelor14).

Resource limitations also emerged as a significant challenge. Several coordinators expressed concern about staffing shortages, overload, and insufficient investment in sustainability-related educational reform. One polytechnic coordinator explained, *"…teachers are expected to integrate sustainability but with no extra time, no training and no guidance…"* (U-Pub-Bachelor03). Similarly, another remarked *"…we do what we can with the resources we have, and those are few…"* (P-Pub-CTSP21). Therefore, limiting staffing and financial support contributes to uneven curricular coverage across programs.

A significant barrier concern is faculty preparedness. Many coordinators noted that sustainability depends on lecturers' personal expertise and willingness. As one explained, *"...some colleagues have been teaching the same content for a decade, and sustainability is only included if the teacher knows how..."* (P-Priv-Bachelor26). Another added, *"...professors need field experience, otherwise it is just theory and PowerPoints..."* (P-Priv-CTSP24). This creates disparities in student learning trajectories and reinforces individual dependency.

Market pressures were particularly visible in private institutions, where sustainability needs employability justification. A private coordinator acknowledged, *"...innovation must be justified in terms of attractiveness, so sustainability matters when employers demand it..."* (U-Priv-Bachelor19). Another emphasized, *"...students want to learn what gets them hired first; sustainability still feels like an extra..."* (P-Priv-Master08). These dynamics risk transforming sustainability into a marketing add-on, rather than a curricular principle.

Finally, the lack of accountability mechanisms intensifies these barriers. As a master's coordinator stated, *"...the SDGs appear in the FUCs because we are asked to write them, but there is no follow-up on what is actually taught*..." (U-Pub-Master16). A PhD coordinator agreed, *"...sustainability is in the documents, but not in the assessments..."* (U-Pub-PhD23).

Drawing these insights together, it seems that bureaucratic rigidity, resource scarcity, faculty uncertainty, and labor-market influences reinforce a system in which sustainability relies on individual initiative rather than coordinated strategy.

Theme 4. Institutional Culture

Across institutions, sustainability is recognized as an essential component of tourism education, yet coordinators often distinguish between strategic discourse and everyday pedagogical practice. As one public university coordinator reflected, *"...we speak about sustainability in the strategic plan, but the classroom reality depends entirely on the teacher's engagement..."* (U-Pub-Master09). This gap highlights a culture where sustainability is ideologically endorsed but practically optional.

Institutional fragmentation emerged as a recurring issue, as several coordinators described tensions between faculty autonomy and the need for interdisciplinary coherence. One interviewee explained, *"...each department protects its own space, so coordination becomes complicated and sustainability loses priority..."* (P-Pub-Master11).

Some private institutions displayed more managerial agility, enabling quicker updates to course content, but this flexibility was often tied to market responsiveness. As stated by a

coordinator, *"…we can redesign modules faster here and sustainability becomes more important to the industry…"* (U-Priv-Bachelor19).

Despite these challenges, many coordinators conveyed a personal sense of ethical stewardship. One doctoral program coordinator remarked, *"…teaching sustainability means being coherent in how we manage programs and lead by example…"* (U-Pub-PhD23). This speaks to a values-based culture, where sustainability is perceived as a collective responsibility.

At the CTSP level, coordinators described sustainability as a practical expectation, as one noted, *"…our students will work with the environment and people every day, so sustainability cannot be just a concept…"* (P-Priv-CTSP06). However, these efforts often occur informally, without institutional recognition or integration into assessment practices.

A recurring theme was the absence of formal incentives for sustainability leadership. One coordinator explained*, "…there is no reward system for those who innovate, so it depends on goodwill…"* (U-Priv-Master08). The lack of mechanisms linking sustainability performance to evaluation criteria means that institutional culture reproduces the *status quo*.

Overall, while sustainability holds a visible place in institutional discourse, its operational culture remains inconsistent. Symbolic engagement is common, but coordinated change requires governance structures that support faculty collaboration, recognize innovation, and ensure sustainability becomes a collective expectation rather than a voluntary endeavor.

Theme 5. Pedagogical Innovation

Although sustainability integration is often inconsistent, coordinators highlighted several innovative pedagogical approaches that are gradually transforming learning practices in tourism education. These innovations are driven mainly by individual faculty initiative, particularly among those with sustainability literacy or sector engagement.

A common strategy is project-based learning tied to real stakeholders. One coordinator described a collaboration where *"…students developed proposals for eco-routes with the municipality (…) so they could see sustainability happening beyond theory…"* (U-Pub-Bachelor13). Experimental learning also emerged as an important strategy, especially in CTSP and bachelor's programs. As explained by one coordinator, *"…we take them to the field (…) students understand sustainability by seeing impacts with their own eyes…"* (P-Priv-CTSP12). Another reinforced that *"…visiting destinations reveals the link between environmental, culture and the local community…"* (U-Pub-Bachelor03).

External perspectives were also leveraged to connect theory with industry reality. According to a private university coordinator, *"...we bring professionals from companies and municipalities so students can ask how sustainability is actually applied..."* (U-Priv-Master08). In fact, master's and doctoral programs showed greater emphasis on critical reflection. As stated by one coordinator, *"...it is not enough to know what to do; students must question why and who benefits..."* (U-Pub-PhD23). This indicates a shift toward ethical and systemic reasoning at higher academic maturity levels.

Interdisciplinarity was conceptualized as both a method and a learning outcome. One interviewee explained, *"...tourism students work with those from environment and management, and sustainability emerges in their discussions and arguments..."* (P-Pub-Master11). However, these promising strategies remain dependent on individual lecturers. One coordinator summarized, *"... we have innovation, but they are islands, and it depends on who is motivated..."* (U-Pub-Master16), and another one added, *"...when the lecturer is engaged, students benefit; when not, sustainability disappears..."* (P-Priv-Bachelor26).

Together, the interviews portray pedagogical innovation as ongoing but uneven. Strong examples exist, especially through practical learning, yet most initiatives remain voluntary and are not formally supported or rewarded. Their scalability depends on whether institutions choose to move from individual will to strategic culture.

Theme 6. Students' Dimensions

Coordinators widely recognized that student awareness of sustainability issues has increased in recent years, particularly regarding environmental concerns and global crises. One interviewee observed, *"...students today are much more conscious about climate change and want to make a difference..."* (U-Pub-Master05). However, this awareness does not consistently translate into applied knowledge. As one bachelor coordinator noted, *"...they care about sustainability, but they struggle to connect it with management or strategy..."* (P-Pub-Bachelor25).

Learners often value sustainability for its moral meaning but expect quick answers. A coordinator reflected, *"...students like the idea of sustainability, but they don't always have the patience for systems thinking..."* (P-Pub-Bachelor18).

Differences across study cycles were evident. CTSP students tend to adopt a practical orientation, seeking direct relevance to employment. As one coordinator explained, *"...they want to know what they can actually do at work tomorrow..."* (P-Priv-CTSP07). In contrast, master's and PhD students are more prepared to engage with complexity and long-term

thinking: *"... at master level there is a transition from knowing what sustainability is to questioning what it means for the future of tourism…"* (P-Pub-Master10).

Motivation is also conditioned by institutional messaging and lecturer engagement. Several coordinators noted that when sustainability is visible in campus activities and teaching practices, students show stronger engagement. One commented, *"...when students see sustainability being lived, they take it seriously, as they copy what they see…"* (U-Priv-Bachelor15). Nonetheless, participants acknowledged uneven student expectations regarding sustainability as a career requirement, stating that *"...students take sustainability seriously when they realize the job market values it…"* (P-Priv-Master08). This supports the role of social norms and perceived employability in shaping attitudes, constructs consistent with the TPB.

Overall, the interviews show that students are willing and curious, but their degree of understanding depends on curricular structure, pedagogical practices, and role modeling within HEIs. Sustainability is valued, yet its professional significance remains unevenly internalized.

Theme 7. Best Practices

Coordinators identified practices that demonstrate how effective sustainability education can be when institutions foster pedagogical creativity and collaboration. One coordinator described how, by involving students in real monitoring tasks, sustainability moves from talk to tangible action: *"...we involve students in waste and energy audits on campus; they see the data and suggest ways to improve..."* (P-Pub-Master11). Another added that these practices help students feel responsible for their environment, noting that *"...small actions, like reducing plastics at events or organizing awareness campaigns, make sustainability visible in everyday life..."* (U-Pub-Bachelor13).

Community partnerships emerged as a powerful example of social sustainability in practice. Coordinators described projects where students work directly with local organizations and families, strengthening territorial identity. One explained, *"...students collaborate with local producers and associations, and they understand who tourism benefits and who it does not..."* (U-Pub-Master22). Similarly, another emphasized that *"...students learn sustainability by talking to communities and realizing that tourism must respect those who live there..."* (P-Pub-Bachelor18. These experiences reveal an alignment between best practices and sustainability values such as equity, participation, and cultural integrity.

Economic themes appear in innovative ways, particularly in private institutions. A coordinator highlighted how sustainable entrepreneurship projects encourage students to

consider business viability and responsibility together: *"...students design business ideas that must balance profit with environmental and social impact..."* (U-Priv-Bachelor20). Another stressed that sustainability should support competitive advantage, noting that *"...hotels need people who can save resources without lowering service quality..."* (P-Priv-CTSP06). These examples show how sustainability can foster employability when framed as a professional skill.

In postgraduate cycles, strong best practices emerge through research-led teaching. One PhD coordinator observed that *"...doctoral students now focus on carbon emissions, justice, heritage, so they are shaping how tourism will change..."* (U-Pub-PhD23). A master's coordinator added that sustainability is increasingly treated as the lens for future-oriented scenario planning, *"...we ask students to imagine tourism futures; sustainability becomes the way to think critically about development..."* (U-Priv-Master08).

Finally, practical education in CTSP programs offers relevant examples of operational sustainability. One coordinator shared that *"...we teach them to manage waste, water, and energy as if they were already working in a hotel..."* (P-Priv-CTSP06). This grounding in professional routines helps students internalize sustainability as part of their responsibilities.

Generally, coordinators expressed admiration for how students respond when sustainability is made concrete and collective. As one reflected, *"...when we show what sustainability looks like in practice, students are the first to embrace it..."* (P-Pub-CTSP21). Despite being scattered and dependent on the initiative of motivated faculty members, these examples illustrate that the conditions for impactful sustainability education already exist in the Portuguese tourism sector.

In summary, the interviews depict a higher education landscape that is changing, where sustainability has become a recognized academic priority within tourism education but is still inconsistently practiced. Coordinators acknowledge its ethical, environmental, and social significance, yet its implementation largely depends on individual motivation. Public institutions show stronger environmental integration and greater curricular transparency, while private ones tend to frame sustainability through a market-driven perspective. Despite these differences, examples of community partnerships and interdisciplinary collaboration show that transformative teaching is already beginning to take hold. These practices demonstrate how sustainability can shift from a stated value to a hands-on and critical learning experience. What becomes clear is a sector in flux: aware of sustainability's importance but limited by structural inertia and fragmented governance. The challenge now is to turn scattered pedagogical efforts into a unified educational approach, ensuring that sustainability is not just an optional topic but the core framework of tourism education in Portugal.

CHAPTER 5

Quantitative Results

5.1. Demographic Distributions

The final sample comprised 124 tourism students, the majority of whom were female (67.7%) and aged between 18 and 24 years (68.5%). Most participants were enrolled in bachelor's programs (40.3%) or master's degrees (29.0%), with smaller proportions in CTSP programs (23.4%) and doctoral studies (7.3%), ensuring that the findings primarily capture perceptions at formative and professionalizing stages of higher education. Students were distributed across all types of Portuguese higher education institutions, including public universities (37.9%), public polytechnic institutes (32.3%), private polytechnic institutes (16.1%), and private universities (13.7%), which reflects the structural diversity of the national higher education system. In terms of study regime, two-thirds were full-time students (65.3%), while one-third combined study with employment (33.1%). More than half of the respondents reported prior professional experience in the tourism sector (56.5%), highlighting a considerable degree of industry exposure within the sample. The survey language distribution was strongly skewed toward the Portuguese version (87.9%), while the English version (12.1%) was completed almost exclusively by international students (93.3% of the English group) (see Appendix M).

5.2. Exploratory Factor Analysis (EFA)

Sampling adequacy was confirmed by a Kaiser–Meyer–Olkin (KMO) measure of .95, which exceeds the recommended .80 threshold and indicates excellent suitability for factor analysis (Kaiser, 1974). Bartlett's test of sphericity was significant, $\chi^2\ (465) = 3305.16$, $p < .001$, confirming that the correlation matrix was not an identity matrix (see Table 5.1).

Table 5.1

KMO and Bartlett's Test of Sampling Adequacy

Test	Value
Kaiser–Meyer–Olkin Measure of Sampling Adequacy	.945
Bartlett's Test of Sphericity	
Approx. Chi-Square	3305.16
df	465
Sig.	< .001

Note. KMO > .80 indicates excellent sampling adequacy

Principal Axis Factoring with Oblimin rotation was conducted to identify the latent structure of the sustainability constructs. The use of Oblimin rotation allowed for correlated factors, consistent with the theoretical expectation that sustainability dimensions are interrelated. Based on Kaiser's criterion ($\lambda > 1$), five factors were extracted, jointly explaining 67.8% of the total variance. The eigenvalues, variance explained, and cumulative variance for the five-factor solution are presented in Table 5.2.

Table 5.2

EFA of Sustainability Constructs: Eigenvalues and Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	16.280	52.516	52.516	15.976	51.536	51.536	12.863
2	2.437	7.860	60.376	2.124	6.533	58.083	10.520
3	1.574	5.076	65.452	1.214	3.916	62.304	6.241
4	1.285	4.145	69.598	.981	3.163	65.468	1.258
5	1.023	3.301	72.899	.727	2.347	67.814	12.569

Note. Five factors with eigenvalues greater than one were retained using Principal Axis Factoring with Oblimin rotation. Total variance explained = 67.8%.

To further examine the underlying factor structure, the rotated pattern matrix was checked. The solution yielded five interpretable factors corresponding to the study's conceptual model. All factors displayed strong and coherent item loadings above .38, confirming that the five extracted components align closely with the theoretical dimensions of the model and exhibit clear discriminant structure (see Table 5.3 and Appendix N).

Table 5.3

Rotated Factor Loadings (Pattern Matrix, Oblimin Rotation)

Factor	Representative Item	Loading Range
1. Professional Confidence	*"Participate in the design of sustainable strategies for tourist destinations"*	.60–.84
2. Awareness and Understanding	*"Social sustainability"*	.52–.95
3. Curricular Exposure	*"I consider sustainability to be a strategic priority of my institution"*	.45–.82
4. Attitudes	*"My personal values are aligned with sustainability principles"*	.47–.73
5. Subjective Norms	*"Lecturers encourage the adoption of sustainable practices"*	.38–.45

Note. Factors correspond to the theoretical model dimensions.

The rotated pattern matrix revealed five interpretable factors: Professional Confidence, Awareness and Understanding, Curricular Exposure, Attitudes, and Subjective Norms. Professional Confidence emerged as the strongest factor, with consistently high loadings (.60–.84), followed by Awareness and Understanding (.52–.95) and Curricular Exposure (.45–.82). Attitudes also showed substantial loadings (.47–.73). Subjective Norms, composed of two items, yielded the lowest loadings (.38–.45), yet exceeded the recommended .30 threshold (Hair *et al.*, 2019), warranting their retention.

In summary, the EFA confirmed a coherent five-factor structure broadly consistent with the theoretical model. Although subjective norms showed relatively weak loadings, their retention was supported both conceptually and statistically. The overall results provide sufficient construct validity to proceed with further analyses.

5.3. Reliability Analysis

Internal consistency was evaluated using Cronbach's α for all multi-item indices and the inter-item Pearson correlation for the two-item scale. The *Curricular Exposure* index (7 items) showed excellent reliability (α = .92), with an average item mean of 3.80 (*SD* = 0.94). The *Awareness and Understanding* index (7 items) also demonstrated excellent reliability (α = .93), averaging 3.51 (*SD* = 0.78) per item. The *Attitudes* index (5 items) exhibited good reliability (α = .83), with a mean of 4.29 (*SD* = 0.61). The *Professional Confidence* index (10 items) likewise showed excellent reliability (α = .95), averaging 3.38 (*SD* = 0.83) per item.

For the two-item *Subjective Norms*, internal consistency was assessed through the inter-item Pearson correlation, which yielded $r = .31$, $p < .001$. This exceeds the commonly accepted $r \geq .30$ threshold for two-item measures (Eisinga *et al.*, 2013) confirming adequate consistency for retention. Overall, these results indicate adequate to excellent internal reliability across all constructs, supporting their inclusion in subsequent analyses (see Table 5.4).

Table 5.4

Reliability and Descriptive Statistics for Sustainability Indices

Scale	Items	α	*M* (per item)	*SD* (per item)
Curricular Exposure	7	.92	3.80	0.94
Awareness & Understanding	7	.93	3.51	0.78
Attitudes	5	.83	4.29	0.61
Professional Confidence	10	.95	3.38	0.83
Subjective Norms (2 items)	2	r = .31***	3.81	0.68

Note. **p < .001. Cronbach's α not reported for two-item indices; inter-item correlation shown instead.

5.4. Correlations Analysis

Before testing the proposed hypotheses, Pearson correlations were conducted among the five composite indices: curricular exposure, awareness and understanding, attitudes, subjective norms and professional confidence. This preliminary step provided an overview of the bivariate associations between constructs and allowed assessment of whether the observed relationships aligned with theoretical expectations. Correlations also served to confirm the discriminant validity of the indices while identifying potential multicollinearity issues prior to regression modelling. The results are presented in Table 5.5.

Table 5.5

Summary of Correlations among Constructs with Interpretive Strength

Construct Pair	*r*	*p*	Interpretation
Curricular Exposure ↔ Awareness	.73	< .001	Strong
Curricular Exposure ↔ Attitudes	.61	< .001	Moderate
Curricular Exposure ↔ Subjective Norms	.74	< .001	Strong
Curricular Exposure ↔ Professional Confidence	.66	< .001	Moderate–Strong
Awareness ↔ Attitudes	.63	< .001	Moderate
Awareness ↔ Subjective Norms	.60	< .001	Moderate
Awareness ↔ Professional Confidence	.81	< .001	Very strong
Attitudes ↔ Subjective Norms	.63	< .001	Moderate
Attitudes ↔ Professional Confidence	.64	< .001	Moderate
Subjective Norms ↔ Professional Confidence	.56	< .001	Moderate

Note. Interpretations follow Cohen's (1988) guidelines: $r = .10$ (small), .30 (medium), .50 (large). All correlations are significant at $p < .001$ (two-tailed).

As shown in Table 5.5, all relationships among the five constructs were positive and statistically significant ($p < .001$), with correlation coefficients ranging from $r = .56$ to $r = .81$. The strongest relationship was observed between Awareness and Professional Confidence (r = .81), indicating that greater sustainability knowledge is associated with higher confidence in applying it professionally. Moderate to strong correlations among the remaining constructs suggest coherent yet distinct dimensions of sustainability perception, further confirming discriminant validity.

5.5. Hypotheses Testing

This section presents the analyses conducted to test the five proposed hypotheses. Each subsection reports the statistical results corresponding to each hypothesis, including model

significance, explained variance, and standardized coefficients (β), followed by interpretation in relation to the research framework.

5.5.1. H1 - Students' Awareness and Understanding of Sustainability Principles

To test H1, students' awareness and understanding of sustainability principles was examined. Descriptive statistics indicated that the mean score (M = 3.51, SD = 0.78) was significantly higher than the neutral midpoint of the scale (3.0), as confirmed by a one-sample t-test, $t(123) = 7.34$, $p < .001$, Cohen's d = 0.66. This result suggests moderately high awareness and understanding levels among students. The distribution of scores, illustrated in Figure 5.1, further supports this finding, with most responses clustering between 3.0 and 4.0 on the 5-point Likert scale, indicating a tendency toward positive awareness of sustainability principles.

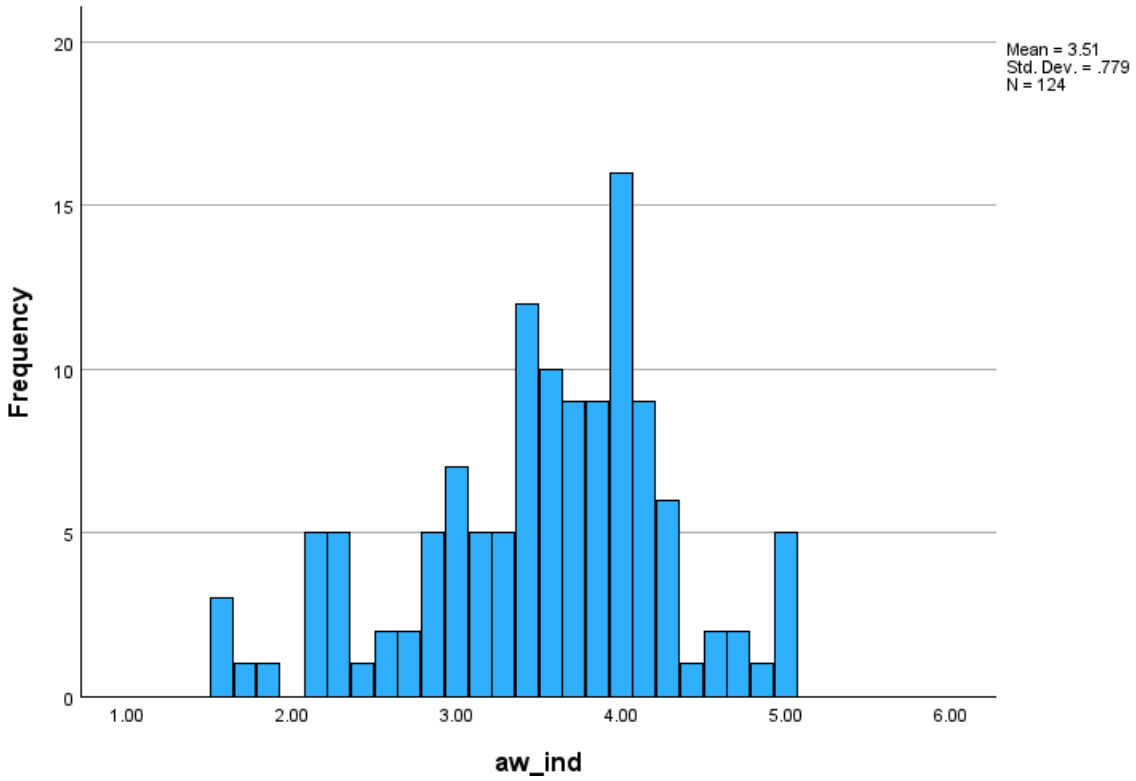

Figure 5.1: Distribution of *Awareness* scores among tourism students

To explore these findings in greater depth, students' awareness was further analyzed across the distinct sustainability dimensions included in the questionnaire. This additional analysis aimed to determine whether awareness levels varied between sustainability subdimensions, allowing for a more nuanced understanding of how sustainability knowledge manifests across different thematic areas (see Table 5.6).

Table 5.6

Descriptive Statistics of Awareness Subdimensions

Subdimension	Minimum	Maximum	Mean	Std. Deviation
Environmental sustainability	2	5	3.70	0.74
Social sustainability	1	5	3.28	1.01
Interdependence between the three pillars	1	5	3.29	1.09
Sustainable tourism practices and management	1	5	3.82	0.87
Sustainable Development Goals	1	5	3.80	0.79
Economic sustainability	1	5	3.22	0.95

These results suggest that students' awareness is strongest in domains that are either concretely operationalized in their field, such as *sustainable tourism practices and management* (M = 3.82, SD = 0.87), or highly visible in global policy discourse, as in the SDGs (M = 3.80, SD = 0.79) and environmental sustainability (M = 3.70, SD = 0.74). By contrast, their awareness is comparatively weaker in areas that require grasping complex interdependencies, namely *economic sustainability* (M = 3.22, SD = 0.95), *social sustainability* (M = 3.28, SD = 1.01), and the *interdependence of the three pillars* (M = 3.29, SD = 1.09).

This pattern reflects the critique of "*thin sustainability*" (Barth & Rieckmann, 2012), insofar as curricula may emphasize easily communicable or sector-oriented aspects of sustainability, while providing less depth in systemic and integrative dimensions.

Overall, the findings support H1, confirming that tourism students in Portuguese HEIs demonstrate moderately high levels of awareness and understanding of sustainability principles, with meaningful variation across thematic dimensions.

5.5.2. H2 – Students' Curricular Exposure to Sustainability

To test H2, students' perceptions of sustainability integration within their degree programs were examined using the curriculum exposure index. The descriptive analysis showed that the mean score (M = 3.80, SD = 0.94) was significantly higher than the neutral midpoint of the scale (3.0), as indicated by a one-sample t-test, $t(123) = 9.46$, $p < .001$, Cohen's $d = 0.94$. This result suggests that students generally perceive their curricula as moderately to strongly aligned with sustainability principles. The distribution of curricular exposure scores, displayed in Figure 5.2, further illustrates this trend, with responses clustering predominantly between 3.0 and 4.5 on the 5-point scale.

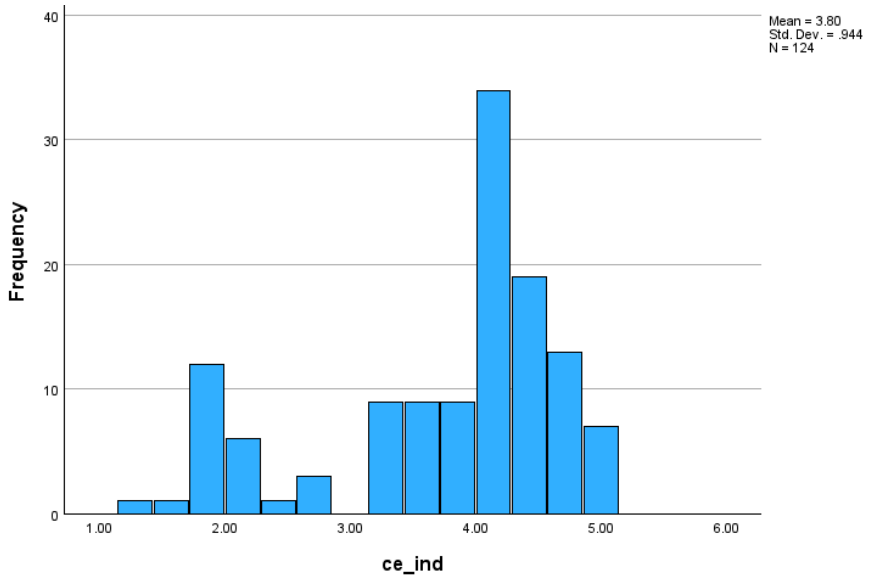

Figure 5.2: Distribution of *Curriculum Exposure* scores among tourism students

To explore these perceptions in greater depth, an item-level analysis was conducted to identify which specific curricular aspects most strongly reflected sustainability integration. The item-level analysis of curriculum evaluation revealed significant variation across dimensions (Table 5.7).

Table 5.7

Descriptive Statistics of Curriculum Evaluation Subdimensions

Item	Minimum	Maximum	M	SD
"My degree program includes compulsory curricular units that address sustainability."	1	5	3.85	1.43
"Sustainability is addressed transversally across the various curricular units of my degree."	2	5	3.99	1.02
"My lecturers integrate sustainability into the content of their curricular units."	1	5	4.11	0.91
"My Higher Education Institution promotes practical activities focused on sustainability."	1	5	3.69	1.13
"Education for sustainable development is reflected in the pedagogical objectives of my degree program, particularly in the course unit descriptors."	1	5	3.54	1.23
"I consider sustainability to be a strategic priority of my institution."	1	5	3.60	1.15
"Sustainability is recognized as important in my institution."	1	5	3.83	1.04

Note. Higher scores indicate stronger perceived curricular integration of sustainability principles.

Students reported the highest agreement with the statement *"My lecturers integrate sustainability into the content of their curricular units"* (M = 4.11, SD = 0.91), followed by "*Sustainability is addressed transversally across curricular units*" (M = 3.99, SD = 1.02). By contrast, lower ratings were given to "*Education for sustainable development is reflected in the pedagogical objectives of my degree program*" (M = 3.54, SD = 1.23) and "*I consider sustainability to be a strategic priority of my institution*" (M = 3.60, SD = 1.15). These results suggest that students recognize sustainability more decisively in teaching practice and classroom integration than in institutional-level commitments or program descriptors.

Taken together, these results confirm H2. Students generally perceived their curricula as moderately to strongly aligned with sustainability.

5.5.3. H3 – Students' Attitudes towards Sustainability

To test H3, students' attitudes towards the importance of sustainability in their academic journey were examined using the attitudes index. The results revealed a very high mean score (M = 4.29, SD = 0.61), which was significantly above the neutral midpoint (3.0), $t(123) = 23.52$, $p < .001$. The effect size was exceptionally large (Cohen's d = 2.11), indicating statistical significance and substantive practical relevance.

The distribution of attitude scores, presented in Figure 5.3, further illustrates this pattern, with most responses clustering between 4.0 and 5.0 on the 5-point Likert scale, indicating a strong positive orientation toward sustainability.

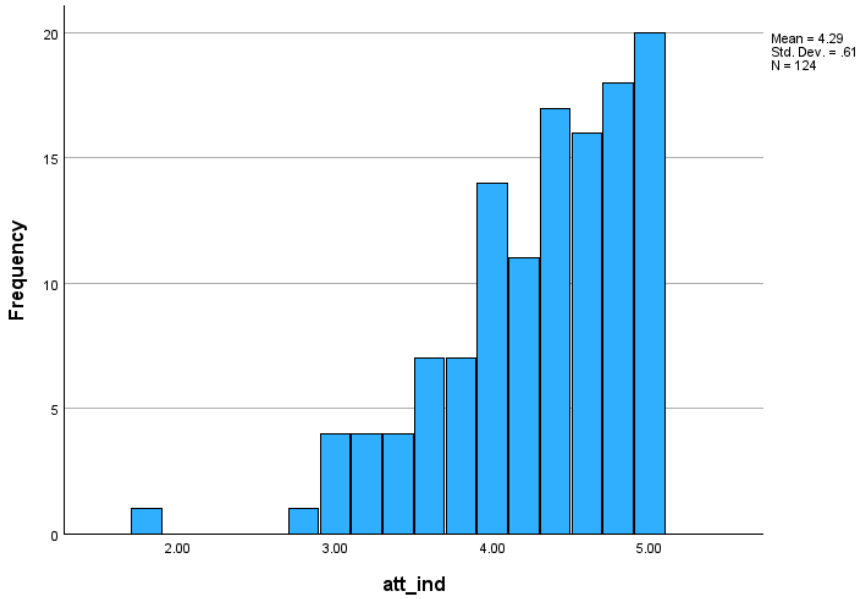

Figure 5.3: Distribution of *Attitudes* scores among tourism students

At the item level (see Table 5.8), the strongest agreement was observed for the statement *"Integrating sustainability into tourism is essential for the future of the sector"* ($M = 4.68$, $SD = 0.56$). Other highly endorsed items included *"Training in sustainability better prepares me for professional challenges"* ($M = 4.36$, $SD = 0.83$) and *"I feel motivated to apply sustainability principles in my future professional career"* ($M = 4.20$, $SD = 0.81$). By contrast, comparatively lower agreement was reported for *"I believe individual actions can have a real impact on tourism sustainability"* ($M = 4.02$, $SD = 1.02$), although this value remained above the scale midpoint.

Table 5.8

Descriptive Statistics of Attitudes Subdimensions

Item	Minimum	Maximum	Mean	Std. Deviation
"Integrating sustainability into tourism is essential for the future of the sector."	2	5	4.68	0.56
"Training in sustainability better prepares me for professional challenges."	2	5	4.36	0.83
"My personal values are aligned with the principles of sustainability."	2	5	4.18	0.68
"I feel motivated to apply sustainability principles in my future professional career."	2	5	4.20	0.81
"I believe individual actions can have a real impact on tourism sustainability."	1	5	4.02	1.02

The evidence gathered under H3 clearly indicates that sustainability occupies a significant place in students' academic outlook. Tourism students in Portuguese HEIs demonstrated highly positive attitudes toward sustainability, perceiving it as integral to both the tourism sector and their professional development. The exceptionally large effect size underscores the salience of sustainability as a shared educational value. However, the slightly lower emphasis on individual action compared to structural and professional dimensions suggests that students primarily conceptualize sustainability through institutional and vocational lenses, rather than through personal behavioral responsibility.

5.5.4. H4 – Relationship between Sustainability Awareness and Professional Confidence

To test H4, the relationship between students' awareness and understanding of sustainability principles and their professional confidence in applying sustainability practices was examined. As previously shown in Table 5.5, a very strong and statistically significant positive correlation was found between the two constructs ($r = .81$, $p < .001$), indicating that students with higher

levels of sustainability awareness also report greater confidence in applying sustainability principles in professional contexts.

To further explore this association, a simple linear regression was conducted with awareness as the predictor and professional confidence as the outcome variable. The model was statistically significant, $F(1, 122) = 224.00$, $p < .001$, explaining 64.7% of the variance in professional confidence ($R^2 = .65$; see Table 5.9). Awareness and understanding of sustainability were a strong positive predictor ($\beta = .81$, $p < .001$), suggesting that a one-point increase in awareness corresponds to an average increase of 0.86 points in professional confidence (Table 5.10).

Table 5.9

Model Summary for Regression of Sustainability Awareness Predicting Professional Confidence

Model	R	R^2	F	p
1	.805	.647	223.99	< .001

Note. Predictor: awareness of sustainability principles (*aw_ind*).
Dependent variable: professional confidence (*pbc_ind*).

Table 5.10

Coefficients from the Simple Linear Regression of Sustainability Awareness Predicting Professional Confidence

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	—	—	—	—	—
aw_ind	.856	.057	.805	14.97	< .001

Note. Dependent variable: professional confidence (*pbc_ind*).

Taken together, these findings provide strong empirical support for H4. The results demonstrate that higher levels of sustainability awareness and understanding are significantly associated with greater professional confidence in applying sustainability principles. The strength of the relationship, as evidenced by both the correlation and regression analyses, suggests that awareness is a critical determinant of students' perceived ability to operationalize sustainability in professional contexts.

5.5.5. H5 - Moderating Role of Curricular Exposure in the Relationship Between TPB-Based Attitudinal Predictors and Professional Confidence

To test H5a and H5b, two moderation analyses were conducted to examine whether curricular exposure moderates the relationships between the TPB-based attitudinal predictors, namely attitudes and subjective norms, and professional confidence in applying sustainability practices. Professional confidence was conceptualized by the C2P2S Framework as students' perceived readiness to apply sustainability principles in professional contexts. Both analyses were performed using PROCESS Model 1 (Hayes, 2022), with curricular exposure specified as the moderator.

Descriptive statistics indicated that attitudes toward sustainability were high ($M = 4.29$, $SD = 0.61$), subjective norms were moderately high ($M = 3.81$, SD = 0.68), curricular exposure was moderate ($M = 3.80$, $SD = 0.94$), and professional confidence was moderately high ($M = 3.38$, $SD = 0.83$) (Table 5.11). As shown previously (Table 5.5), attitudes, subjective norms, and curricular exposure were all positively and significantly correlated with professional confidence ($r = .64$, .56, and .66, respectively, $p < .001$), indicating moderate to strong associations consistent with theoretical expectations.

Table. 5.11

Descriptive Statistics for Attitudes, Subjective Norms, Curricular Exposure and Professional Confidence

Variable	N	Minimum	Maximum	Mean	SD
Attitudes	124	1.80	5.00	4.29	0.61
Subjective Norms	124	2.00	5.00	3.81	0.68
Curricular Exposure	124	1.29	5.00	3.80	0.94
Professional Confidence	124	1.50	5.00	3.38	0.83

Next, the two separate moderation analyses were conducted to test H5a and H5b. In the first model (H5a), attitudes were entered as the predictor of professional confidence, with curricular exposure specified as the moderator. In the second model (H5b), subjective norms were the predictor, with curricular exposure as the moderating variable.

For the attitudes model, the overall model was significant, explaining 53.1% of the variance in professional confidence, $F(3, 120) = 45.23$, $p < .001$. Both attitudes ($B = .535$, $SE = .118$, $p < .001$, 95% CI [.301, .769]) and curricular exposure ($B = .384$, $SE = .070$, $p < .001$, 95% CI [.245, .522]) exerted strong positive direct effects on professional confidence. However, the interaction between attitudes and curricular exposure was not significant ($B = .039$, $SE = .086$,

p = .651, 95% CI [−.131, .209]), indicating that the strength of the relationship between attitudes and professional confidence didn't differ across levels of curricular exposure. The change in explained variance due to the interaction term was negligible (ΔR^2 = .001).

Results for the subjective norms model showed a similar pattern. The overall model was significant, explaining 45.2% of the variance in professional confidence, $F(3, 120) = 33.03$, $p < .001$. Curricular exposure again had a significant positive direct effect on professional confidence (B = .481, SE = .092, $p < .001$, 95% CI [.299, .663]), while subjective norms demonstrated a weaker, non-significant direct association (B = .190, SE = .122, p = .123, 95% CI [−.052, .433]). The interaction between subjective norms and curricular exposure was also non-significant (B = −.005, SE = .085, p = .954, 95% CI [−.173, .163]), with no increase in explained variance ($\Delta R^2 < .001$).

Table 5.12

Summary of Moderation Analyses (Process Model 1) for Attitudes and Subjective Norms Predicting Professional Confidence

H5a	**B**	**SE**	**t**	**p**	**95% CI [LL, UL]**
Constant	3.369	.060	56.32	< .001	[3.251, 3.488]
Attitudes	.535	.118	4.53	< .001	[.301, .769]
Curricular Exposure	.384	.070	5.48	< .001	[.245, .522]
Attitudes × Curricular Exposure	.039	.086	0.45	.651	[−.131, .209]
Model Summary: R = .728, R^2 = .531, $F(3, 120)$ = 45.23, $p < .001$					
H5b					
Constant	3.385	.068	49.45	< .001	[3.250, 3.521]
Subjective Norms	.190	.122	1.55	.123	[−.052, .433]
Curricular Exposure	.481	.092	5.20	< .001	[.298, .664]
Subjective Norms × Curricular Exposure	−.005	.085	−0.06	.954	[−.173, .163]
Model Summary: R = .673, R^2 = .452, $F(3, 120)$ = 33.03, $p < .001$					

Note: N = 124. Analyses conducted using PROCESS v5.0 (Hayes, 2022). All variables were mean centered prior to analysis.

CI = confidence interval. ΔR^2 represents the change in explained variance due to the interaction term.

The results do not support H5a or H5b. Although curricular exposure demonstrated a significant positive direct effect on professional confidence, the interaction terms for both models (*attitudes × curricular exposure* and *subjective norms × curricular exposure*) were non-significant, indicating that curricular exposure did not moderate the relationships between attitudinal predictors and professional confidence. Therefore, the hypothesis that stronger curricular exposure would amplify the association between attitudes or subjective norms and professional confidence is rejected.

CHAPTER 6

Discussion

This chapter interprets the findings obtained from the quantitative and qualitative phases of this mixed-methods study. Its purpose is to integrate insights from the documentary analysis and the coordinators' interviews with numerical trends derived from the student survey, situating the results within the broader literature on sustainability education in tourism higher education.

6.1. Integration of Quantitative and Qualitative Findings

Both strands of findings depict a coherent yet incomplete picture of sustainability education in Portuguese HEIs. Students show strong motivation and positive attitudes toward sustainability, while the educational environment provides only partial and uneven conditions for translating these attitudes into practice. The five hypotheses outlined in Chapter 2 guide these results.

Hypothesis 1 proposed that students would demonstrate *moderately high sustainability awareness, though uneven across domains*. The quantitative results confirmed this expectation, showing that most respondents are familiar with the conceptual and environmental dimensions of sustainability, particularly those aligned with policy visibility and the SGDs. The qualitative strand supports this finding: coordinators consistently noted that sustainability is treated as an *operational concept*, with emphasis on recognizable topics such as resource efficiency and environmental responsibility. However, documentary mapping indicates extended engagement with the economic pillar, which receives more curricular attention. This divergence suggests that students lack a critical and integrative understanding of sustainability's systemic nature, a concern echoed in the literature, which separates between *thin sustainability* and transformative learning (Aleixo *et al.*, 2021; Weiss *et al.,* 2021; Figueiró & Raufflet, 2022; Lim *et al.*, 2022).

Hypothesis 2 anticipated that *curricular exposure to sustainability would be moderate but uneven across institutions*. The quantitative data confirmed this proposition: exposure was present, but not uniformly distributed, and was typically dependent on individual lecturers rather than institutional frameworks. Only a portion of programs disclosed complete syllabi, and references to sustainability were concentrated in a small number of course units. The qualitative evidence provides a structural explanation for this pattern. Coordinators cited restrictive accreditation bases, fragmented governance, and insufficient faculty training as barriers to systematic integration. Thus, while exposure exists, it lacks coherence and formal

oversight, an institutional weakness also seen in other European contexts, where sustainability tends to depend on voluntary contributions (Fonseca *et al.,* 2018; Leal *et al.,* 2024).

Hypothesis 3 proposed that *students would hold positive attitudes toward sustainability*. This was strongly supported by quantitative data, with very high mean scores on attitudinal items. Students regard sustainability as essential to the future of tourism and their own professional development. The qualitative data deepens this result: coordinators described students as *receptive, optimistic, and eager to engage*, particularly when sustainability is made tangible through project-based learning, fieldwork, or community partnerships. This interaction between perceived relevance and motivation reinforces TPB assumptions that positive attitudes enhance behavioral intention when learners perceive practical meaning in the concept (Ajzen, 1991). Nevertheless, both data reveal that this intention remains aspirational unless pedagogical design creates opportunities for applied engagement, a challenge documented in sustainability pedagogy (Camargo & Gretzel, 2017; Castro & Zermeño, 2020; Hamón *et al.*, 2020).

Hypothesis 4 predicted that *higher sustainability awareness would be associated with greater professional confidence in applying sustainability principles*. This hypothesis was supported by the quantitative analysis, showing a strong predictive relationship between awareness and confidence. However, coordinators suggested that students might *overestimate their readiness* when curricula do not include explicit assessment of sustainability decision-making. This pattern, identified in educational psychology as inflated self-efficacy among inexperienced learners (Ehrlinger *et al.*, 2008), highlights the need to differentiate between perceived and demonstrated competence. The triangulated evidence suggests that students' confidence is cognitively grounded but may lack reinforcement through authentic assessment tasks that demand integrative judgment. Therefore, confidence in sustainability appears to reflect cognitive familiarity more than applied skill.

Hypothesis 5 proposed that *curricular exposure would strengthen the relationship between attitudinal predictors and professional confidence*. Contrary to expectations, this moderation effect was not supported. Quantitative analysis revealed that, while both exposure and attitudes individually enhance confidence, their interaction is not statistically significant. The qualitative data help explain why: coordinators acknowledged that current curricula rarely provide structured progression or cumulative learning in sustainability, meaning that exposure does not necessarily amplify existing attitudes. This finding underlines that *breadth without depth* cannot function as a pedagogical amplifier, and fragmented integration rarely produces transformative learning outcomes (Fonseca *et al.*, 2018; Weiss *et al.,* 2021).

Synthesizing across hypotheses, the integrated evidence points to a coherent conclusion: Portuguese students in tourism HEIs have high awareness levels, strong attitudes, and genuine willingness to engage with sustainability, yet institutional structures remain insufficiently aligned to convert these orientations into applied competence. Sustainability appears in curricula as a legitimate but diffuse discussion; highly visible, ethically motivating, but pedagogically inconsistent. Therefore, the results suggest that while sustainability literacy is being consolidated, the transition toward sustainability confidence still depends on curricular coherence, faculty development, and assessment reform.

6.2 Theoretical Implications

The results of this study offer important insights into how the TPB and the C2P2S framework operate within the reality of sustainability education in Portuguese tourism higher education. Together, they reveal that while students' cognitive and attitudinal foundations are strong, the institutional conditions that should transform intention into professional confidence remain fragile. This alignment serves as the study's key theoretical hinge.

Within Ajzen's TPB (1991), attitudes and awareness are identified as the main predictors of students' perceived ability to act sustainably, confirming that internal conviction drives intention. The reduced influence of subjective norms indicates that while sustainability is ethically valued, it is not yet an everyday professional norm. This extends TPB by showing that positive attitudes remain aspirational when institutions do not make sustainability a visible, measurable part of learning. The lack of a moderating effect from curricular exposure further clarifies the theory: TPB's claim that intention results in behavior only holds when practical opportunities are structurally supported. Fragmented exposure hinders the translation of intention into behavior, highlighting curricular coherence as the missing contextual factor.

The C2P2S model complements this view by defining what readiness entails. Students develop cognitive and creative understanding, but rarely the systemic competence that requires sustained application. Therefore, confidence reflects perception more than performance, underscoring that transformation depends on structured, practical learning.

By integrating these frameworks, the study proposes that sustainability learning arises from the interplay of motivation and structure. Only when curricula provide consistent, assessed opportunities for practice can intention mature into the confidence to act. Universities thus stand as transmitters of knowledge and enablers of transformation.

6.3. Practical and Policy Implications

The findings reveal that students hold strong values and awareness regarding sustainability; what is lacking is an educational structure that can translate this motivation into confidence.

At the institutional level, the priority is curricular coherence. Sustainability should progress through study cycles with cumulative learning outcomes and explicit assessment criteria rather than appear as isolated references. Transparent syllabi would reinforce accountability.

At the pedagogical level, faculty capacity becomes decisive. Coordinators noted that sustainability integration often depends on individual initiative. Structured teaching staff development can transform sustainability from peripheral content into a pedagogical principle.

In policy and governance, the lack of monitoring instruments allows rhetorical commitment to persist without being put into practice. Accrediting bodies and ministries should incorporate sustainability indicators into program evaluation, ensuring that institutions report intentions and outcomes. Also, partnerships with the tourism sector can ground learning in real circumstances.

In essence, the practical and policy message is simple: students already embody the will for change; institutions must now supply the structure. Only through consistent curricula, empowered faculty, and accountable governance can sustainability education move from discourse to transformative practice.

6.4. Study Limitations

Correlational and cross-sectional design restricts causal inference, preventing conclusions about the direction of observed relationships. The reliance on self-reported data collected via a single instrument may also introduce common-method bias or social desirability effects, potentially inflating associations among awareness, attitudes, and confidence.

Additionally, the qualitative part faced constraints due to limited curricular transparency and the number of coordinators, who, while providing valuable insights, might not capture the full diversity of tourism in Portuguese HEIs. Additionally, the theoretical scope of TPB and C2P2S highlights cognitive and structural aspects, with less focus on cultural influences.

These limitations do not diminish the study's contributions but instead set its interpretive boundaries. Future research should deepen this inquiry through longitudinal and performance-based studies that capture how sustainability competence and confidence evolve across study cycles and into professional contexts. Exploring the institutional and cultural factors that condition the translation of intention into action could also refine current theoretical models, as well as governance mechanisms that influence sustainability implementation in HEIs.

CHAPTER 7

Conclusions

This study set out to examine how sustainability education is incorporated into Portuguese tourism HEIs, exploring how curricular structures, teaching methods, and institutional commitments translate sustainability discourse into student confidence. Its findings reveal a system at a crossroads: one that has adopted the rhetoric of sustainability but has yet to fully transform its teaching practices and structures to realize that vision. The evidence consistently indicates a disconnect between student motivation and institutional readiness; a tension that presents both a challenge and an opportunity for higher education in the sustainability era.

Tourism students across Portuguese HEIs display strong awareness, positive attitudes, and authentic engagement with sustainability principles. They value sustainability not merely as a professional requirement but as an ethical imperative and a vision for the future of the sector. Nonetheless, the structures meant to develop their professional confidence remain fragmented. Curricula often treat sustainability as an operational theme rather than as a cross-cutting principle embedded in learning outcomes, teaching strategies, and assessment. This gap between knowledge and enactment underscores the study's central insight: sustainability learning depends not solely on what students believe but on how institutions structure the conditions that allow those beliefs to take form in practice.

The theoretical contribution of this research lies in its integration of the TPB with the C2P2S framework, creating a dual lens that connects individual intention with institutional design. Within the TPB, attitudes and awareness emerged as dominant predictors of perceived behavioral control, confirming that motivation and cognitive conviction are foundational for sustainability-oriented action. However, the lack of a moderating effect from curricular exposure revealed that intention cannot mature into confidence without structured opportunities for application. By introducing curricular consistency as a contextual determinant within TPB, this study extends the theory beyond its psychological origins, situating it within the pedagogical realities of higher education.

At the same time, the C2P2S framework provided a multidimensional understanding of how sustainability unfolds across cognitive, creative, practical, and systemic domains. The evidence showed that students develop cognitive and creative learning, but rarely the systemic capacity to integrate sustainability into decision-making. This asymmetry refines the C2P2S

model, emphasizing that professional confidence emerges not from knowledge alone but from iterative, assessed practice within authentic learning contexts. When read together, TPB and C2P2S reveal that motivation and structure are not parallel but interdependent forces: psychological intention generates confidence and institutional design sustains transformation.

Beyond theoretical integration, the research makes a significant empirical and policy contribution. It delivers one of the first mixed-methods mappings of sustainability integration in Portuguese tourism programs, combining quantitative evidence from students with qualitative insights from program coordinators. The analysis shows that sustainability discourse has achieved visibility in higher education but not yet structural maturity. Only 46% of programs make syllabi publicly available, and when sustainability is present, it tends to be confined to individual modules rather than articulated across learning trajectories. Coordinators report a persistent reliance on personal initiative, limited faculty training, and a lack of institutional monitoring or incentives. Together, these findings illustrate that sustainability remains dependent on discretionary engagement rather than systemic accountability, a finding that mirrors international critiques of rhetorical sustainability integration in universities.

Practically, the study underscores that the transformation of sustainability education requires curricular unity, empowered faculty, and institutional accountability. Curricular coherence ensures that sustainability is developed progressively across study cycles. Faculty empowerment involves capacity-building initiatives that equip educators with the pedagogical tools to deliver ESD. Accountability, in turn, depends on governance mechanisms that assess the presence of sustainability and its tangible outcomes in student learning and professional preparedness. These are structural recommendations if higher education is to fulfill its societal responsibility in advancing the Sustainable Development Goals.

Methodologically, the triangulation of students' perceptions and coordinator perspectives allowed the study to capture both the cognitive dimensions of student learning and the institutional dynamics that shape them. This dual lens strengthens the validity of the findings and opens new pathways for research design in sustainability education.

Ultimately, this dissertation concludes that the credibility of sustainability education depends on its ability to move to demonstrable competence. Portuguese tourism students have the conviction and will to act; what remains is for institutions to create the pedagogical and structural conditions that allow them to do so. In the end, sustainability education will not be measured by what students know about the world, but by what the world becomes through what they have learned.

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APPENDIXES

Appendix A: *Tourism related Programs operating in Portuguese HEIs*

Type of Institution		Name of Institution	Program ID	Type of Program	Program Name	Vacancies / Year	Enrolled
PI	Public	*Escola Superior de Hotelaria e Turismo do Estoril*	1	Master	*Turismo e Comunicação*[2]	30	49
			2	Master	*Turismo*	100	94
PI	Private	*Instituto Europeu de Estudos Superiores*	-	CTSP	*Animação em Turismo de Natureza e Aventura*	-	-
			-	CTSP	*Gastronomia, Turismo e Bem-Estar*	-	-
			3	CTSP	*Turismo de Saúde e Bem-Estar*	25	21
			4	Bachelor	*Turismo*	30	28
			5	Master	*Turismo, Inovação e Empreendedorismo*	30	-
PI	Private	*ISEC Lisboa – Instituto Superior de Educação e Ciências*	6	CTSP	*Turismo e Transporte Aéreo*[3]	80	16
PI	Private	*ISCE - Instituto Superior de Lisboa e Vale do Tejo*	7	CTSP	*Turismo Desportivo e de Aventura*	25	-
			8	CTSP	*Turismo e Informação Turística*	40	1
PI	Private	*ISLA - Instituto Politécnico de Gestão e Tecnologia - Escola Superior de Gestão*	9	CTSP	*Gestão de Turismo, Hotelaria e Restauração*	20	32
			10	CTSP	*Gastronomia, Vinhos e Turismo*	30	-
			11	Bachelor	*Gestão do Turismo*	42	36
PI	Private	*ISLA Santarém - Instituto Politécnico*	12	CTSP	*Turismo Equestre*	30	-
			13	CTSP	*Gestão de Turismo*	30	44
U	Public	*ISCTE - Instituto Universitário de Lisboa*	-	Master	*Desenvolvimento de Turismo e Cultura (Erasmus Mundus)*[4]	-	-
			14	Master	*Gestão de Hotelaria e Turismo*	35	30

[2] Partnership between *Escola Superior de Hotelaria e Turismo do Estoril* e *IGOT – Universidade de Lisboa*
[3] Partnership between *ISEC Lisboa* and *ISLA Santarém*
[4] No information available.

Type of Institution		Name of Institution	Program ID	Type of Program	Program Name	Vacancies / Year	Enrolled
PI	Public	*Instituto Politécnico da Guarda - Escola Superior de Educação, Comunicação e Desporto*	15	CTSP	*Relações Públicas para o Turismo*	20	-
			16	CTSP	*Turismo de Saúde e Bem-Estar*	25	-
PI	Public	*Instituto Politécnico da Guarda - Escola Superior de Turismo e Hotelaria*	17	Bachelor	*Turismo e Lazer*	20	24
			18	Bachelor	*Gestão do Turismo e da Hospitalidade*	20	-
			19	Master	*Gestão e Sustentabilidade no Turismo*[5]	25	2
PI	Private	*Instituto Politécnico da Lusofonia - Escola Superior de Ciências da Administração*	20	Bachelor	*Gestão de Empresas do Turismo*	38	8
PI	Private	*Instituto Politécnico da Maia - Escola Superior de Ciências Sociais, Educação e Desporto*	-	CTSP	*Desporto e Turismo de Natureza*[6]	-	-
PI	Public	*Instituto Politécnico de Beja - Escola Superior de Tecnologia e de Gestão*	21	Bachelor	*Turismo*	39	52
PI	Public	*Instituto Politécnico de Bragança - Escola Superior de Comunicação, Administração e Turismo de Mirandela*	22	Bachelor	*Turismo*	45	155
PI	Public	*Instituto Politécnico de Castelo Branco - Escola Superior de Gestão de Idanha-a-Nova*	23	CTSP	*Turismo e Hotelaria*	25	-
			24	Bachelor	*Turismo*	25	72
PI	Public	*Instituto Politécnico de Coimbra - Escola Superior Agrária de Coimbra*	25	Bachelor	*Turismo em Espaços Rurais e Naturais*	38	138

[5] Partnership between *Instituto Politécnico da Guarda – Escola Superior de Turismo e Hotelaria* and *Instituto Politécnico de Leiria.*
[6] In the process of discontinuation.

Type of Institution		Name of Institution	Program ID	Type of Program	Program Name	Vacancies / Year	Enrolled
PI	Public	*Instituto Politécnico de Coimbra - Escola Superior de Educação de Coimbra*	26	Bachelor	*Turismo (diurno e pós-laboral)*	35 (D) + 25 (PL)	146
			27	Master	*Gestão em Turismo e Inovação Territorial*	40	-
			28	Master	*Turismo de Interior – Educação para a Sustentabilidade*	30	-
PI	Public	*Instituto Politécnico de Leiria - Escola Superior de Educação e Ciências Sociais*	29	CTSP	*Ambiente, Património e Turismo Sustentável*	25	39
			30	CTSP	*Turismo de Surf*	30	8
PI	Public	*Instituto Politécnico de Leiria - Escola Superior de Turismo e Tecnologia do Mar*	31	CTSP	*Marketing Digital no Turismo*	53	46
			32	CTSP	*Animação em Turismo de Natureza e Aventura*	25	32
			33	Bachelor	*Turismo*	51	190
PI	Public	*Instituto Politécnico de Portalegre - Escola Superior de Educação e Ciências Sociais*	34	CTSP	*Turismo e Informação Turística*	25	16
			35	Bachelor	*Turismo*	27	59
			36	Master	*Turismo e Comunicação Digital*	25	-
PI	Public	*Instituto Politécnico de Santarém - Escola Superior de Desporto de Rio Maior*	37	Bachelor	*Desporto de Natureza e Turismo Ativo*	24	57
PI	Public	*Instituto Politécnico de Santarém - Escola Superior de Educação de Santarém*	38	Bachelor	*Educação Ambiental e Turismo de Natureza*	35	75
PI	Public	*Instituto Politécnico de Setúbal - Escola Superior de Ciências Empresariais*	39	CTSP	*Gestão de Turismo*[7]	56	63
			40	CTSP	*Gestão de Turismo*	55	29
PI	Public	*Instituto Politécnico de Tomar - Escola*	-	CTSP	*Produção de Atividades para o Turismo Cultural*	-	-

[7] Partnership between *ESCE - Instituto Politécnico de Setúbal* and *ESE - Instituto Politécnico de Setúbal.*

Type of Institution		Name of Institution	Program ID	Type of Program	Program Name	Vacancies / Year	Enrolled
		Superior de Gestão de Tomar	41	Bachelor	*Turismo e Gestão do Património Cultural*	35	79
PI	Public	*Instituto Politécnico de Viana do Castelo – Escola Superior de Desporto e Lazer de Melgaço*	-	Bachelor	*Animação Desportiva e Turismo Ativo*[8]	-	-
PI	Public	*Instituto Politécnico de Viana do Castelo - Escola Superior de Tecnologia e Gestão*	42	Bachelor	*Turismo*	55	210
			43	Master	*Turismo e Inovação*	25	17
PI	Public	*Instituto Politécnico de Viseu - Escola Superior Agrária de Viseu*	44	CTSP	*Gastronomia, Turismo e Bem-Estar*	25	20
PI	Public	*Instituto Politécnico de Viseu - Escola Superior de Tecnologia e Gestão de Lamego*	45	CTSP	*Enoturismo*	40	23
PI	Public	*Instituto Politécnico de Viseu - Escola Superior de Tecnologia e Gestão de Viseu*	46	Bachelor	*Turismo*	47	185
PI	Public	*Instituto Politécnico do Cávado e do Ave – Escola Superior de Hotelaria e Turismo*	47	Master	*Gestão do Turismo*[9]	60	44
PI	Public	*Instituto Politécnico do Cávado e do Ave - Escola Técnica Superior Profissional*	48	CTSP	*Turismo Natureza e Aventura*	30	28
PI	Public	*Instituto Politécnico do Porto - Escola Superior de Educação*	49	CTSP	*Desporto e Turismo de Natureza*	50	64
			50	Master	*Património, Artes e Turismo Cultural*	30	31
PI	Public	*Instituto Politécnico do Porto - Escola Superior de Hotelaria e Turismo*	51	CTSP	*Turismo e Informação Turística*	30	43
			52	Master	*Sustentabilidade no Turismo e na Hotelaria*	30	-
PI	Private	*Instituto Superior D. Dinis*	53	CTSP	*Gestão de Turismo*	14	17

[8] Opening in 2025/2026; no *curriculum* available on the institution's website.
[9] Partnership between *Instituto Politécnico do Porto* and *Instituto Politécnico do Cávado e do Ave.*

Type of Institution		Name of Institution	Program ID	Type of Program	Program Name	Vacancies / Year	Enrolled
U	Private	*Instituto Superior Manuel Teixeira Gomes*	54	Bachelor	*Gestão do Turismo*	25	19
PI	Private	*Instituto Superior de Administração e Gestão*	55	CTSP	*Gestão de Turismo*	30	1
			56	Bachelor	*Turismo*	22	45
PI	Private	*Instituto Superior de Administração e Línguas*	57	Bachelor	*Turismo*	34	54
PI	Private	*Instituto Superior de Ciências Educativas do Douro*	58	CTSP	*Turismo Desportivo e de Aventura*	30	2
PI	Private	*Instituto Superior de Ciências Empresariais e do Turismo*	59	Bachelor	*Turismo*	41	110
			60	Master	*Turismo e Desenvolvimento de Produtos Turísticos*	24	6
PI	Private	*Instituto Superior de Entre Douro e Vouga*	61	CTSP	*Gestão de Turismo*	25	6
U	Private	*Instituto Superior de Gestão*	62	Bachelor	*Gestão do Turismo*	21	28
PI	Private	*Instituto Superior Politécnico Gaya – Escola Superior de Ciências Empresariais*	63	CTSP	*Gestão de Turismo*	40	8
			64	Bachelor	*Turismo e Negócios Sustentáveis*	15	-
U	Private	*Universidade Católica Portuguesa - Faculdade de Filosofia e Ciências Sociais*	65	Bachelor	*Turismo*	21	24
			66	Master	*Turismo*	30	7
U	Private	*Universidade Europeia*	67	Bachelor	*Turismo*	40	134
			68	Master	*Gestão do Turismo*	30	12
U	Private	*Universidade Lusíada - Centro Universitário Lusíada - Lisboa*	69	Bachelor	*Gestão do Turismo*	40	42
U	Private	*Universidade Lusófona - Centro Universitário Lusófona - Lisboa*	70	Bachelor	*Turismo*	65	133
			71	Master	*Gestão e Inovação em Turismo e Hospitalidade (Ensino a distância)*[10]	20	-
U	Private	*Universidade Lusófona - Centro*	-	Bachelor	*Turismo e Gestão de Empresas Turísticas*	-	-

[10] Partnership between *Universidade Lusófona – Lisboa*, *Instituto Manuel Teixeira Gomes* and *Universidade Lusófona – Porto.*

Type of Institution		Name of Institution	Program ID	Type of Program	Program Name	Vacancies / Year	Enrolled
		Universitário Lusófona - Porto					
U	Private	*Universidade Portucalense Infante D. Henrique*	72	Bachelor	*Turismo*	15	186
			73	Master	*Turismo e Hospitalidade*	20	11
U	Public	*Universidade da Madeira – Escola Superior de Tecnologias e Gestão*	74	CTSP	*Marketing Digital no Turismo*	23	47
U	Private	*Universidade da Maia*	75	Bachelor	*Turismo*	30	93
			76	Master	*Turismo, Património e Desenvolvimento*	20	12
			77	CTSP	*Técnicas e Gestão de Turismo*	40	42
U	Public	*Universidade de Aveiro*	78	Bachelor	*Gestão e Planeamento em Turismo*	26	96
			79	Master	*Gestão e Planeamento em Turismo*	45	57
			80	PhD	*Turismo*	25	-
U	Public	*Universidade de Coimbra - Faculdade de Letras*	81	Bachelor	*Turismo, Território e Patrimónios*	33	154
			82	Master	*Turismo, Território e Patrimónios*	25	43
			83	PhD	*Turismo, Património e Território*	10	-
U	Public	*Universidade de Évora - Escola de Ciências Sociais*	84	Bachelor	*Turismo*	44	158
			85	Master	*Turismo e Desenvolvimento de Destinos e Produtos*	24	30
U	Public	*Universidade de Évora – Instituto de Investigação e Formação Avançada*	86	PhD	*Turismo*	20	-
U	Public	*Universidade de Lisboa – Instituto de Geografia e Ordenamento do Território*	87	PhD	*Turismo*	20	-
U	Public	*Universidade de Trás-os-Montes e Alto Douro - Escola de Ciências Humanas e Sociais*	88	Bachelor	*Turismo*	57	168
			89	Master	*Gestão e Sustentabilidade em Turismo*	30	-

Type of Institution		Name of Institution	Program ID	Type of Program	Program Name	Vacancies / Year	Enrolled
U	Public	*Universidade do Algarve – Escola Superior de Educação e Comunicação*	90	Master	*Design de Comunicação para o Turismo e Cultura*	18	4
U	Public	*Universidade do Algarve - Escola Superior de Gestão, Hotelaria e Turismo*	91	Bachelor	*Turismo*	65	234
			92	Master	*Turismo*	65	26
U	Public	*Universidade do Algarve – Escola Superior de Gestão, Hotelaria e Turismo (Portimão)*	93	Bachelor	*Turismo*	40	147
U	Public	*Universidade do Algarve – Faculdade de Economia*	94	Master	*Economia do Turismo e Desenvolvimento Regional*	20	30
			95	PhD	*Turismo*	12	-
U	Public	*Universidade do Porto – Faculdade de Ciências*		Master	*Transições e Inovações no Enoturismo (Erasmus Mundus)*[11]	-	-
U	Public	*Universidade dos Açores - Faculdade de Economia e Gestão*	96	Bachelor	*Turismo*	25	111

Note: The institutions highlighted in red were excluded from the analysis, as their webpages did not indicate that the program would be offered in the 2024/2025 academic year**.**

Caption: D: Daytime; PI: Polytechnic Institute; PL: Evening; U: University

[11] No information available.

Appendix B: *Programs that made available FUCs*

Program ID	FUC Availability	Program ID	FUC Availability	Program ID	FUC Availability
1	All Courses	41	All Courses	77	All Courses
2	All Courses	43	All Courses	80	All Courses
9	Some courses	45	All Courses	81	All Courses
14	All Courses	46	All Courses	82	All Courses
21	All Courses	47	All Courses	83	All Courses
22	All Courses	48	All Courses	84	All Courses
25	All Courses	58	All Courses	85	All Courses
26	All Courses	63	All Courses	86	All Courses
27	All Courses	64	All Courses	90	All Courses
28	All Courses	69	Some courses	91	All Courses
34	All Courses	70	All Courses	92	All Courses
35	All Courses	71	All Courses	93	All Courses
36	Some courses	72	Some courses	94	All Courses
38	All Courses	73	All Courses	95	All Courses
39	All Courses	74	All Courses	96	All Courses

Appendix C: *List of official HEIs websites (April - July 2025)*

Name of Institution	Website
Escola Superior de Hotelaria e Turismo do Estoril	https://www.eshte.pt/pt/cursos/cursos
Instituto Europeu de Estudos Superiores	https://iees.pt/licenciaturas/ https://iees.pt/ctesp/
ISEC Lisboa – Instituto Superior de Educação e Ciências	https://www.iseclisboa.pt/index.php/pt/gestaohoteleira
ISCE - Instituto Superior de Lisboa e Vale do Tejo	https://www.isce.pt/pt/estudar
ISLA - Instituto Politécnico de Gestão e Tecnologia - Escola Superior de Gestão	http://islagaia.pt/pt/ensino
ISLA Santarém - Instituto Politécnico	https://www.islasantarem.pt/pt/ensino
ISCTE - Instituto Universitário de Lisboa	https://www.iscte-iul.pt/conteudos/221/estudar
Instituto Politécnico da Guarda - Escola Superior de Educação, Comunicação e Desporto	https://politecnicoguarda.pt/sobrenos/as-escolas/esecd/
Instituto Politécnico da Guarda - Escola Superior de Turismo e Hotelaria	https://politecnicoguarda.pt/sobrenos/as-escolas/esth/
Instituto Politécnico da Lusofonia - Escola Superior de Ciências da Administração	https://www.ipluso.pt/pt/ensino
Instituto Politécnico da Maia - Escola Superior de Ciências Sociais, Educação e Desporto	https://www.ipmaia.pt/pt/escolas/escola-superior-de-ciencias-sociais-educacao-e-desporto
Instituto Politécnico de Beja - Escola Superior de Tecnologia e de Gestão	https://www.ipbeja.pt/UnidadesOrganicas/ESTIG/Paginas/default.aspx
Instituto Politécnico de Bragança - Escola Superior de Comunicação, Administração e Turismo de Mirandela	https://www.esact.ipb.pt/index.php/esact/estudantes/cursos
Instituto Politécnico de Castelo Branco - Escola Superior de Gestão de Idanha-a-Nova	https://www.ipcb.pt/escolas/gestao/
Instituto Politécnico de Coimbra - Escola Superior Agrária de Coimbra	https://www.esac.pt/index.php/estudar/

Name of Institution	Website
Instituto Politécnico de Coimbra - Escola Superior de Educação de Coimbra	https://www.esec.pt/cursos/
Instituto Politécnico de Leiria - Escola Superior de Educação e Ciências Sociais	https://www.ipleiria.pt/esecs/cursos/
Instituto Politécnico de Leiria - Escola Superior de Turismo e Tecnologia do Mar	https://www.ipleiria.pt/estm/
Instituto Politécnico de Portalegre - Escola Superior de Educação e Ciências Sociais	https://esecs.ipportalegre.pt/pt/oferta-formativa/
Instituto Politécnico de Santarém - Escola Superior de Desporto de Rio Maior	https://www.ipsantarem.pt/escola-superior-de-desporto-de-rio-maior/
Instituto Politécnico de Santarém - Escola Superior de Educação de Santarém	https://www.ipsantarem.pt/escola-superior-de-educacao-de-santarem/
Instituto Politécnico de Setúbal - Escola Superior de Ciências Empresariais	https://esce.ips.pt/
Instituto Politécnico de Tomar - Escola Superior de Gestão de Tomar	https://portal2.ipt.pt/pt/cursos/
Instituto Politécnico de Viana do Castelo – Escola Superior de Desporto e Lazer de Melgaço	https://www.ipvc.pt/esdl/
Instituto Politécnico de Viana do Castelo - Escola Superior de Tecnologia e Gestão	https://www.ipvc.pt/estg/
Instituto Politécnico de Viseu - Escola Superior Agrária de Viseu	https://esav.ipv.pt/
Instituto Politécnico de Viseu - Escola Superior de Tecnologia e Gestão de Lamego	https://estgl.ipv.pt/
Instituto Politécnico de Viseu - Escola Superior de Tecnologia e Gestão de Viseu	https://estgv.ipv.pt/estudar/oferta-formativa/
Instituto Politécnico do Cávado e do Ave – Escola Superior de Hotelaria e Turismo	https://esht.ipca.pt/ensino/
Instituto Politécnico do Cávado e do Ave - Escola Técnica Superior Profissional	https://ctesp.ipca.pt/

Name of Institution	Website
Instituto Politécnico do Porto - Escola Superior de Educação	https://www.ese.ipp.pt/
Instituto Politécnico do Porto - Escola Superior de Hotelaria e Turismo	https://www.esht.ipp.pt/
Instituto Superior D. Dinis	https://www.isdom.pt/
Instituto Superior Manuel Teixeira Gomes	https://www.ismat.pt/pt/
Instituto Superior de Administração e Gestão	https://www.isag.pt/
Instituto Superior de Administração e Línguas	https://isal.pt/ensino/
Instituto Superior de Ciências Educativas do Douro	https://www.iscedouro.pt/
Instituto Superior de Ciências Empresariais e do Turismo	https://www.iscet.pt/
Instituto Superior de Entre Douro e Vouga	https://isvouga.pt/
Instituto Superior de Gestão	https://www.isg.pt/#
Instituto Superior Politécnico Gaya – Escola Superior de Ciências Empresariais	https://esce.ispgaya.pt/#
Universidade Católica Portuguesa - Faculdade de Filosofia e Ciências Sociais	https://ffcs.braga.ucp.pt/en
Universidade Europeia	https://www.europeia.pt/
Universidade Lusíada - Centro Universitário Lusíada - Lisboa	https://www.lis.ulusiada.pt/
Universidade Lusófona - Centro Universitário Lusófona - Lisboa	https://www.ulusofona.pt/
Universidade Lusófona - Centro Universitário Lusófona - Porto	https://www.ulusofona.pt/
Universidade Portucalense Infante D. Henrique	https://www.upt.pt/inicio/cursos/
Universidade da Madeira – Escola Superior de Tecnologias e Gestão	https://www.uma.pt/sobre/faculdades-e-escolas/escola-superior-de-tecnologias-e-gestao/
Universidade da Maia	https://www.umaia.pt/pt/ensino/oferta-formativa
Universidade de Aveiro	https://www.ua.pt/pt/estudar
Universidade de Coimbra - Faculdade de Letras	https://www.uc.pt/fluc/

Name of Institution	Website
Universidade de Évora - Escola de Ciências Sociais	https://www.uevora.pt/unidades/organicas/ecs
Universidade de Évora – Instituto de Investigação e Formação Avançada	https://www.iifa.uevora.pt/formacao_avancada
Universidade de Lisboa – Instituto de Geografia e Ordenamento do Território	https://www.igot.ulisboa.pt/
Universidade de Trás-os-Montes e Alto Douro - Escola de Ciências Humanas e Sociais	https://www.utad.pt/estudar/inicio/cursos/?grauid=L1
Universidade do Algarve – Escola Superior de Educação e Comunicação	https://esec.ualg.pt/
Universidade do Algarve - Escola Superior de Gestão, Hotelaria e Turismo	https://esght.ualg.pt/
Universidade do Algarve – Escola Superior de Gestão, Hotelaria e Turismo (Portimão)	https://esght.ualg.pt/
Universidade do Algarve – Faculdade de Economia	https://fe.ualg.pt/
Universidade do Porto – Faculdade de Ciências	https://www.up.pt/fcup/pt/
Universidade dos Açores - Faculdade de Economia e Gestão	https://feg.uac.pt/#licenciaturas

Appendix D: *Interview Guide*

1. Compreensão do conceito de desenvolvimento sustentável no ensino do Turismo

1. *Enquanto coordenador de um curso de ensino superior em Turismo, considera que o desenvolvimento sustentável no contexto desta formação é importante?*

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2. Integração curricular

2. *O curso de Turismo que coordena integra temas de sustentabilidade no currículo?*
    a. *Se sim: Sabe dizer-me se os alunos demonstram interesse sobre estas temáticas? Se, porventura, na avaliação da UC mostram esse envolvimento?*
    b. *Se não: porquê?*
3. *Como julga ser a melhor forma de integração? Através de unidades curriculares, projetos extracurriculares na comunidade, experiências práticas nas organizações ou que deve ser transversal?*

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3. Barreiras e condições institucionais

4. *Enquanto coordenador, consegue identificar alguns obstáculos à integração da sustentabilidade nos planos de estudos de Turismo, nomeadamente a nível de acreditação de ciclo de estudos ou financeiras?*
5. *Considera que há necessidade de formação específica para os docentes? Se sim, de que tipo?*

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4. Investigação e políticas institucionais

6. *A instituição onde integra o corpo docente incentiva a investigação em desenvolvimento sustentável no âmbito do Turismo?*
    a. *Se sim, como?*
    b. Se não, acha que deveria fazê-lo?

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5. Estratégia institucional e papel das IES

7. *Consegue identificar boas práticas de sustentabilidade da sua instituição/unidade orgânica? Dentro e fora do campus.*

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6. Relação com o território e redes internacionais

8. *Considera que a colaboração com empresas turísticas, entidades regionais e comunidades locais fortalecem a formação em sustentabilidade nos cursos de Turismo? O curso tem parcerias neste sentido?*
9. *O curso identifica-se ou aborda nas suas unidades curriculares algum referencial de sustentabilidade (ODS, GSTC, PRIME?)*

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7. Encerramento

10. *Gostaria de acrescentar alguma ideia ou sugestão sobre a integração da sustentabilidade nos cursos de Turismo?*

Appendix E: *Informed Consent*

O presente estudo surge no âmbito de um projeto de investigação a decorrer no Iscte – Instituto Universitário de Lisboa.

O presente estudo visa analisar de que forma o desenvolvimento sustentável está integrado nos *curricula* dos cursos de Turismo em Instituições de Ensino Superior portuguesas, a partir das perceções de coordenadores e diretores de curso. Assim, a sua participação consiste numa entrevista individual (aproximadamente 30 minutos), realizada online ou por escrito, com base num guião semiestruturado que aborda práticas curriculares, obstáculos, estratégias institucionais e parcerias no âmbito da sustentabilidade no ensino de Turismo.

O Iscte-IUL é o responsável pelo tratamento dos seus dados pessoais, recolhidos e tratados exclusivamente para as finalidades do estudo, tendo como base legal o seu consentimento [art.º 6.º, n.º1, alínea a) do Regulamento Geral de Proteção de Dados].

O estudo é realizado por (nome do investigador), aluna de mestrado do Iscte-IUL, contactável através do endereço eletrónico (endereço de email do investigador) ou do número de telemóvel (número de telemóvel do investigador) que poderá contactar caso pretenda esclarecer dúvidas ou exercer os seus direitos relativos ao tratamento de dados pessoais.

A sua participação é voluntária e confidencial, e os dados serão utilizados unicamente para fins científicos, podendo os resultados ser divulgados em publicações académicas, seminários ou conferências, sempre de forma anonimizada. Os dados serão conservados até à conclusão do projeto e publicação dos resultados, sendo posteriormente anonimizados ou destruídos. O Iscte-IUL não partilha dados com terceiros.

Declaro ter compreendido os objetivos de quanto me foi proposto e explicado, ter-me sido dada oportunidade de fazer todas as perguntas sobre o presente estudo e para todas elas ter obtido resposta esclarecedora. Aceito participar no estudo e consinto que os meus dados pessoais sejam utilizados de acordo com a informações disponibilizadas.

_____ (local), ____/__/____ (data)

Nome: _____

Assinatura: _____

Appendix F: *Survey (English version)*

Tourism Students' Perceptions and Competencies for Sustainability Survey (English version)

Section 1: ESD academic experience

Likert scale (1 = Strongly disagree, 5 = Strongly agree):

1. My program includes mandatory courses explicitly related to sustainability.
2. Sustainability is addressed transversally across the various curricular units of my degree.
3. My lecturers integrate sustainability into the content of their curricular units.
4. My Higher Education Institution promotes practical activities focused on sustainability.
5. Education for sustainable development is reflected in the pedagogical objectives of my degree program, particularly in the course unit descriptors.
6. I consider sustainability to be a strategic priority of my institution.

Section 2: Awareness and Understanding of Sustainability Principles

Likert scale (1 = No understanding, 5 = Very high understanding):

"Indicate your level of understanding of the following sustainability principles:"

1. Environmental sustainability
2. Economic sustainability
3. Social sustainability
4. Interdependence between the three pillars of sustainability.
5. Sustainable tourism practices and management
6. Global Sustainable Development Goals (SDGs)
7. The role of tourism in achieving the 2030 Agenda

Section 3: Attitudes and Perceived Importance of Sustainability

Likert scale (1 = Strongly disagree, 5 = Strongly agree):

1. Integrating sustainability into tourism is essential for the future of the sector.
2. Training in sustainability better prepares me for professional challenges.
3. My personal values are aligned with the principles of sustainability.
4. My peers show interest in sustainability in the academic context.
5. Lecturers encourage the adoption of sustainable practices.
6. Sustainability is recognized as important in my institution.
7. I feel motivated to apply sustainability principles in my future professional career.
8. I believe individual actions can have a real impact on tourism sustainability.

Section 4: Professional Confidence & Competencies

Likert scale (1 = Very low confidence, 5 = Very high confidence):

"*Rate your confidence level regarding your ability to perform each of the following competencies in a professional context:"*

1. Identify sustainability – related issues in tourism projects (environmental, social and economic).
2. Apply practical solutions to environmental, social and economic challenges in the context of tourism.
3. Communicate effectively with different stakeholders (clients, public entities, local communities) about sustainability.
4. Collaborate in multidisciplinary teams to implement sustainable practices in tourism projects.
5. Integrate sustainability knowledge into professional decision-making in the tourism sector (e.g. planning, management, operations).
6. Adapt to new challenges related to sustainability.
7. Reflect critically on my role in driving sustainable transformation in tourism.
8. Manage conflicts of interest between profitability and sustainability in real decision-making contexts.
9. Participate in the design of sustainable strategies for tourist destinations.
10. Evaluate the impact of tourism projects using sustainability indicators and benchmarks.

Section 5: Demographic Information

- Age: (18-24; 25-34; 35-44; +45)
- Gender: (Female, Male, Other/Prefer not to answer)
- Type of program: (CTSP, Bachelor, Master, PhD)
- Higher Education Institution: (Public University, Private University, Public Polytechnic Institution, Private Polytechnic Institution)
- Year of admission to Higher Education (free answer)
- Attendance regime: (Full-time student, working student, other)
- Professional Experience in the Tourism Sector (Yes/no)
- Are you a Portuguese or an international student?: (Portuguese / International)

Appendix G: *Survey (Portuguese version)*

Questionário sobre Perceções e Competências para a Sustentabilidade entre Estudantes de Turismo em IES portuguesas (Portuguese version)

Parte 1: Experiência Académica em EDS

Escala de *Likert* (1 = Discordo totalmente, 5 = Concordo totalmente):

1. O meu curso inclui unidades curriculares obrigatórias que abordam sustentabilidade.
2. A sustentabilidade é tratada de forma transversal nas diversas unidades curriculares do meu curso.
3. Os meus docentes integram a sustentabilidade nos conteúdos das suas unidades curriculares.
4. A minha Instituição de Ensino Superior promove atividades práticas com foco em sustentabilidade.
5. A Educação para o Desenvolvimento Sustentável está refletida nos objetivos pedagógicos do meu curso, nomeadamente na Ficha de Unidade Curricular.
6. Considero que a sustentabilidade é uma prioridade estratégica da minha instituição.

Parte 2: Consciencialização e Compreensão dos Princípios de Sustentabilidade

Escala de Likert (1 = Nenhuma compreensão, 5 = Compreensão muito alta):

"*Indique o seu nível de compreensão sobre os seguintes princípios de sustentabilidade:"*

1. Sustentabilidade ambiental
2. Sustentabilidade económica
3. Sustentabilidade social
4. Interdependência entre os três pilares da sustentabilidade
5. Práticas e gestão de turismo sustentável
6. Objetivos de Desenvolvimento Sustentável (ODS)
7. Papel do turismo no cumprimento da Agenda 2030

Parte 3: Atitudes e Perceção da Importância da Sustentabilidade

Escala de Likert (1 = Discordo totalmente, 5 = Concordo totalmente):

1. Integrar sustentabilidade no turismo é essencial para o futuro do setor.
2. A formação em sustentabilidade prepara-me melhor para os desafios profissionais.
3. Os meus valores pessoais estão alinhados com os princípios da sustentabilidade
4. Os meus colegas demonstram interesse pela sustentabilidade no contexto académico.
5. Os docentes incentivam a adoção de práticas sustentáveis.
6. A sustentabilidade é reconhecida como importante na minha instituição.
7. Sinto-me motivado/a a aplicar os princípios de sustentabilidade no meu futuro profissional.
8. Acredito que as ações individuais podem ter impacto real na sustentabilidade no turismo.

Parte 4: Confiança Profissional e Competências Práticas

Escala de Likert (1 = Confiança muito baixa, 5 = Confiança muito alta):

"Avalie o seu nível de confiança em relação à sua capacidade de desempenhar as seguintes competências no contexto profissional:"

1. Identificar questões de sustentabilidade em projetos turísticos (ambientais, sociais e económicos).
2. Aplicar soluções concretas para desafios ambientais, sociais e económicos no contexto do turismo.
3. Comunicar eficazmente com diferentes *stakeholders* (clientes, entidades públicas, comunidades locais) sobre sustentabilidade.
4. Colaborar em equipas multidisciplinares para implementar práticas sustentáveis em projetos turísticos.
5. Integrar conhecimentos de sustentabilidade em decisões profissionais do setor turístico (ex.: planeamento, gestão, operação).
6. Adaptar-me a novos desafios relacionados com sustentabilidade.
7. Refletir criticamente sobre o meu papel na transformação sustentável do turismo.
8. Gerir conflitos de interesse entre rentabilidade e sustentabilidade em contextos reais de tomada de decisão.
9. Participar no desenho de estratégias sustentáveis para destinos turísticos.
10. Avaliar o impacto de projetos turísticos com recursos a indicadores e referenciais de sustentabilidade.

Parte 5: Informações Demográficas

- Idade: (18-24; 25-34; 35-44; +45)
- Género: (Feminino, Masculino, Outro/Prefiro não dizer)
- Ciclo de Estudos: (CTSP, Licenciatura, Mestrado, Doutoramento)
- Instituição de Ensino Superior: (Universitário Público, Universitário Privado, Instituto Politécnico Público, Instituto Politécnico Privado)
- Ano de ingresso no Ensino Superior: (----)
- Regime de frequência: (Estudante a tempo integral, Trabalhador/a-estudante, Outro)
- Experiência Profissional no setor do Turismo: (Sim/Não)

Appendix H: *Programs that include explicit references to sustainability in their study plan (mandatory or optional courses)*

Program ID
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Appendix I: *Analysis of Explicit Sustainability Integration in publicly available FUCs*

Program ID	*Sustentabilidade*	*Desenvolvimento Sustentável*	*ODS*	*ESG*	*Responsabilidade Social*	Total mentions
1	5	0	0	0	0	5
2	4	0	0	0	0	4
9	0	0	0	0	0	0
14	9	6	1	0	2	18
21	9	1	0	0	6	16
22	5	0	0	0	0	5
25	9	5	0	0	7	21
26	15	6	4	0	3	28
27	12	7	0	0	4	23
28	85	6	1	0	2	94
34	2	13	3	0	0	18
35	6	7	12	0	0	25
36	17	3	8	0	1	29
38	3	7	0	0	0	10
39	2	2	0	0	0	4
40	12	23	10	0	0	45
41	24	51	18	0	0	93
43	17	4	1	0	6	28
45	0	0	0	0	0	0
46	7	8	0	0	2	17
47	0	0	0	0	3	3
48	3	5	0	0	2	10
58	1	0	0	0	1	2
63	1	1	0	0	1	3
64	28	6	1	2	5	42
69	28	1	2	0	1	32
70	4	2	0	0	1	7
71	3	3	0	0	2	8
72	37	12	16	0	0	65
73	20	7	14	0	1	42
74	2	0	0	0	0	2

77	2	2	0	0	1	5
78	4	0	0	0	0	4
79	12	7	2	0	3	24
80	2	1	0	0	0	3
81	17	1	0	0	3	21
82	13	5	1	0	0	19
83	12	1	0	0	0	13
84	3	4	21	0	0	28
85	8	4	9	0	1	22
86	10	2	6	0	0	18
90	0	1	9	0	0	10
91	11	1	24	0	3	39
92	7	2	15	0	0	24
93	6	0	19	0	3	28
94	14	3	12	0	2	31
95	2	1	5	0	0	8
96	11	2	0	0	0	13

Appendix J: *Occurrences of combined explicit terms and implicit dimensions terms across 96 plans of study and 48 programs' FUCs*

Rank	Keyword	Occurrences	Dimension
1	Innovation (*inovação*)	689	Economic
2	Sustainability (*sustentabilidade*)	504	Explicit
3	Environment (*ambiente*)	333	Environmental
4	Entrepreneurship (*empreendedorismo*)	240	Economic
5	Sustainable Development (*desenvolvimento sustentável*)	223	Explicit
6	SDGs (*ODS*)	214	Explicit
7	Diversity (*diversidade*)	162	Social
8	Ethics (*ética*)	104	Social
9	Social Responsibility (*responsabilidade social*)	66	Explicit
10	Climate (*clima*)	61	Environmental
11	Biodiversity (*biodiversidade*)	49	Environmental
12	Inequalities (*desigualdades*)	41	Social
13	Crisis (*crise*)	40	Economic
14	Inclusion (*inclusão*)	34	Social
15	Natural resources (*recursos naturais*)	33	Environmental
16	Poverty (*pobreza*)	14	Social
17	Unemployment (*desemprego*)	8	Economic
18	Migrations (*migrações*)	5	Social
19	Circular economy (*economia circular*)	5	Economic
20	ESG (*ESG*)	2	Explicit
21	Social economy (*economia social*)	1	Economic
22	Human rights (*direitos humanos*)	0	Social
23	Precarious work (*trabalho precário*)	0	Economic

Appendix K: *Summary of NVivo Coding Frequencies and Interpretations of the Interviews*

Theme	Subcodes	Frequency	Main Associations	Interpretative Summary
1. Sustainability Dimensions	*Environmental* (24) *economic* (15) *social* (23) *socio-economic* (14) *socio-environmental* (19) *circular economy* (9)	27 / 27 (100%)	Present in all institutions; environmental pillar dominant in CTSP and Bachelor cycles.	Coordinators mostly associate sustainability with environmental protection; social and economic aspects emerge later in Master/PhD cycles.
2. Integration Approaches	Curricular (8), interdisciplinary (27), extracurricular (11)	27 / 27 (100%)	Transversality emphasized in both public and private HEIs.	Integration is perceived as transversal and project-based rather than confined to a single curricular unit.
3. Barriers	Bureaucratic (16) Resource (12) Faculty Training (21)	24 / 27 (89%)	Bureaucratic barriers stronger in public HEIs; faculty literacy gaps across all cycles.	Barriers are primarily institutional (accreditation rigidity) and human (uneven faculty competence in sustainability).
4. Institutional Culture	Leadership & Strategy (13) Faculty Autonomy (22) Communication (10)	25 / 27 (93%)	Faculty autonomy dominates in public universities; private institutions show stronger top-down leadership.	Institutional ethos heavily shapes sustainability integration: autonomy encourages creativity but weakens coherence.
5. Pedagogical Innovation	Project-based (18) SDGs Integration (20) Partnerships (15)	26 / 27 (96%)	More frequent in master programs and private HEIs.	Innovative teaching methods are spreading; linking SDGs and real-world projects drives engagement.
6. Student Dimension	Awareness (25) Engagement (23) Professional Readiness (19)	27 / 27 (100%)	Most visible in CTSP and bachelor cycles where employability is dominant	Student interest in sustainability is growing, though depth of conceptual understanding varies.
7. Best Practices	Reform Proposals (17) Successful Experiences (14)	23 / 27 (85%)	Shared across institution types.	Coordinators emphasize continuous review of FUCs, faculty upskilling, and explicit SDGs mapping as best practices.

Appendix L: *Profile of Interview Participants by Institutional Type and Cycle of Studies*

Participant ID	Pseudonym	Type of Institution	Ownership	Cycle of Studies
1	P-Priv-Bachelor01	Polytechnic	Private	Bachelor
2	U-Priv-Bachelor02	University	Private	Bachelor
3	U-Pub-Bachelor03	University	Public	Bachelor
4	P-Pub-CTSP04	Polytechnic	Public	CTSP
5	U-Pub-Master05	University	Public	Master
6	P-Priv-CTSP06	Polytechnic	Private	CTSP
7	P-Priv-CTSP07	Polytechnic	Private	CTSP
8	U-Priv-Master08	University	Private	Master
9	U-Pub-Master09	University	Public	Master
10	P-Pub-Master10	Polytechnic	Public	Master
11	P-Pub-Master11	Polytechnic	Public	Master
12	P-Priv-CTSP12	Polytechnic	Private	CTSP
13	U-Pub-Bachelor13	University	Public	Bachelor
14	P-Pub-Bachelor14	Polytechnic	Public	Bachelor
15	U-Priv-Bachelor15	University	Private	Bachelor
16	U-Pub-Master16	University	Public	Master
17	U-Pub-PhD17	University	Public	PhD
18	P-Pub-Bachelor18	Polytechnic	Public	Bachelor
19	U-Priv-Bachelor19	University	Private	Bachelor
20	U-Priv-Bachelor20	University	Private	Bachelor
21	P-Pub-CTSP21	Polytechnic	Public	CTSP
22	U-Pub-Master22	University	Public	Master
23	U-Pub-PhD23	University	Public	PhD
24	P-Priv-CTSP24	Polytechnic	Private	CTSP
25	P-Pub-Bachelor25	Polytechnic	Public	Bachelor
26	P-Priv-Bachelor26	Polytechnic	Private	Bachelor
27	U-Pub-Master27	University	Public	Master

Appendix M: *Demographic Characteristics of the Sample (N = 124)*

Variable	Category	n	%
Gender	Female	84	67.7
	Male	40	32.3
Age	18–24 years	85	68.5
	25+ years	39	31.5
Degree level	Bachelor's	50	40.3
	Master's	36	29.0
	CTSP	29	23.4
	Doctoral	9	7.3
Institution type	Public university	47	37.9
	Public polytechnic	40	32.3
	Private polytechnic	20	16.1
	Private university	17	13.7
Study regime	Full-time	81	65.3
	Part-time / working student	41	33.1
Tourism experience	Yes	70	56.5
	No	54	43.5
Survey language	Portuguese	109	87.9
	English	15	12.1

Note. Percentages rounded to one decimal place.

Appendix N: *EFA of Tourism Students' Sustainability Perceptions and Professional Confidence (Full item loadings)*

ITEMS	1	2	3	4	5
Factor 1 (Cronbach's α = 0.95) – Professional Confidence					
Identify sustainability-related issues in tourism projects (environmental, social, and economic).	.84				
Apply practical solutions to environmental, social, and economic challenges in the context of tourism.	.81				
Communicate effectively with different stakeholders (clients, public entities, local communities) about sustainability.	.78				
Collaborate in multidisciplinary teams to implement sustainable practices in tourism projects.	.75				
Integrate sustainability knowledge into professional decision-making in the tourism sector (e.g., planning, management, operations).	.73				
Adapt to new challenges related to sustainability.	.71				
Reflect critically on my role in driving sustainable transformation in tourism.	.68				
Manage conflicts of interest between profitability and sustainability in real decision-making contexts.	.64				
Participate in the design of sustainable strategies for tourist destinations.	.62				
Evaluate the impact of tourism projects using sustainability indicators and benchmarks.	.60				
Factor 2 (Cronbach's α = 0.93) – Awareness and Understanding					
Environmental sustainability		.95			
Economic sustainability		.89			
Social sustainability		.86			
Interdependence between the three pillars of sustainability		.79			
Sustainable tourism practices and management		.74			
Global Sustainable Development Goals (SDGs)		.70			
The role of tourism in achieving the 2030 Agenda		.68			

ITEMS	1	2	3	4	5
Factor 3 (Cronbach's α = 0.92) – Curricular Exposure					
My program includes mandatory courses explicitly related to sustainability.			.82		
Sustainability is addressed transversally across the various curricular units of my degree.			.78		
My lecturers integrate sustainability into the content of their curricular units.			.73		
My Higher Education Institution promotes practical activities focused on sustainability.			.69		
Education for sustainable development is reflected in the pedagogical objectives of my degree program.			.65		
I consider sustainability to be a strategic priority of my institution.			.60		
Factor 4 (Cronbach's α = 0.83) – Attitudes					
Integrating sustainability into tourism is essential for the future of the sector.				.73	
Training in sustainability better prepares me for professional challenges.				.69	
My personal values are aligned with the principles of sustainability.				.65	
I feel motivated to apply sustainability principles in my future professional career.				.60	
I believe individual actions can have a real impact on tourism sustainability.				.47	
Factor 5 (r = 0.31, p < .001) – Subjective Norms					
My peers show interest in sustainability in the academic context.					.45
Lecturers encourage the adoption of sustainable practices.					.38
Percentage of Variance Explained	25.3	14.6	11.8	9.2	6.9
Cumulative Variance (%)	67.8				