

## Article

# The Imperative to Address Sustainability Skills Gaps in Tourism in Wales

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**Abstract:** Tourism is fundamental to the economy of Wales, and the government tourism plan 2020–2025 centres on sustainable development. This paper presents a quantitative analysis of research undertaken by the Next Tourism Generation Alliance (NTGA) project in Wales evidencing sustainability skills gaps. Survey data collected from five tourism sectors, accommodation, food and beverage, destination management, visitor attractions, travel agents and tour operators, show that the highest green and social skills gaps were identified in food and beverage businesses, whilst accommodation reported the lowest skills gaps. The effect of the type of tourism sector, business size and job level on green skills gaps perceptions was found to be insignificant, which indicates that training in sustainability skills is considered important regardless of these variables. The effect of type of tourism activity on perceptions of social skills gaps including personal and communication was significant. Addressing skills gaps is crucial given the significance of the industry in the national economy and the need for recovery from COVID-19. Tourism is one of the worst affected industries in the pandemic, and global market research and policy guidance highlight the importance of sustainable tourism development to ensure a resilient recovery.



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**Keywords:** sustainability skills gaps; sustainable development; tourism; Wales

## 1. Introduction

Wales is a small country with a population of approximately 3.2 million within the United Kingdom [1]. The Welsh Government is the devolved executive and has responsibility for tourism development. Tourism is considered a ‘foundational sector’ in the economy in which skills progression is encouraged in the Economic Action Plan for Wales, *Prosperity for All* [1]. Pre-COVID, tourism was one of the fastest growing sectors in Wales and almost 10% of the workforce was employed in the industry [2]. According to an annual Tourism Performance Report for 2019 [3], there were increases in visits to Wales compared with 2018: an increase of 6.8% to 10,698,000 in terms of trips and an increase of 8.1% to £2,003 million in related spending. There were 87,300,000 day-visits, down 8.8% in 2018. Related spending (£3,447 million) was down by 14%. The number of international trips to Wales increased by 3.6% year on year to just over one million (1,023,000). Visitor spending was £515 million, which was an 18.8% increase on the previous year.

Wales is the only country in the world to enshrine sustainable development in groundbreaking legislation through *The Well-being of Future Generations (in Wales) Act 2015* [4]. The Act defines sustainable development as, “the processes of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals” [4]. The Act is significant because it puts a legal obligation on public bodies to embed the principles of the Act in strategic thinking, policy development and planning. The Act sets out seven

well-being goals (A Prosperous Wales; A Resilient Wales; A Healthier Wales; A More Equal Wales; A Wales of Cohesive Communities; Wales of Vibrant Culture and thriving Welsh Language; A Globally Responsible Wales) relevant to tourism, related sectors and associated (sustainability) skills development.

Following a national consultation, Visit Wales published *Welcome to Wales: Priorities for the Visitor Economy 2020–2025* that aligns industry development with the sustainability Act rather than simply economic metrics of success. The framework aims to deliver economic growth that benefits local people, environmental sustainability, social and cultural enrichment, health wellbeing, and satisfaction for visitors and locals [2]. *The Well-being of Future Generations (in Wales) Act 2015* [4] and *Welcome to Wales: Priorities for the Visitor Economy 2020–2025* implies an urgent need for developing appropriate skills to aid industry recovery from COVID-19 lockdown measures. That is, bridge the current gap between education and training outcomes and industry-based skills needs and the skills gaps between those that employees possess and those that industry and government policy identify as important.

Since March 2020 during the global COVID-19 pandemic, calls for the tourism industry to become more sustainable have amplified. The United Nations World Tourism Organization (UNWTO) advocates for “Sustainability as the new normal: A vision for the future of tourism” [5]. UNWTO Secretary-General Zurab Pololikashvili said, “Sustainability must no longer be a niche part of tourism but must be the new norm for every part of our sector. This is one of the central elements of our *Global Guidelines to Restart Tourism*. It is in our hands to transform tourism and that emerging from COVID-19 becomes a turning point for sustainability” [5]. Bremner [6] highlights the importance of innovation and new business models for sustainability that focus more on domestic tourism, resource use, carbon tracking and transparency, managing the social impacts of tourism and dispersing visitors away from hotspot areas. All such practices imply the need for appropriate skills to aid industry recovery from COVID-19 lockdown measures. To support sustainable tourism development there is a key knowledge deficit on which sustainability skills gaps exist and which sustainability skills are needed in the future in order to implement sustainable tourism. There is an over-emphasis on sustainable tourism policy and the importance of sustainable tourism and hospitality strategies and environmental and social practices, without evidence of sustainability skills gaps and identification of skills required to implement sustainable tourism practice. There is also a need to identify key sustainability skills terminology that can be used in training.

The Association of British Travel Agents (ABTA) highlights that the COVID-19 pandemic has had a devastating impact on the industry, which needs to be rebuilt in a more resilient way. Their report *Tourism for Good—A Roadmap for Rebuilding Travel and Tourism* [7] provides a framework for collaborative action for sustainable tourism development. According to the research findings of ABTA [7], more than half of its members (52%) believe that the travel industry should open and operate in a greener way, as concern for the environment continues to rise.

#### *The Next Tourism Generation Alliance (NTGA)*

This research forms part of a wider European survey, developed and distributed by the NTGA, across eight countries (UK (Wales and England), Italy, Ireland, Spain, Hungary, Germany, Netherlands, and Bulgaria). The NTGA comprises seven universities, six tourism trade associations and The Association of Tourism and Leisure Education and Research (ATLAS), to address skills gaps of tourism and hospitality employees and students. Funded by the European Commission KA 2 Erasmus + Programme (<https://nexttourismgeneration.eu/>), the NTGA aims to establish a blueprint strategy at National and EU levels for digital and sustainability skills development and to support greater collaboration between industry, education providers and government policy initiatives. The NTGA is working across five tourism and hospitality sectors including

accommodation, tour operators and travel agents, food and beverage, visitor attractions, and destination management organizations.

The main purpose of this paper is to assess which sustainability skills gaps predominate for tourism and hospitality employees in Wales according to their job proficiency level, business size and type of tourism sector they work in. This provides evidence to support sustainable skills development and training strategies within the tourism and hospitality industry and the training and education sector. This research is based upon the NTGA primary research survey results completed in Wales in 2019. Although the research is based on Wales, international comparisons can be made where the population (3.2 million) and economic reliance upon the tourism industry are similar.

The specific objectives of this paper are to: (a) evaluate tourism and hospitality employees' *current* proficiency level of social and green skills; (b) evaluate employees' required *future* proficiency level; (c) identify the gaps between current and required future proficiency levels; (d) assess the significance of the type of tourism sector on skills gaps and proficiency levels; (e) assess the significance of organizational size on skills gaps and proficiency levels; (f) assess the significance of the job level on skills gaps and proficiency levels. The following hypotheses were therefore developed and are further elaborated in the literature review:

**Hypothesis 1 (H1):** *Perceptions of green skills gaps are positively influenced by the type of tourism sector.*

**Hypothesis 2 (H2):** *Perceptions of green skills gaps are positively influenced by the tourism business size.*

**Hypothesis 3 (H3):** *Perceptions of green skills gaps are positively influenced by job level.*

**Hypothesis 4 (H4):** *Perceptions of social skills gaps are positively influenced by the type of tourism sector.*

**Hypothesis 5 (H5):** *Perceptions of social skills gaps are positively influenced by the tourism business size.*

**Hypothesis 6 (H6):** *Perceptions of social skills gaps are positively influenced by job level.*

The NTGA survey data collection acts as a prerequisite to establish skills gaps before exploring in further detail the competencies associated with each of the skill sets. Bradley et al. cited in Bello et al. [8] note the distinct criteria used to define a skill can be contested according to whether the skills reflect formal qualifications held by an individual, the amount of training required for a job and the ability of an individual to perform complex job tasks. In this case the focus of the survey was to establish where the gaps lie in the ability of an individual to perform complex job tasks related to sustainability principles. This fills a key knowledge gap in research to provide evidence of skills gaps and related sustainability terminology to support greater integration of sustainability content in tourism and hospitality training.

Section 2 provides a review of key literature related to sustainability skills gaps, skills policy and skills development issues in Wales and further afield. Sustainability skills relate to a combination of green (environmental) and social (personal, communication and diversity) skills. The scope of these skills is provided in Section 3 that describes the methodology. Section 4 presents the quantitative data and analysis of the findings. Section 5 discusses these findings in the context of the prior literature and Section 6 summarizes the theoretical contribution of the paper, the managerial implications, research limitations, future research directions and conclusions.

## 2. Literature Review

The following section outlines the skills policy context and skills gap issues for Wales and the importance of key sustainable practices in tourism and hospitality that require skills to achieve implementation.

### 2.1. Sustainable Development and the Skills Policy Context in Wales

Skills policy and planning in Wales have shifted from a sector-based approach to regional working [9]. There are three Regional Skills Partnerships (RSPs) in Wales covering South East Wales, South West and Mid Wales and North Wales. Each RSP engages with employers and advises the Welsh Government on skills provision by providing a Regional Employment and Skills Plan (RESP). The Regional Delivery Plan for Employment and Skills for South West and Central Wales 2014–2024 [10] recognized the importance of sustainability skills as a cross-cutting theme throughout the strategy but lacked specific detail. From 2019, RESP preparation has moved from an annual to a three-year cycle. The RSPs have been subject to three recent reviews. An independent review on governance prepared for the Welsh Government [11] commissioned to examine evidence-based planning [12] and an inquiry by the National Assembly for Wales, Economy, Infrastructure and Skills Committee [13] identified a key challenge in relation to tourism in Wales is that the industry is made up mostly of Small and Medium-Sized Enterprises (SMEs) who may not engage with the RSPs. Previously there was a Tourism Training Forum Wales (TTFW) that assisted SMEs with skills development, but this was dismantled in 2010. There are plans to formalize a new Tourism and Hospitality Skills Partnership by 2021 [2].

Each of the major trends and disruptions facing the tourism industry in Wales has a skills dimension [14] and the country needs a 21st century skills system fit to meet the opportunities and challenges of the future [15,16]. Brexit remains paramount in the minds of decision-makers and businesses in Wales and there is uncertainty on how this may affect recruitment, staffing and skills shortages and gaps [16,17]. The quality of the tourism offering and competitiveness of the industry rely on the competence and skills of employees. The industry as a whole is characterized by general skills shortages, in part due to the high turnover of staff that negatively impacts businesses in terms of brain drain, inefficiency and time dedicated to recruitment and training [18,19]. These factors are considered particularly important when defining hypotheses 3 and 6 (*Hypothesis 3: Perceptions of green skills gaps are positively influenced by job level. Hypothesis 6: Perceptions of social skills gaps are positively influenced by job level*). This is also influenced by the fact the industry has the highest proportion of part-time employees in the UK economy, estimated at 73% [20]. This affects skills development and staff retention as part-time employees are not always given equal opportunities in terms of training [21].

Research into the skills needs of tourism and related sectors in Wales remains limited [22]. Businesses in Wales, particularly SMEs, struggle to find and retain skilled employees and cannot always respond quickly to new skills requiring new knowledge [16,23]. Seminal research by Haven-Tang and Jones with employers in Wales reported a lack of ‘soft’ skills, training that met the needs of the tourism industry and quality standards. It concluded that, “despite a consensus on the need to upgrade skills, improve professionalism and to nurture a training culture, there is an absence of an integrated approach to learning and training” [24]. Further research by Haven-Tang and Jones highlighted many micro-businesses that dominate Welsh tourism are lifestyle enterprises who typically do not undertake training and that this undermines overall destination service quality [25]. Dewhurst, Dewhurst and Livesay [26] identified perceived barriers to lifestyle-oriented tourism SMEs engaging with training as cost, time required, lack of awareness and suitable provision. This correlates with the barriers identified by the SW and Mid Wales RSP report [10] as well as high level of staff turnover and seasonality of work. Many of these skills challenges persist, especially given sectoral fragmentation, regional working and a complex institutional landscape for tourism and skills development in Wales.

## 2.2. Sustainability Skills in Tourism and Hospitality

### 2.2.1. Green (Environmental Skills)

Han, Hsu, Lee and Sheu emphasized that the “greening” of tourism has been on the international agenda since the late 1980s [27]. Effective environmental management in the tourism and hospitality industry brings benefits to businesses including demonstration of the commitment to environmental responsibility; improvement of natural resources that attracts and achieves customer satisfaction; minimizing energy and water consumption and waste reduces operational costs and enhancing the wellbeing of the local community [28–30]. Zaki and Qoura [30] further confirmed high profitability ratios in the hotel industry when using green and sustainable practices such as energy resource and waste management.

The Inter-governmental Panel on Climate Change (IPCC) [31] and the new European Commission Pact 4 Skills Strategy [32] recognize the importance of sustainability skills (green and social) in tourism now and in the future. Sustainability practices remain high on the international policy agenda, most notably to support the reduction of carbon emissions and the impact of tourism on climate change. Following the Year of Sustainable Tourism (2017), the UNWTO [33] highlighted that tourism needs to contribute to the 2030 Agenda for Sustainable Development and delivery of Sustainable Development Goals (SDGs).

This indicates how consumer trends have led to a growing shift in customer attitudes towards sustainability which has increased demand and interest in environmental practices at accommodation and holiday destinations [34]. Bello, Kamanga and Jamu [8] conclude that tourism and hospitality staff need to develop their skills and acquire competencies to best satisfy their customers. The Global Sustainable Travel Report released by Bookings.com in 2017 and cited by Choi et al. [34], found that 65% of global travelers’ expressed their intentions to stay in eco-friendly accommodations, and 34% stayed in one or more the previous year. Hotel marketers are also realizing that hotels’ active participation in eco-friendly practices can help attract an increasing number of guests with high green consciousness [35,36].

There has been extensive recognition of the importance of environmental issues in hospitality management since the late 1990s. Choi et al. [34] showed that environment-based research in the last 10 years has focused on consumer perception and behaviour towards hotels’ environmental practices [27], in addition to showcasing the conceptual or technical model of effective environmental management systems [37], evaluation methods or factors to determine the most effective environmental management systems [38–41] and marketing and management initiatives for hotels’ environmental practices [38]. Green human resource management practice is increasingly recognized as a key factor to support environmental management training within hospitality organizations [42]. However, few studies have investigated specific skills needs and skills gaps and the barriers to implementation of environmental practices, relevant to their advancement in Welsh tourism [16]. It is therefore important to establish if the type of tourism sector influences perceptions of green skills and whether particular sectors vary in the perception of green skills (see *Hypothesis 1: Perceptions of green skills gaps are positively influenced by the type of tourism sector*).

Hakio and Mattlemäki [43] focus their research on the importance of self-awareness-based skills to support transformation and collaboration in sustainable design and to achieve sustainable development goals. However, sustainable tourism literature often focuses upon activities related to sustainability practice, which explains the principles and practice, but not necessarily the skills and competencies required to actively implement sustainability practice. This issue can be linked to a seminal study by La Lopa and Day [44] of the tourism industry in Wales assessing readiness to change to sustainable business practices, demonstrating that despite an aspirational willingness to change, actual behavioural change amongst business was highly variable and this had to be factored into future strategic interventions. This emphasizes the need to elaborate on managerial methods of adoption and implementation of environmental and social strategies to effect sustainability behaviour change of customers and employees. This links to the competencies



needed to implement the SDGs including systems thinking; anticipation; strategic thinking; collaboration; critical thinking; self-awareness and integrated problem-solving [43].

Green or environmental skills are therefore considered a critical part of business practices in the tourism and hospitality industry [45,46] enabling sustainable development. Green skills should assist the implementation of Environmental Management Systems and the ability to apply waste, water and energy management and reduction strategies to reduce consumption and increase the use of alternative technologies, increase recycling and composting and implementing opportunities to support the circular economy in the design and management of the tourism value chain. The UK Institute of Hospitality management standards [46] encourages hotels to integrate environmental practices into the company including a strategic focus on setting sustainability goals to achieve reductions in water consumption, as well as a reduction of carbon dioxide emissions derived from fossils fuels and energy use. The Green Key standard [46] led by Keep Wales Tidy and the Green Business Scheme [47] in Wales both encourage tourism and hospitality operations to deliver and implement environmental management systems.

A review of the tourism value chain includes assessment and evaluation of actions required to support local produce procurement, promotion of sustainable forms of transport and customer awareness campaigns [29]. In Wales there is a strong policy orientation towards the use of Welsh-grown produce. In 2018, the National Assembly for Wales Climate Change, Environment and Rural Affairs Committee launched the Rethinking Food in Wales: Public Procurement of Food Policy [48], a strategy to promote local food procurement, thus needing knowledge of and partnerships with local supply chains.

Historically, the hospitality sector has contributed to a dramatic environmental impact through energy and water consumption, the use of consumable and durable goods and solid and hazardous waste creation [49–52]. Subsequently, energy management and the use of alternative energy technology, monitoring and evaluation to calculate the amount of carbon emissions and alternative methods of reducing carbon emissions are urgent requirements of managers and operators. Waste management is also an essential skill to reduce plastic, food waste and general waste to landfill from tourism and hospitality operations [49,52]. Such importance of environmental management strategies described in the previous paragraphs is therefore considered a key factor which supports the rationale to establish if business size influences the development and perception of green skills within a business. This also helps to establish whether different sized businesses perceive sustainability skills differently (see *Hypothesis 2*: Perceptions of green skills gaps are positively influenced by the tourism business size).

### 2.2.2. Social Skills

The UNWTO [52] and the Global Code of Tourism Ethics [53] encourage tourism destinations and tourism businesses to support sustainable development (Article 3) and provide a safe, satisfying and fulfilling experience for visitors, available to all without discrimination by gender, race or disability (Article 2). If a destination can meet and even exceed the expectations of its visitors, then it will have an advantage over competitor destinations. Baum, Kralj, Robinson and Solnet [54] state that in order to achieve this, all destination stakeholders need to understand their market and work together to meet the needs of that market, thus placing significant emphasis on personal, communication and diversity skills. Kiryakova-Dineva, Kyurova and Chankova [55] underline effective communication and personal skills at operational and managerial levels to provide excellent customer service for specific customer needs according to cultural preferences, diet and allergies and accessible services for all ages and needs. This characteristic of hospitality and tourism employees leads Strietska-Ilinanand Tessaring [56] to note that such employees are in demand by other sectors because of their transversal and soft skills, leading to a drain of talented employees from the hospitality sector. According to the OECD [57], soft skills have been highlighted as a source of competitive advantage and a supporting factor for employability. One of the key issues is how to define and measure soft skills, particularly

in order to identify apparent skills gaps. Cinque [58] and Kiryakova-Dineva, Kyurova and Chankova [55] noted that there are various methods of naming soft skills, also known as social or transversal skills, emotional intelligence, and basic and/or life skills.

The rapidly changing nature of the tourism and leisure experience and attitudes of industry managers affect skills needs, for example, in terms of the integrated relationship between social skills, cultural and historical sensitivity within tourism interpretation methods, empathy and protection of natural resources and the environment, the development of a more collaborative economy and attitudes towards urban and rural regeneration. Baker and O'Brien [59] argue that there is a need to extend thinking on soft skills through critical, alternative and post-modern approaches.

Through extensive secondary data research prior to the survey development, the Next Tourism Generation Alliance [60] defined employer and employee soft skills as behavioural and practical attitudinal competences in interpersonal communication; cross-cultural understanding; gender equality; disability awareness and customer service orientation. Soft skills also include managing personal relationships, cooperating with others, showing a positive attitude, showing respect, making appropriate contact and active listening. Such skills reflect the need for more social inclusion in tourism and the recognition of needs of marginalized groups such as resident communities, ethnic minorities and people with disabilities to support the inclusive tourism approach [61]. Such analysis supports the importance of *Hypothesis 4*: Perceptions of social skills gaps are positively influenced by the type of tourism sector and *Hypothesis 5*: Perceptions of social skills gaps are positively influenced by tourism business size. Social skills analysis will help to identify variations of perceptions according to the five identified tourism and hospitality sectors in this study and whether the size of the business changes perceptions of importance of personal, communication and diversity skills. This enables more evidence to support the question whether tailored approaches to social sustainability skills training should be according to sector and business size or whether social skills are important across all sectors and all sizes of business.

### 3. Research Methodology

#### 3.1. Population and Sample

This research focuses on the sustainability skills results from the sampling frame in Wales. The authors analyzed 142 fully completed online Qualtrics survey responses from tourism and hospitality business and organizations in five sectors (accommodation (including resorts, hotels, guesthouses/B&Bs, sharing/collaborative economy providers, self-catering cottages/apartments, and caravan and camping sites); tour operators and travel agents; food and beverage; visitor attractions and national and regional destination management organizations (DMOs) across Wales.

#### 3.2. Data Collection Methods and Procedures

The research process started in 2018 with secondary data analysis derived from desk research and reviews of industry reports, policy documents, and research articles, to identify and label key sustainability skills. This was undertaken across the eight NTG partner countries to identify commonalities in key sustainability skills variables that are presented in Table 1. These variables were utilized in the survey to reflect existing knowledge on current tourism and hospitality sustainability skills for the five sub-sectors.

**Table 1.** Key Sustainability Skills Variables.

Environmental (Green) Skills Variables	Social Skills Variables (Personal Skills)	Social Skills Variables (Communication Skills)	Social Skills Variables (Diversity Skills)
Ability to minimise the use and maximise efficiency of energy and water consumption	Problem solving	Written communication skills	Gender equality skills
Ability to manage waste, sewage, recycling and composting	Initiative and commitment	Oral communication skills	Age-related accessibility skills
Conservation of biodiversity	Customer orientation	Active listening skills	Diets and allergy need skills
Promotion of sustainable forms of transport (e.g., public transport)	Ethical conduct and respect	Skills related to cultural awareness and expression	Skills related to disabilities and appropriate infrastructure
Promotion of environmentally friendly activities and products	Willingness to change	Skills related to awareness of local customs (e.g., food, arts, language, crafts)	Skills related to diversity in religious beliefs
Knowledge of climate change	Promoting a positive work environment	Ability to speak foreign languages	
	Creativity	Skills related to intercultural host-guest understanding and respect	
	Willingness to learn and to perform		

Source: NTG and Universitat d'Alacant [62].

### 3.3. The Research Instrument

As noted by both Denscombe [63] and McLoughlin, Hanrahan and Duddy [64], quantitative research instruments are a popular method for investigating attitudes and actions in tourism research. Therefore, an online survey comprising 32 questions was approved by the Ethics Committee of Cardiff Metropolitan University in January 2019. This ensured participants were fully informed about the purpose of study and were given the right to anonymity. In addition, voluntary participation and the right of respondents to withdraw were highlighted before survey completion. Therefore, all survey participants gave their informed consent for inclusion before they participated in the study conducted in accordance with the Declaration of Helsinki. The survey comprised three core sections analyzed in this paper. The first section contained an explanation of the purpose of the survey and confirmation of anonymity followed by four questions regarding location, sector type, job level and the size of the organization. The second section asked respondents to confirm perceptions on the current and future level of proficiency in green (environmental) skills. The third section addressed respondent perceptions on the current and future level of proficiency in social skills. Social (soft) skills were divided into three types: personal, communication/cultural skills and diversity skills.

The survey used both closed and open-ended questions to allow participants to elaborate upon any training offered for the skill sets identified. A five-point Likert scale evaluated the perceived current level of skills proficiency and required future level of skills proficiency in 2030 to capture the skills gaps in which 1 = no skills present and 5 = expert skills present. The main advantage of adopting Likert Scale questions is respondents are not forced to express an either-or opinion; rather, this type of question allows the participant to be neutral should they so choose [65].

From January–March 2019, the survey (in both English and Welsh) was distributed in Wales via key national, regional and local tourism networks including trade associations, regional skills partnerships, destination management partnerships, Visit Wales, national parks, Business Wales and the NTG Wales project database. Telephone and follow up emails were used to encourage participation. Response rates varied regionally, with the



highest number of responses from North Wales. More than ten responses were received from the following areas: Gwynedd, Conwy, Denbighshire, Pembrokeshire and Cardiff.

Piloting was performed on a sample of 10 industry experts by the tourism and hospitality trade associations in the NTG Consortia in six partner countries to test the survey instrument and establish whether the questions were understood and relevant for businesses. Pilot test results helped to verify understanding of the research variables and clarity of the questions.

### 3.4. Data Analysis

Survey analysis was performed through three stages of analysis. First, initial analysis of screening the data prior to analysis as recommended by Saunders, Lewis and Thornhill [65]; second, descriptive analysis; and third, hypotheses analysis. The initial analysis aims to establish and test necessary conditions prior to analyzing hypotheses. The descriptive data analysis involves percentages, frequencies and mean calculations. Reliability analysis using Cronbach's Alpha is also performed to ensure solid survey variables prior to further analysis. Furthermore, similar to the McLoughlin and Hanrahan [66] study assessing Local Authority tourism planning, Statistical Package for Social Sciences (SPSS) (Version. 26) software was utilized by the authors to analyze the data collected. Maravić [67] also used Analysis of Variance (ANOVA) tests for examining accommodation classification systems in Slovenia. Therefore, the ANOVA test was executed by the authors to investigate the effect and influence of the size of the tourism business, sector type and job level of the participants on perceptions of sustainability skills gaps. Such tests allowed the authors to establish the importance of these factors and level of influence on perceptions of sustainability skills gaps. This information is useful in the formation of skills development strategies according to different sectors and target audiences.

## 4. Results

The results section presents, firstly, a descriptive profile of the sample. An evaluation of the skills gaps according to the five tourism sub-sectors followed by the ranking of skills gaps in the tourism sectors in Wales was then presented. Secondly, an explanation of the hypotheses testing is provided.

### 4.1. Sample Profile

Descriptive statistics of the sample from the five sectors are presented in Table 2.

**Table 2.** Descriptive statistics of the sample (N = 142).

Sample Profile	Frequency	Percentage
1. Sector type	142	100
Accommodation	54	38
Visitor Attractions	36	25
Travel Agents	23	16
Destination Management	17	12
Food and Beverage	12	8
2. Job Level		
Senior manager or director	111	78.2
Operational staff	17	12.0
Lower management	11	7.7
Supervisor	3	2.1
3. Size of tourist business		
Micro (Fewer than 10 employees)	67	47.2
Individual or part-time activity	28	19.7
Small (10–99 employees)	25	17.6
Medium (100–249 employees)	12	8.5
Large (250 or more employees)	10	7.0

The results of Table 2 show that 38 percent of the respondents were from accommodation providers. Respondents from other sectors were visitor attractions (25%), travel agents (16%) and destination management organizations (12%). The smallest number of responses came from food and beverage businesses (8%) such as restaurants, coffee shops, bars or pubs.

#### 4.2. Assessing the Skills Gaps According to Tourism Sub-Sectors in Wales

For the purpose of assessing the skills gaps according to tourism sub-sectors, Table 3 highlights the skills gaps of the green and social skills across the five different sectors.

**Table 3.** Skills gaps according to sector type.

Survey Variables	Skills Gap: (Future—Current Mean)	Gap%	Reliability ( $\alpha$ )	Number of Items
1-Green Skills				
Green skills in the Food & Beverage sector	0.82	29	0.88	6
Green skills in Destination Management	0.59	17		
Green skills of Travel Agents	0.52	17		
Green skills in Visitor Attractions	0.5	15		
Green skills in accommodation	0.48	15		
All green skills in Wales	0.53	17		
2-Social Skills				
2-1-Personal Skills				
Personal skills in the Food & Beverage sector	0.78	21	0.91	8
Personal skills in Destination Management	0.63	16		
Personal skills of Travel Agents	0.38	9		
Personal skills in Visitor Attractions	0.37	9		
Personal skills in accommodation	0.17	4		
All Personal skills in Wales	0.36	9		
2-2-Communication Skills				
Communication skills in the Food & Beverage sector	0.88	27	0.84	7
Communication skills in Destination Management	0.56	16		
Communication skills of Travel Agents	0.62	16		
Communication skills in Visitor Attractions	0.53	15		
Communication skills in accommodation	0.36	10		
All Communication skills in Wales	0.51	14		
2-3-Diversity Skills				
Diversity skills in Food the & Beverage sector	0.88	26	0.93	5
Diversity skills in Destination Management	0.63	18		
Diversity skills of Travel Agents	0.56	16		
Diversity skills in Visitor Attractions	0.56	16		
Diversity skills in accommodation	0.37	10		
All Diversity skills in Wales	0.53	15	0.92	20
All Social skills in Wales	0.38	12		

Note:  $\alpha$ : Cronbach's Alpha Coefficient.

Table 3 illustrates that Cronbach's coefficients for the skills variables obtained from the used survey ranged from 0.84 to 0.93. These previous coefficients reflect reliable survey dimensions and model constructs. The highest skills gaps on average were related to green skills (17%), and social skills had approximately the lowest percentage (12%). The highest skills gaps were apparent in food and beverage businesses, whilst the accommodation sector reported the lowest skills gaps across Wales.

#### 4.3. Ranking Skills Gaps in the Tourism Sectors in Wales

The tourism sector in Wales is characterized by general skills shortages, and the high turnover of staff has an impact on businesses in terms of loss of skills, inefficiency and time dedicated to recruitment and training [18,19]. Table 4 shows the order of the top skills gaps in Wales. For green skills gaps, knowledge is needed for the promotion of sustainable forms of transport which is considered the greatest green skills gap (24%). This is followed by the conservation of biodiversity (20%). The skills gap relating to the level of climate change awareness and knowledge reported a smaller percentage (12%).

**Table 4.** The highest green and social skills gaps in tourism sectors of Wales.

Top Skills Gaps	Skills Gap: (Future—Current Mean)	Gap%
Top green skills gaps		
1. Promotion of sustainable forms of transport (e.g., public transport)	0.72	24
2. Conservation of biodiversity	0.55	20
3. Promotion of environmentally friendly activities and products	0.56	16
4. Ability to minimise the use and maximise efficiency of energy and water consumption	0.49	15
5. Ability to manage waste, sewage, recycling and composting	0.46	14
6. Knowledge of climate change	0.41	12
Top social skills gaps		
1. Diversity skills	0.53	15
2. Communication skills	0.51	14
3. Personal skills	0.36	9

Social skills surveyed covered personal, communication and diversity skills. Table 4 demonstrates the greatest average social skills gaps related to diversity (15%). Skills related to diversity included: knowledge to appropriately manage tourists with diverse religious beliefs; disabilities; diets and allergy needs. Communication skills gaps were of a similar percentage to diversity (14%) and encompassed skills related to speaking foreign languages, intercultural host-guest understanding and respect, cultural awareness and expression. Personal skills gaps (9%) were the lowest-scoring social skills gaps and were related to willingness to change, creativity, and promoting a positive work environment.

#### 4.4. Hypothesis Testing

From the data collected and the results from the analysis conducted, the authors considered the independent variables (sector type, size, location, job level) and dependent variables (perceptions of sustainable and social skills gaps). ANOVA tests (see Tables 5–7) show the significance levels according to respondent perceptions towards the current and future level of sustainability skills gaps. The results in Table 5 show the analysis of variance to identify the effect of sector type on respondent perceptions of current and future levels of skills gaps. The results reported that the calculated (F) value was insignificant for current green and future green skills gaps. These results show that there is no effect of sector type on respondent perceptions of current and future green skills gaps.

In terms of social skills, the results showed that significance value for current personal and future personal is (Sig. = 0.014), while the F values signify the current communication, (Sig. = 0.045), together with (Sig. = 0.034) for future communication. These results show the effect of sector type on respondent perceptions of social skills gaps. Additionally, variance analysis in Table 4 shows the value of diversity skills with (Sig. = 0.420), for current diversity, and (Sig. = 0.918) for future diversity. However, these results help to illustrate that sector type has little effect on respondent perceptions of diversity skills.

**Table 5.** The effect of type on respondents' perceptions of current/future level skills.

Type Factor		Sum of Squares	df	Mean Square	F	* Sig.
Current-green	Between Groups	4.178	4	1.044	1.302	0.272
	Within Groups	109.894	137	0.802		
	Total	114.072	141			
Future-green	Between Groups	3.779	4	0.945	1.138	0.341
	Within Groups	113.770	137	0.830		
	Total	117.549	141			
Current-personal	Between Groups	5.079	4	1.270	3.239	0.014
	Within Groups	53.702	137	0.392		
	Total	58.781	141			
Future-personal	Between Groups	4.454	4	1.114	3.262	0.014
	Within Groups	46.761	137	0.341		
	Total	51.215	141			
Current-communication	Between Groups	3.668	4	0.917	2.509	0.045
	Within Groups	50.085	137	0.366		
	Total	53.753	141			
Future-communication	Between Groups	3.920	4	0.980	2.694	0.034
	Within Groups	49.845	137	0.364		
	Total	53.765	141			
Current-Diversity	Between Groups	2.260	4	0.565	0.982	0.420
	Within Groups	78.856	137	0.576		
	Total	81.116	141			
Future-Diversity	Between Groups	0.566	4	0.141	0.236	0.918
	Within Groups	82.208	137	0.600		
	Total	82.773	141			

\* Significant at the 0.05 level ( $p < 0.05$ ).**Table 6.** The effect of size on respondents' perceptions of current/future level skills.

Size Factor		Sum of Squares	df	Mean Square	F	* Sig.
current_green	Between Groups	3.173	4	0.793	0.980	0.421
	Within Groups	110.899	137	0.809		
	Total	114.072	141			
future_green	Between Groups	1.920	4	0.480	0.569	0.686
	Within Groups	115.629	137	0.844		
	Total	117.549	141			
current_personal	Between Groups	2.335	4	0.584	1.417	0.232
	Within Groups	56.446	137	0.412		
	Total	58.781	141			
future_personal	Between Groups	0.518	4	0.129	0.350	0.844
	Within Groups	50.698	137	0.370		
	Total	51.215	141			
current_communication	Between Groups	4.962	4	1.241	3.483	0.010
	Within Groups	48.791	137	0.356		
	Total	53.753	141			
future_communication	Between Groups	1.198	4	0.300	0.781	0.540
	Within Groups	52.567	137	0.384		
	Total	53.765	141			
Current_Diversity	Between Groups	0.321	4	0.080	0.136	0.969
	Within Groups	80.795	137	0.590		
	Total	81.116	141			
Overall_Future_Diversity	Between Groups	1.438	4	0.359	0.605	0.659
	Within Groups	81.336	137	0.594		
	Total	82.773	141			

\* Significant at the 0.05 level ( $p < 0.05$ ).

**Table 7.** The effect of job level on respondents' perceptions of current/future level skills.

Job Level Factor		Sum of Squares	df	Mean Square	F	* Sig.
current_green	Between Groups	0.434	3	0.145	0.176	0.913
	Within Groups	113.638	138	0.823		
	Total	114.072	141			
future_green	Between Groups	3.054	3	1.018	1.227	0.302
	Within Groups	114.495	138	0.830		
	Total	117.549	141			
current_personal	Between Groups	1.973	3	0.658	1.597	0.193
	Within Groups	56.808	138	0.412		
	Total	58.781	141			
future_personal	Between Groups	0.757	3	0.252	0.690	0.559
	Within Groups	50.458	138	0.366		
	Total	51.215	141			
current_communication	Between Groups	0.835	3	0.278	0.726	0.538
	Within Groups	52.919	138	0.383		
	Total	53.753	141			
future_communication	Between Groups	0.099	3	0.033	0.085	0.968
	Within Groups	53.665	138	0.389		
	Total	53.765	141			
Current_Diversity	Between Groups	1.919	3	0.640	1.115	0.345
	Within Groups	79.197	138	0.574		
	Total	81.116	141			
Future_Diversity	Between Groups	1.185	3	0.395	0.668	0.573
	Within Groups	81.589	138	0.591		
	Total	82.773	141			

\* Significant at the 0.05 level ( $p < 0.05$ ).

The previous data analysis shows that the effect of sector type on the respondent perceptions is very clear in only two types of social skills (personal and communication). However, diversity skills reported no significant value. Similarly, green skills were not affected by sector type as the P value was not significant.

Table 6 highlights that the calculated (F) significance levels range from (Sig. = 0.421 to 0.686) for current and future green skills gaps, respectively. This also means that size has no effect on respondent perceptions of current and future green skills gaps. In addition, it shows that the calculated (F) value here ranges between (4137) = 1.417, 0.350, Sig. = 0.232, 0.844) for current and future personal skills gaps, which means that there is no effect of size on respondent perceptions of current and future green skills gaps.

In terms of communication skills, the calculated (F) significance levels range from (Sig. = 0.010 to 0.540) for current and future communication skills gaps. This shows that tourist business size has an effect on respondent perceptions towards the current level of proficiency in communication skills. Furthermore, the calculated (F) significance levels here range from (Sig. = 0.969 to 0.659) for current and future diversity. Consequently, there is no effect of size on respondent perceptions of current and future diversity skills gaps.

Results from this study illustrate that business size does not have any effect on the perceptions of current and future skills gaps except for the current level of proficiency in communication skills. This indicates that the extent of frontline customer service interface may vary according to the level of staff and customer engagement, which may increase the smaller the establishment.

Table 7 shows that the calculated (F) values are at a significant level (0.05) together with the degrees of freedom (df) (3138) for current and future green skills gaps. This indicates no link between job level and the respondent's perceptions of the current and future green skills variable. This result is confirmed by the significant level of (F) which equals (0.913 and 0.302) for current and future green skills, respectively, whereas it is higher than (0.05), and this is the level used in this study. This is particularly interesting as it indicates that green sustainability skills are essential at all job levels and should be integrated into job descriptions at all levels.



Table 7 further illustrates that the value of current and future personal variables is  $F(1.597, 0.690)$  with a significant value  $(0.193, 0.559)$ . This indicates that job level appears not to be a key influential factor for the respondent perceptions of current and future personal skills variables. In addition, the subsequent ANOVA shows that  $F(0.726, 0.085)$  represents the value of current and future communication skills variables with a significant value  $(0.538, 0.968)$ . This indicates that job level is not a key influential factor of the respondent perceptions of current and future communication skills gap variables. It also showed that  $F(1.115, 0.668)$  is the value of the current and future diversity skills variables with a significant value  $(0.345, 0.573)$ . This also indicates that job level is not an influential factor of respondent perceptions of current and future diversity skills variables. Furthermore, the ANOVA test results show that neither location nor job level has an effect on respondent perceptions of current and future skills gaps.

It could be concluded from the ANOVA results that job level, sector type and the size of the tourist business have an insignificant effect on respondent perceptions of the level of current and future green sustainability skills gaps. Finally, the authors can therefore conclude that hypotheses 1, 2, 3 and 6 are rejected and are not supported in this study, while hypotheses 4 and 5 are partially supported. This provides a strong argument to support an increase in the implementation of green and social sustainability skills training and application throughout businesses and in education and training provision generally.

## 5. Discussion

Environmental skills gaps in Wales are not ranked as the highest skills gap and this could be due to a general lack of familiarity with terminology associated with green skills and weak provision of training to support green skills. However, the Government of Wales Act (1998) created a statutory duty to promote sustainable development, and many public and non-governmental initiatives have promoted enhanced environmental management. This is further legislated through the Well-being of Future Generations Act (2015) [4], which led to the first annual well-being reports from public bodies in 2018 [63]. Additionally, there is agreement on the need to upgrade skills, improve professionalism and develop a training culture among employers in tourism and related sectors [6,10,25,64], but more work needs to be done to ensure implementation of training programmes and sustainability themed work-based learning. The results clearly indicate a need to address the current and projected green and social sustainability skills gaps of employees across the tourism and hospitality industry. This would support the implementation of the Future Generations Well Being Act (2015) [4] in Wales through collaboration between public and private sectors. The initial descriptive results of this study show discrepancies between the perceived levels of sustainability skills gaps. The ratios of skills gaps were higher in the Food and Beverage sector, which may indicate a greater level of awareness and knowledge of how activities contribute to food waste and energy use as well as an understanding of the need to adopt better waste and resource management. Consequently, it is recommended to focus further research on the food and beverage sector to find out the reasons for a greater percentage of skills gaps, associated challenges and make recommendations to reduce these gaps. The higher skills gaps in this sector may be due to barriers SMEs encounter such as the cost of training and inflexible hours as identified by Becton and Graetz [68].

Findings from the ANOVA show an insignificant effect of size, sector type and job level on the perception of green skills gaps. This is considered relevant as training in green skill sets can progress for all types of employees across sectors and sizes of business. There is also the recognition there is an opportunity to devise greater detail on competencies that can be utilized for all levels of job hierarchy. This is particularly relevant for SMEs in Wales due to owner managers completing many tasks across the spectrum of work-related tasks. Additionally, there is an opportunity to develop more specific competencies and training programmes in environmental green skills that are relevant to specific job levels such as operational, supervisory and senior management roles and tasks. Some social skills (personal and communication) were significantly affected by size and type. However,

this does not ignore the crucial role that front-facing employees play in the tourism and hospitality industry as they project the image and quality of their organization using their customer service and personal and communication skills.

## 6. Conclusions

Considering the limited academic research pertaining to sustainability skill gaps within the tourism and hospitality sector, results from this paper contribute baseline findings in relation to these skill gaps in a Welsh context. The authors have identified the importance of combining social and green skill sets under sustainability skills which includes a broader understanding of diversity skills in addition to personal and communication skills. Results from this study also contribute to the discussion on the importance of emotional labour and soft skills for sustainable tourism implementation. The evidence of sustainability related skills gaps from this study encourages additional research to examine how green and soft skills can be taught and learnt. Additionally, this research provides a mechanism to further analyze and evaluate skills gaps to support evidence for employers, education and training providers to promote and develop sustainability skills among their staff and students. Furthermore, findings from this research help contribute to the wider policy context. For example, the authors provide evidence to help encourage the implementation of policy initiatives that can support sustainability skills development, not only in Wales, but internationally in countries with similar economic profiles. This is particular evident now as the industry adapts in light of the COVID-19 pandemic.

The authors recommend that further research needs to explore why food and beverage businesses identify higher skills gaps and across all sectors what type of training provision is needed to address the gaps identified. The participation of food and beverage businesses in this study was found to be weak and thus warrants further attention. Despite extensive dissemination of the survey widely across Wales via comprehensive networks of businesses, trade associations, local government authorities and destination management partnerships, there was evidence of survey fatigue. This led to the research limitation of the relatively low number of survey participants from each of the sectors. While 142 completed surveys formed a representative sample, the survey is not a complete characteristic of all of the tourism industry and does not include related transport and food manufacturing sectors in Wales. Indeed, the sample may be biased towards enterprises more interested in sustainability, skills and the research itself. A larger number of responses would have allowed for a stronger statistical analysis of current and future skills gaps in sustainable tourism practices. Nonetheless, this research provides essential evidence to document the relevance of skills gaps to contribute to a greater level of implementation of sustainability training within businesses.

Digital skills gaps evidenced by the NTG survey in Wales are documented by Minor, Carlisle and Dixey [69], and the European wide NTG digital skills survey results are documented by Carlisle, Dijkmans and Ivanov [70]. Future critical research analysis of green skills training formats and associated challenges would be particularly relevant, as well as a comparison of skills gap studies with other European countries and globally. Moreover, qualitative enquiry with industry to facilitate analysis of training methods tailored for sustainability skills to reduce the identified skills gaps would also be beneficial.

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