

**INQUEST ON THE CONCEPTION BY HOSPITALITY  
MANAGEMENT STUDENTS OF THE TERM SUSTAINABILITY  
IN A STATE UNIVERSITY IN DANA O, CEBU, PHILIPPINES**

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**Abstract**

*As people worldwide increasingly acknowledge the importance of sustainable practices to preserve resources and guarantee long-term environmental, economic, and social feasibility, it becomes imperative to understand how aspiring professionals in the hospitality industry perceive and interpret this concept. This study examines the understanding of the concept of sustainability among Hospitality Management students at a state university in Danao, Cebu. A descriptive-correlational approach was used to determine the respondents' demographic profile and degree of understanding regarding sustainability. Also, this study explores potential variations in student perceptions based on sex and academic strands. Forty-nine (49) first-year students were selected randomly to join the collection data and treated the data using frequency distribution, percentage, weighted mean, and ANOVA. The findings reveal that respondents perceived a high understanding of water and waste management. Also, there is a significant difference in how students from different genders and academic backgrounds conceptualize sustainability, particularly concerning energy and waste management practices. These results offer valuable insights into tailoring sustainability education within hospitality programs to address potential knowledge gaps and equip future professionals with a comprehensive understanding of sustainable practices in the industry.*

*Keywords: Sustainable Development Goals, Sustainability, Hospitality Management, State University, Philippines*

**1. INTRODUCTION**

The relationship between humans and the natural world is a critical issue in our modern era, posing significant threats to human survival. In this context, it becomes paramount to educate young people who are prepared to tackle the world's pressing problems but are also open to new experiences (Shutaleva et al., 2021). An environmentally conscious lifestyle is a personal choice necessary for society's sustainable development. This lifestyle is rooted in environmental education, which aims to enhance public understanding of environmental issues. As individuals and their communities evolve, so do their attitudes toward nature (Swart & Zevenberg, 2018). Understanding and implementing ecologically sustainable methods are crucial for a country's economic growth, pollution reduction, and social advancement. The issue of scarce resources cannot be ignored, as it jeopardizes future generations' access to natural resources. Therefore, it is vital to emphasize the importance of environmental awareness, as it is a critical component of sustainable development goals (Mahat et al., 2019). Understanding college students' sustainability consciousness and awareness is paramount in this era of escalating environmental concerns and global commitment to sustainable

development. As the future generation of leaders, innovators, and decision-makers, college students hold the key to shaping sustainable practices and the welfare of society.

According to Alshehhi et al. (2018), sustainability is the capacity to satisfy current requirements without sacrificing those of future generations. In the context of hospitality management students, sustainability involves understanding and implementing practices that meet present needs without compromising future generations. Tanjong Malim District Council (2018) highlights initiatives to promote environmental conservation and the 3Rs (reduce, reuse, recycle) as part of Malaysia's Blue Ocean Strategy, targeting youth who can influence peers and communities. Addressing food waste is a global issue with severe environmental, economic, and food security impacts. The U.S. faces 146.1 million tons of landfilled garbage, posing ecological risks. In Malaysia, unavoidable preparation waste includes inedible fruit and vegetable peelings, stones, and bones (Papargyropoulou et al., 2018). Measures under investigation include awareness campaigns, repurposing leftovers, offering takeout bags, smaller portions, and better planning routines. Additionally, repurposing leftovers and offcuts into new dishes while adhering to food safety regulations should be considered if other methods prove ineffective (Vissoto et al., 2021).

Seafoods like swordfish, salmon, tuna, and cod are threatened by overfishing, while trash fish, which have large and flourishing populations, offer a sustainable alternative. Trash fish are often discarded by fishermen seeking more popular varieties (Suebala et al., 2017). However, they can be edible and delicious, making them an ideal option for restaurants looking for sustainable wild-caught fish. Their large populations and lower demand make them more affordable and accessible (Probyn, 2021). In Vietnam, fishers grow affordable species like carp (*Pangasius Catfish*) for low- and middle-income consumers (Belton et al., 2018). Global food waste reached 931 million tons in 2019, with household waste comprising 61% and retail 13% (UNEP Food Waste Index Report 2021). Cosmetic imperfections cause nearly 30% of crop yields to be discarded annually, costing retailers \$15.4 billion (Canton, 2021). Diverting food waste could improve food security for 1.26 million people annually (FAO, 2021). Consumers are increasingly purchasing discounted ugly produce, which, while less visually appealing, is nutrient-dense and environmentally friendly (Fraj-Andrés et al., 2023). Local farmers using organic practices produce high-quality but often unattractive goods, and consuming such produce can reduce food waste, enhance food security, and benefit both health and the local economy (Kuosa, 2021).

To pinpoint areas of strength and potential gaps in the existing societal and educational frameworks, the researchers will analyze the layers of awareness, commitment, and engagement with sustainability. By considering variables like educational background, this study offers a comprehensive view of the current status of sustainability consciousness among college students. This research has important implications for policy, higher education, and society. In the context of climate change, resource depletion, and social injustice, the significance of raising a socially and environmentally conscious generation cannot be overstated. As the findings become apparent, this research hopes to substantially contribute to the current international efforts to build a more equitable and sustainable future influenced by the responsible and intelligent choices made by the next generation.

Understanding university students' current level of sustainability awareness provides essential insights for developing curricula, teaching strategies, and targeted interventions. It also extends the discussion on developing a sustainable mindset, empowering the following generation of leaders to take on the challenges of a rapidly changing world with a heightened sense of accountability. To gain a deeper grasp of the intricate network of sustainability concepts that college students have embraced, this study explores their knowledge, attitudes, and behaviors surrounding sustainable practices, specifically about energy, agriculture, water, animal husbandry, seafood, and waste management. Also, the study will look into whether the sex and senior high school strand of the students correlate to their degree of understanding. Moreover, the crafted output will aid students in honing their concept of sustainability, which will help them in their future endeavors in the hospitality industry.

## **2. LITERATURE REVIEW**

### **2.1. Food Security**

The 2030 Agenda for Sustainable Development includes the Sustainable Development Goals (SDGs), endorsed by every member state of the United Nations. Agriculture already plays a significant role in the degradation of the ecosystem, and expanding agricultural acreage would have disastrous consequences for the climate and biodiversity. Al-Naqbi and Alshannag (2018) suggested that more than 70 definitions of sustainable development (SD) are currently being used.

Based on the idea that organizations operate in an ecosystem, not in isolation, sustainability is now seen as balancing the economic, human, and environmental systems (Orobia et al., 2020).

A country's population rises in proportion to its environmental food security issues (Pawlak & Kołodziejczak, 2020). Overuse of resources is required to satisfy increasing public demands. Young people can positively impact and reshape national economies if given the right opportunity (Haruna et al., 2019). Furthermore, research has demonstrated that the eating patterns that develop during adolescence and adulthood typically persist into old life. Therefore, it is essential to encourage adults and youth to adopt healthy eating habits. Increasing your intake of plant-based protein items instead of those derived from animals is one way to improve the quality of your diet while lessening your carbon footprint. Higher intakes of dietary fiber, fruits and vegetables, nuts, and soy protein are typically found in plant-based diets, and these nutrients have all been connected to a decreased risk of contracting diseases (Verger et al., 2020). The choices we make about food have a significant effect on the environment and our health. Regarding population groups' sustainable food intake, research on young adults should be focused on specifically (Hashim et al., 2023).

### **2.2. Water Scarcity and Ocean Health**

Climate change and population increase compound the world's water crisis (Salehi, 2022). SDG 6 focuses on clean water and sanitation, ensuring everyone has access to and sustainably manages water and sanitation. Our expanding population puts pressure on aquifers, contributes to pollution, and jeopardizes the safety of wastewater disposal. Water is necessary for many other sustainable initiatives. The energy, industrial, and agricultural sectors are putting increasing pressure on water resources, and there is a rapid

increase in population growth and urbanization. With a significant decrease in freshwater species, 70% of Earth's natural wetland area has disappeared (Albert et al., 2021). Furthermore, eighty percent of effluent is recycled or returned untreated to the ecology. Water is necessary for many sustainable initiatives. According to the World Health Organization [WHO] (2020), 4.2 billion people lack proper sanitary facilities, and 2.2 billion lack access to safe drinking water globally.

In Ontario, Canada, decades of mistreatment, poor management, over-extraction, and contamination of freshwater and groundwater supplies have worsened water stress (Watters, 2019) and deteriorated water-related habitats. This, in turn, affects human health, economic activity, and food and energy availability. The average global adoption rate of better water resources management is necessary to ensure an equitable and sustainable distribution of water resources to meet all needs. Many regions worldwide have recently seen extreme water stress due to pollution, overexploitation, and climate change. 2.2 billion people lack access to securely managed drinking water, and over 4.2 billion lack access to proper sanitation management (WHO, 2020). Regular natural disasters like droughts and floods are exacerbated by climate change. The energy, industrial, and agricultural sectors are putting increasing pressure on water resources, and there is a rapid increase in population growth and urbanization. Decades of mistreatment, poor management, over-extraction, and contamination of freshwater and groundwater supplies have worsened (Göçmen, 2017) the water stress situation and deteriorated water-related habitats. This, in turn, affects human health, economic activity, and food and energy availability. The average global adoption rate of better water resources management is necessary to ensure an equitable and sustainable distribution of water resources to meet all needs.

### **2.3. Clean Energy**

Bangladesh still uses cooking appliances and unclean fuels (Alshehhi, 2018) to add to an estimated 3 billion individuals worldwide. People's health is at risk due to the slow progress toward clean cooking alternatives. The world's energy demand is expected to rise by fifty percent over the next thirty years due to population expansion (Islam & Karim, 2019) and economic developments. Because everyone needs more energy every day and the earth will never change in shape, the world is quickly becoming a global village. Energy and related services are becoming increasingly necessary for human welfare, social and economic development, and health. Going back to renewable energy sources is a great way to slow climate change, but it must be sustainable to supply electricity to coming generations (Owusu & Asumadu-Sarkodie, 2016). SDG 7 is affordable and clean energy, ensuring everyone can access modern, affordable, dependable, sustainable, and sustainable energy. There are still significant gaps in access to modern, sustainable energy, further displacing the most disadvantaged. The cycle must be considered to ensure sustainable production and consumption patterns (Mondejar et al., 2021).

### **2.4. Responsible Consumption**

Centered on responsible production and consumption, SDG 12 highlights the need to simultaneously promote the production of ethical food and products (Chan, 2018) and slow population development. Unsustainable production and consumption patterns are

directly linked to the triple planetary pollution crises, biodiversity loss, and climate change. Due to these issues and environmental deterioration, people's health and welfare are at risk in China (Li et al., 2016). The enormous number of people expected to leave poverty is the primary cause of the projected seventy-one percent rise in average resource consumption per person by 2050 compared to current levels (Motesharrei et al., 2016). The rate of resource depletion is currently one point seventy-five times higher than the resource replenishment rate. Every day, every nation loses or squanders an excessive amount of food. SDGs Report (2022) stated that after harvesting but before it reaches retail markets, thirteen percent of the world's food is lost (Sachs et al., 2022). The production and consumption patterns of societies must fundamentally change for global sustainable development to be achieved. Minimize the negative impacts of urban activity and chemicals that harm the environment and people's health. Some ways to do this include managing chemicals safely and ecologically, cutting down on trash and recycling it, and making better use of water and energy.

Because of irresponsible consumerism, every individual contributes to an increase in emissions. Suppose we want to protect the ecosystems that sustain the standard of living that the oceans have provided for humans; in that case, that fuels the climate problem. Seas, oceans, and marine resources should be preserved and sustainably used for sustainable development, according to SDG 14. Oceans are vital to both global food security and human health. They also provide humans with oxygen and water, primarily regulate the world's temperature, and absorb substantial greenhouse gases. It is easier for humans to live well with protecting and safeguarding the Earth's ecology. The most excellent ecosystem on Earth is in danger due to overfishing and plastic pollution (SDGs Report, 2022). Suppose we want to protect the ecosystems that sustain the standard of living that the oceans have provided for humans. In that case, we must alter our attitudes toward, interactions with, and utilization of the oceans, seas, and marine resources. Thirty-eight percent of the world's deforestation is caused by livestock grazing, accounting for 90% of the total.

The role of a university in sustainability is a comprehensive range of elements, including the university's administration, research and teaching, and mission, as well as outside parties. Another essential element in promoting sustainability is the cooperation of higher education institutions to integrate provisions for sustainable development. The main prerequisites for successful education concerning sustainability. Engagement and contribution to collegiate affairs and associated decision-making constitute a primary requirement for efficacious sustainability education (Dagiliūtė et al., 2018). Along with their endorsement of charters and agreements, declarations, and successful execution of SD programs, practices, and interventions, HEIs have also shown a growing commitment to SD. While some researchers assert that SD is applied in all HEI systems, it is acknowledged that a comprehensive strategy has not been adopted because actions have been divided into discrete areas and used for just one or two aspects of the educational system (Aleixo et al., 2018).

### **3. RESEARCH METHODOLOGY**

This study utilized a descriptive-correlational design using a survey questionnaire to determine the demographic profile and the degree of understanding of students on the concept of sustainability under the parameters of energy, agriculture, water, animal

husbandry, seafood, and waste management. Consequently, the study investigated the relationship between the profile of the respondents and the selected first-year students' concept of sustainability.

One of the most well-liked tourist destinations in the Philippines is Cebu, home to several famous beaches, breathtaking underwater scenery, mountains, and unspoiled natural resources. It is among the wealthiest cities in the nation, attracting millions of tourists from overseas every year. Danao City, one of Cebu's component cities, has recently elucidated tourism into its activities, unveiling its new tourism brand: "Danao Here and Now," holding significant events such as sports tourism, Karansa Festival, Flavors of Danao: Enhancing the City's Culinary Tourism, and leisure events. The essential components of Danao's infrastructure that support tourism activities include accommodation, event venues, dining, entertainment and leisure facilities, seaports, roads and transport, waterways, shopping malls, and cultural and heritage sites. These tourism facilities support the community economy to run as smoothly as possible, allowing tourists to meet their needs. The Danao City local government frequently collaborates with Cebu Technological University- Danao Campus, leveraging the expertise of hospitality and tourism management students to participate actively in various tourism initiatives and provide practical assistance.

Cebu Technological University - Danao Campus, an extension of the Cebu Technological University system founded in 1949, has evolved significantly. Initially established as a national vocational secondary school, it has since been recognized as a Center for Internationalization, facilitating opportunities for students to study abroad in prestigious institutions and learn from renowned experts.

The respondents of this study were first-year hospitality management students at Cebu Technological University- Danao Campus. The researchers selected the respondents as they have yet to take sustainability courses, measuring their known concept of sustainability. The study drew 49 respondents to participate in the study. In addition to the selection of the respondents, the study followed the inclusion criteria set by the researcher: (1) the respondents are first-year students, (2) they are taking up the Hospitality Management program, and (3) they are willing to participate in the study.

The study's data was gathered by administering an internal survey questionnaire. Experts in the field then reviewed and validated the survey questions for compatibility with the study's objectives. The study examines two (2) aspects of the tool. The initial part collects demographic data from the respondents. The second part delves into the variables that represent the current state of students' concept of sustainability.

The researchers submitted a letter to the College of Management and Entrepreneurship dean at Cebu Technological University—Danao Campus to perform this study. After the request was granted, the researchers sent another letter to the advisers of the students involved in the survey, asking for authorization to conduct the research. The researcher sent questionnaires to respondents and utilized their vacant periods to avoid class interruption.

A simple frequency and percentage were employed for the respondents' profiles. Also, the study used a weighted mean to determine the concept of sustainability. Furthermore, the study used Anova to examine the possible difference between demographic profiles and emotional sustainability variables such as energy, agriculture, water, animal husbandry, seafood, and waste management.

Ethics, mainly while collecting data, is the most significant priority throughout this study. The researchers applied the ideas of social responsibility, transparency, and data privacy. To avoid being unduly influenced by their interests, emotions, or affiliations, the researchers maintain fairness and objectivity when conducting the survey, including the questionnaires. By enhancing an understanding of the elements considered and highlighting their key benefits, the researchers ensured that this study significantly impacted the call center agents in the surrounding area. After obtaining all necessary consent, everyone was informed of the researchers' identity, the study's significance, and its justification. The researchers carefully described the importance of the employee's role and all the anticipated benefits of the study.

#### **4. RESULTS AND DISCUSSIONS**

##### **4.1. Research Results**

The student's understanding of sustainability concepts was evaluated using a four-point Likert scale to assess participant responses. Table 1 shows students' profile.

**Table 1. Profile of the Respondents**

	<i>Frequency</i>	<i>Percent</i>
<b>Sex</b>		
Male	10	21%
Female	38	79%
<b>Academic Strand</b>		
Accountancy, Business, and Management (ABM)	12	24%
Science, Technology, Engineering, and Mathematics (STEM)	2	4%
General Academic Strand (GAS)	6	13%
Humanities and Social Sciences (HUMSS)	14	29%
Technical Vocational-Livelihood (TVL)	13	27%
Others	1	2%
<b>Total</b>	<b>48</b>	<b>100%</b>

Table 2 shows the degree to which hospitality management students understand the sustainability concepts of energy, waste management, water, agriculture, animal husbandry, and seafood.

**Table 2. Degree of Understanding of Students on the Concept of Sustainability**

<b>Critical Variables</b>	<i>n</i>	<i>Overall</i>		<i>Qualitative Description</i>
		<i>Mean</i>	<i>SD</i>	
Energy	48	3.250	0.239	<i>Agree</i>
Waste Management	48	3.278	0.297	<i>Strongly Agree</i>
Water	48	3.427	0.379	<i>Strongly Agree</i>

Agriculture	48	3.222	0.810	Agree
Animal Husbandry	48	3.031	0.147	Agree
Seafood	48	2.938	0.686	Agree

**Legend:**

3.26-4.00 *Strongly Agree*

2.51-3.25 *Agree*

1.76-2.50 *Disagree*

1.00-1.75 *Strongly Disagree*

Table 3 presents the results of the ANOVA analysis for energy, a key concept in sustainability.

**Table 3. Result of Anova about Energy as one of the Key Concepts of Sustainability**

Cases (Profile)	Sum of Squares	df	Mean Square	F	p
Gender:	.016	1	.16	.046	.830
	16.19	46	.352		
Strand:	6.071	4	1.518	6.435	.000
	10.142	43	.236		

*Note. Type III Sum of Squares*

Table 4 reveals the findings of the ANOVA analysis for agriculture, a key concept in sustainability.

**Table 4. Result of Anova about Agriculture as one of the Key Concepts of Sustainability**

Cases (Profile)	Sum of Squares	df	Mean Square	F	p
Gender:	1.759	1	1.759	3.105	.085
	26.060	46	.567		
Strand:	.882	4	.221	.352	.841
	26.937	43	.626		

*Note. Type III Sum of Squares*

The ANOVA analysis results for water, a key concept in sustainability, are illustrated in Table 5.

**Table 5. Result of Anova about Water as one of the Key Concepts of Sustainability**

Cases (Profile)	Sum of Squares	df	Mean Square	F	p
Gender:	.305	1	.305	2.394	.129
	5.857	46	.127		
Strand:	.579	4	.145	1.115	.362
	5.583	43	.130		

*Note. Type III Sum of Squares*

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Table 6 displays the findings of the ANOVA analysis pertaining to animal husbandry, a significant element of sustainability.

**Table 6. Result of Anova about Animal Husbandry as one of the Key Concepts of Sustainability**

Cases (Profile)	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>p</i>
Gender:	.095	1	.095	.443	.509
	9.877	46	.215		
Strand:	1.323	4	.331	1.644	.181
	8.649	43	.201		
<b>Note. Type III Sum of Squares</b>					

The results of the ANOVA analysis for seafood, a vital component of sustainability, are shown below in Table 7.

**Table 7. Result of Anova about Seafood as one of the Key Concepts of Sustainability**

Cases (Profile)	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>p</i>
Gender:	.002	1	.002	.017	.897
	6.195	46	.135		
Strand:	.608	4	.152	1.169	.338
	5.589	43	.130		
<b>Note. Type III Sum of Squares</b>					

Table 8 presents the result of the ANOVA analysis of waste management, which is one of the elements of sustainability.

**Table 8. Result of Anova about Waste Management as one of the Key Concepts of Sustainability**

Cases (Profile)	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>p</i>
Gender:	.931	1	.931	6.449	.015
	6.642	46	.144		
Strand:	.955	4	.239	1.552	.204
	6.618	43	.154		
<b>Note. Type III Sum of Squares</b>					

## 4.2. Discussion

### 4.2.1. Degree of the Overall Understanding of the Concept of Sustainability

Table 2 presents the findings indicating that for Energy, the overall mean is 3.350 (SD=0.239). The relatively high mean score of 3.350 (SD=0.239) in energy sustainability

understanding among hospitality management students indicates that hospitality management students have a strong and consistent understanding of energy sustainability. For Waste Management, the overall mean is 3.278 (SD=0.239), and Water, with an overall mean of 3.427 (SD=0.379), falls under the *Strongly Agree* category. These findings indicate that the organization or system in charge of waste management and water-related services is performing well, meeting or exceeding stakeholder expectations. Strong agreement on these aspects suggests a collective commitment to water conservation and waste reduction. This agrees with Dagiliūtė et al. (2018) that environmental data and sustainability on campus are a few of the key elements influencing how involved students are in sustainability. Institutions should improve their environmental education programs and give more lectures to engage students in sustainability. This could lead to tangible benefits such as lower water bills, reduced waste, cost savings, and better environmental preservation across various domains.

In addition, Agriculture with a mean = 3.222 (SD = 0.810), Animal Husbandry with a mean = 3.031 (SD = 0.147), and Seafood with a mean = 2.938 (SD = 0.686) all fall under the *Agree* category. The implications of these results suggest a positive perception and general agreement on the importance and effectiveness of practices within these sectors. For Agriculture, this indicates satisfaction with current agricultural practices and their impact on productivity and sustainability. In Animal Husbandry, the agreement suggests confidence in the methods used for breeding and raising livestock, ensuring their health and productivity. The agreement acknowledges the sector's practices for Seafood, though the slightly lower mean may indicate room for improvement in sustainability and resource management. Sustainable development includes all facets of society; it is crucial not to undervalue curricula in addition to including the environment, economy, and social life for every course of study. There is a connection between environmental concerns and the curriculum, which affects how people behave in the environment. These findings highlight a recognition of the value and effectiveness of practices within these industries, with potential areas for further enhancement.

#### 4.2.2. Anova Result about Energy as one of the Key Concepts of Sustainability

Table 3 displays the analysis results investigating the impact of gender and academic strands on students' perceptions of sustainability related to energy in the hospitality management field. The statistical analysis indicated that while gender (F ratio = 0.046,  $p = 0.830$ ) did not significantly influence students' sustainability perceptions regarding energy, the academic strand (F ratio = 6.435,  $p = 0.000$ ) exhibited a statistically significant difference and had a substantial influence on students' concepts of energy sustainability. The considerable influence of academic strands on students' sustainability perceptions related to energy within hospitality management programs underscores the need for tailored educational approaches. While gender did not significantly impact students' perceptions, the variation observed across academic strands suggests that curriculum design and focus are crucial in shaping students' understanding of energy sustainability. This finding implies that educators should consider students' specific needs and interests within different academic strands when developing sustainability-focused curriculum content and educational interventions. Msengi et al. (2019) agree that the curriculum is crucial for sharing eco-friendly activities with students. By addressing the unique challenges and opportunities associated with energy sustainability within each

academic strand, educators can better prepare students to contribute meaningfully to sustainable practices within the hospitality industry. Fostering interdisciplinary collaboration and industry partnerships can further enrich student's learning experiences and enhance their capacity to address complex sustainability issues in real-world contexts.

#### **4.2.3. Anova Result about Agriculture as one of the Key Concepts of Sustainability**

Table 4 displays the analysis results investigating the impact of gender and academic strands on students' perceptions of sustainability related to agriculture in the context of hospitality management. The statistical analysis indicated that neither gender (F ratio = 3.105,  $p = .085$ ) nor academic strand (F ratio = .352,  $p = .841$ ) significantly influenced students' views on agricultural sustainability. This suggests that, within the context of hospitality management education, factors such as gender or academic focus may not play a substantial role in shaping students' views on agricultural sustainability. Arzu and Mustafa (2020) agreed that while gender may not be significantly related, people must be taught about ecology to produce consciousness daily. However, it is much more crucial that they use this instruction in their daily lives. This finding underscores the importance of further exploration into the determinants of sustainability perceptions among hospitality management students, potentially highlighting areas for targeted educational interventions or curriculum development initiatives.

#### **4.2.4. Anova Result about Water as one of the Key Concepts of Sustainability**

In Table 5, the analysis results explore how gender and academic strands influence the sustainability concepts of hospitality management students regarding water. The statistical analysis indicates that neither gender (F ratio = 2.394,  $p = .129$ ) nor academic strand (F ratio = 1.115,  $p = .362$ ) significantly impacts students' views on water sustainability.

This suggests that within hospitality management education, neither gender nor academic focus significantly shapes students' perspectives on water sustainability. These findings highlight the need for further investigation into the determinants of sustainability perceptions among hospitality management students. This disagrees with the findings of Bloodhart and Swim (2020), who state that when thinking about sustainable consumption, gender matters a lot. Caregiving habits and activities in the private domain, such as cooking and cleaning, are done by women, making them more engaged in these habits in sustainable ways. Such exploration could provide valuable insights for refining educational strategies and developing curricula that effectively promote a deeper understanding of water conservation and sustainable practices within the industry.

#### **4.2.5. Anova Result about Animal Husbandry as one of the Key Concepts of Sustainability**

The analysis findings presented in Table 6 delve into how gender and academic strands influence the sustainability perceptions of hospitality management students regarding animal husbandry. According to the statistical analysis, neither gender (F ratio = .443,  $p = .509$ ) nor academic strand (F ratio = 1.644,  $p = .181$ ) significantly impacted students' views concerning the sustainability of animal husbandry.

These results indicate that within hospitality management education, neither gender nor academic specialization significantly shapes students' perspectives on sustainability in animal husbandry. This suggests consistency in sustainability perceptions among

students across various demographic and educational backgrounds. A study by Klink-Lehmann et al. (2023) agreed that gender did not appear to impact consumer choices and that environmental awareness has little influence over them. However, while these factors may not be significant determinants, it is essential to recognize the broader socio-cultural and educational influences that may shape students' attitudes toward animal husbandry sustainability. By acknowledging the nuanced nature of sustainability perceptions, educators can tailor educational interventions that address diverse perspectives and foster a deeper understanding of sustainable practices in animal husbandry within the hospitality management curriculum.

#### **4.2.6. Anova Result about Seafood as one of the Key Concepts of Sustainability**

The analysis results depicted in Table 7 examined how gender and academic strands affect the sustainability perceptions of hospitality management students regarding seafood. According to the statistical analysis, neither gender (F ratio = .017,  $p = .897$ ) nor academic strand (F ratio = 1.169,  $p = .338$ ) significantly impacted students' perspectives regarding seafood sustainability. These findings imply that gender and academic specialization may not be decisive factors in shaping students' perceptions of sustainability regarding seafood in hospitality management education.

Lawley et al. (2019) agreed that a sizeable portion of customers needed to learn about sustainable seafood practices and customer awareness of sustainable seafood cannot be taken for granted. The degree of knowledge about sustainability affects how vital sustainability is when buying. To encourage sustainable customer behavior, the fish sector has developed a common concept of sustainability in seafood, which has to consider the knowledge of the consumer.

#### **4.2.7. Anova Result about Waste Management as one of the Key Concepts of Sustainability**

The findings from Table 8 indicate that examining the impact of gender and academic strands on sustainability perceptions among hospitality management students concerning waste management yielded significant results. Specifically, the statistical analysis revealed that gender (F ratio = 6.449,  $p = .015$ ) significantly influences students' sustainability concepts regarding waste management. Conversely, the academic strand (F ratio = 1.552,  $p = .204$ ) does not significantly affect students' perspectives concerning waste management.

These results suggest that gender may be crucial in shaping attitudes and behaviors related to waste management within the hospitality management student population. Understanding these gender-based differences could inform targeted interventions and educational approaches to promote more sustainable practices in waste management among students. Wut et al. (2021) support this in their findings, which indicate that female respondents are influenced by their social mores and way of life. However, the way of life of male responders is influenced by their perspective on regulations. Women were more prone to participate in more environmentally conscious behavior than men.

However, the lack of significance regarding the academic strand implies that regardless of the specific educational focus within hospitality management, efforts to foster sustainability perceptions regarding waste management should be inclusive and applicable across different academic backgrounds. This underscores the importance of

implementing comprehensive and gender-sensitive strategies to enhance sustainability awareness and practices within educational contexts.

## **5. CONCLUSION**

This study's conclusions offer insightful information about the variables affecting sustainability-related attitudes and actions among hotel management students, emphasizing waste management and views of energy sustainability. Attitudes and actions about waste management among hotel management students are significantly influenced by gender. This suggests that there may be substantial differences between the approaches used by male and female students to waste management techniques. Comprehending these distinctions is crucial in formulating focused interventions and educational initiatives that cater to the distinct requirements and incentives of every gender cohort. For example, if targeted awareness efforts and hands-on training sessions consider these gender-specific attitudes, they may be more successful in encouraging sustainable waste management behaviors.

Additionally, the academic strand showed a statistically significant difference and substantially influenced students' concepts of energy sustainability. In contrast, gender did not significantly affect students' perceptions of energy sustainability. This research shows that academic concentration influences students' knowledge and attitudes about energy sustainability more than gender. Diverse academic disciplines may prioritize distinct facets of sustainability, resulting in varied degrees of consciousness and dedication among learners. To guarantee that students are consistently aware of and dedicated to energy sustainability, curriculum designers should consider incorporating thorough sustainability instruction into all academic tracks.

## **6. RECOMMENDATIONS**

### **6.1. Curriculum Integration**

Students' commitment and awareness of energy sustainability can be strengthened by highlighting its significance in all subject areas. The hospitality management curriculum's academic strands should consistently be integrated with sustainability concepts concerning energy. Provide programs and instructional materials that are gender-sensitive and address the unique attitudes and actions that male and female students have when it comes to trash management. This strategy can improve efficacy and involvement in the promotion of sustainable practices. Strengthening students' commitment to and awareness of energy sustainability requires incorporating sustainability themes into the hotel management curriculum across all academic strands. Students can comprehend the significance of energy sustainability in various situations and applications within the hospitality sector by regularly integrating these concepts throughout the curriculum as a core component of the educational process.

### **6.2. Targeted Interventions**

Tailoring educational content and activities to each academic strand's unique focus and interests is necessary to create targeted treatments to address the differential effects of different academic streams on students' views of sustainability. Creating case studies showcasing effective energy-efficient practices in hospitality operations, such as hotels

that have decreased energy consumption through intelligent building technologies or restaurants that have optimized their energy use through efficient kitchen equipment, are ways to engage students in the operations management strand. Hands-on workshops involving energy audit tools and techniques should be arranged to familiarize students with energy monitoring software and equipment. Inviting business leaders who have effectively incorporated energy-efficient measures into their operations to share their knowledge and perspectives can help students understand energy efficiency's real-world applications and benefits.

Modules on sustainable hotel operations, including topics like waste management, water conservation, and energy efficiency with best practices from top sustainable hotels, should be included in the curriculum for students enrolled in hotel management. Students can learn how their decisions affect the hotel's sustainability performance by playing simulation games that let them run a virtual hotel emphasizing sustainability. On the other hand, tourism management students might concentrate on eco-tourism, community-based tourism, and green certifications for travel agencies, among other sustainable tourism practices. This could entail a curriculum that presents case studies of locations that have effectively incorporated these strategies. Field visits to eco-friendly tourist destinations and companies can give students a firsthand look at sustainable tourism methods in operation.

Educational institutions must work with faculty and industry experts to establish the curriculum to implement these focused interventions. They must also ensure the curriculum is updated frequently to reflect the most recent sustainability practices and trends. Assessment methods should be designed to evaluate students' understanding and application of sustainability practices, with feedback used to improve the interventions continuously. In the end, encouraging cross-disciplinary projects and interactions can help students develop a comprehensive understanding of sustainability, better preparing them to advocate for sustainability in their respective fields and help create a more sustainable hospitality industry. Students' understanding and dedication to sustainability can be strengthened through project-based learning, in which they create sustainable tourism plans for particular locations while considering social, economic, and environmental sustainability factors.

### **6.3. Further Research**

Developing effective educational techniques and interventions requires more research to determine the underlying causes of gender differences in attitudes toward waste management and the influence of academic strands on perceptions of energy sustainability. Comprehending the underlying factors contributing to these variations can yield a significant understanding of male and female students' distinct perspectives and interactions with sustainable methods. For example, cultural, sociological, and psychological variables could explain why a specific gender favors some waste management practices over others. Similarly, the varying emphasis and focus within different academic strands can shape students' perceptions and attitudes toward energy sustainability, influencing how they apply these concepts in their studies and future careers.

More specialized and successful educational interventions that cater to specific needs and motivations can be developed with this information. If male students exhibit a

predilection for technological approaches to waste management, it may be advantageous to integrate more inventive and technical methods. A more specialized approach to incorporating sustainability principles is made possible by knowing how various academic strands influence perceptions of energy sustainability. This increases the impact of sustainability education by guaranteeing it is thorough but also applicable and helpful.

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