An Investigation of Sustainable Development Goals in Hospitality Higher Education – A Case Study of Taiwan and Hong Kong

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ABSTRACT

Given the global commitment to achieving net zero emissions by 2050, sustainability has become a critical research and practice area. The tourism, hospitality, and travel sectors contribute significantly to the global economy, and the World Tourism Organization has recognized their potential to advance the SDGs. In Taiwan, the integration of SDGs into educational curricula is gaining momentum. This study examines the differences in SDG knowledge, attitudes, and behaviors between hospitality students from Taiwan and Hong Kong. Using the KAP scale and SPSS for data analysis, including correlation analysis and regression, the results indicate a significant relationship between SDG knowledge and attitude (β=.466, R^2=.211) and between SDG attitude and behavior (β=.196, R^2=.031). The findings suggest that education improves SDG knowledge, which fosters positive attitudes, ultimately influencing SDG-related behaviors. The study highlights the importance of embedding sustainability education into hospitality curricula to promote sustainable behaviors among students.

Keywords: Sustainable Development Goals, hospitality, higher education, KAP

1. Introduction

In recent years, sustainable development has become a critical issue for regions, countries, and the world. The goal is to build a future with a sustainable environment by easing or managing the impact of the climate, biodiversity, nitrogen, and health crises; high economic inequality; and a stagnating circular economy. However, sustainable development involves many fields, including the environment, humanity, and the economy. Some have limited resources, while others need to achieve balance [1]. The Sustainable Development Goals (SDGs) are a framework proposed by the United Nations (UN) in 2015. They represent 15-year global development goals that aim to achieve sustainable development planning [2]. After going through several climatic anomalies and a few lessons from nature and society, people came to realize the severity of the challenges we face.

People's attitude toward sustainability has shifted from doing what we must do (legally) to what we feel is right thing to do for our future generation [3]. Many organizations have started to act. In 2015, all member states of the UN passed the "2030 Agenda for Sustainable Development," providing a shared blueprint for the peace and prosperity of humanity in the present and future. At the heart of the agenda are the 17 SDGs, which aim to form a global partnership to promote peace, prosperity, health, education, economic growth, and environmental preservation. Amidst this context, higher education institutions (HEIs) worldwide have been actively working to embed sustainability into their curricula, research, and operations as part of school strategy [3].

The hospitality industry, characterized by its rapid growth and significant environmental and social impacts, has played a pivotal role in advancing SDGs. Given this, higher education in hospitality is at the forefront of fostering future professionals equipped with the knowledge, attitudes, and practices (KAP) necessary for sustainable development. The KAP model is a well-established framework that examines an individual's understanding (Knowledge), perspective (Attitude), and behaviors (Practice) towards a specific topic, such as sustainability.

Taiwan and Hong Kong, in the macro-level, share the same ethnicity and belief system such as Confucian, Daoist and Buddhist teaching. However, in the micro-level, they have different political, social and economic circumstances [4]. They both are seen as two prominent regions in Asia with their robust hospitality industries and educational systems which provide an ideal context for comparative study. Taiwan's emphasis on environmental conservation and the growing focus on interdisciplinary courses in sustainable education contrast with Hong Kong's high-density urban environment and service-oriented economy. According to the Times Higher Education Impact Rankings 2021 for the 17 SDGs, 35 universities in Taiwan were listed as top universities [5]. However, this also means that most HEIs have failed to achieve high performance or are in the early stages of incorporating SDGs into their education systems. In recent years, the higher education sector in Taiwan has been committed to promoting eco-friendly systems that protect the environment and reduce energy consumption through liberal education. Courses in greenness are also offered to apply the concept to life and develop green competencies among students. Higher education has evolved from traditional single-discipline education to inter-disciplinary teaching and research, and inter-disciplinary courses are becoming increasingly common. For instance, interdisciplinary perspectives are required in public health, big data, and multicultural research, and such perspectives are also increasingly common in education for sustainable development [6]. A study pointed out that, currently, a certain percentage of higher education students are not fully aware of the SDGs framework. To build a sustainable society, it is essential to include the SDGs in HEIs' development plans and incorporate them into relevant curriculum design [7].

The purpose of this study is to explore and compare the KAP of hospitality students towards the SDGs in Taiwan and Hong Kong. Such a comparative analysis is crucial for identifying educational gaps, cultural influences in micro-level, and opportunities for enhancing sustainability education within the hospitality sector. The KAP model is employed as a theoretical framework to evaluate hospitality students' knowledge, attitude, and practice regarding sustainability, providing insights into

their readiness to contribute to sustainable practices within the industry. By understanding these regional differences, this study aims to contribute to the development of policies and curricula that better prepare students to be active participants in achieving the SDGs, thereby fostering a sustainable future for the global hospitality industry.

2. Literature Review

2.1 The SDGs and Their Indices

In 1987, the World Commission on Environment and Development issued a report titled "Our Common Future" that emphasized the significance of intergenerational justice and marked a milestone in the movement toward sustainable development [7]. The SDGs were proposed by the UN in 2015 to encourage sustainable development planning [8]. Since then, practical cases and relevant reviews, evaluation reports, guidelines, and publications have been seen across the world. As an increasing number of countries direct their attention toward the SDGs, many experts and scholars advocate delivering global sustainability goals through scientific and empirical approaches. However, policy-making processes are challenged by the question of how to integrate and implement the SDGs [2]. Sustainable development can be pursued in the four aspects of society, economy, environment, and the legal system to address systematic obstacles and achieve better distribution and equilibrium, thus moving the world forward from pursuing the Millennium Development Goals (MDGs) to delivering the SDGs.

The SDGs framework comprises 17 goals, 169 targets, and 232 indicators, which will trigger systematic transformations at the economic, social, and environmental levels to build a sustainable future [9]. The framework particularly emphasizes collaboration between developed countries, developing countries, and the least-developed countries to move forward rapidly across a wider range through interconnected goals. The interdependence and interaction between individual goals is embedded in the design of the SDGs. In other words, the internal connections between these goals and targets are interactive, marked by causal relationships and feedback loops. Only through complementary actions that minimize the trade-offs between the targets and goals can a global transformation materialize by 2030.

2.2 Higher Education and the SDGs

The United Nations Educational Scientific and Cultural Organization (UNESCO) has emphasized the importance of incorporating education for sustainable development (ESD) within teaching and learning practices. The 17 SDGs adopt a global perspective and incorporate specific instructions to facilitate the pursuit of these goals. Unlike the MDGs, which were led by governments, the SDGs can be incorporated into the reference frameworks of all sectors across all countries. This also applies to the education sector. Goal 4, which is to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all," serves as the heart of the 17 goals and connects them [10], thus realizing the vision of sustainable societies.

HEIs are special educational institutions with abundant resources serve as critical platforms for professional training, development, and cross-disciplinary research. The development of SDG-related

courses and research in HEIs echoes the trend of cross-field research collaboration, which is highly conducive to the academic development of higher education. As educators, researchers, organizations, and community service providers, HEIs play a positive role in the path toward sustainable development [7]. Colleges and universities provide not only knowledge, innovations, solutions, and community engagement but also serve as drivers of sustainable development through their academic activities. Bhowmik et al. [11] emphasized the role of HEIs in teaching, research, community participation, and curriculum design to support SDG advancement. This connection with sustainable development is particularly notable in specialized sectors, such as hospitality, which have unique roles and challenges in addressing sustainability. In terms of teaching, the SDGs and education for sustainable development can be incorporated into disciplines and courses. The fact-based research spirit of HEIs also aligns with the practice-oriented design of the SDGs. Since the pursuit of the SDGs is a long-term goal, HEIs have the potential to expedite the action of sustainable development as the pilots of society. The SDGs also provide a new way for the public to communicate, connect, and interact with HEIs. As an impetus for solving global problems, the SDGs also provide a framework to address these issues [12]. Colleges and universities have unique advantages in cross-field work, universities can provide valuable professional knowledge from the perspective of research and education. With different schools of different universities, such as the schools of agriculture, education, science and technology, health and epidemiology, and ecology, it is possible to deliver the SDGs through different tasks by the schools. The academic work of one scholar may involve several SDGs, but all studies at HEIs can cover the whole 17 goals [13].

2.3 Hospitality Sector in Higher Education and the SDGs

Within the hospitality sector, HEIs play a significant role in embedding SDG principles through curriculum development, research, and practical training. This sector directly impacts SDGs like decent work and economic growth (SDG 8), responsible consumption and production (SDG 12), and climate action (SDG 13). One notable example of integrating SDGs into hospitality education is from a hospitality management school in Switzerland [3]. The school incorporated sustainability into their curriculum through one intensive introductory course, Sustainable Hospitality Culture, to provide a deeper insight into today’s hospitality and tourism challenges and to reflect on their sustainable solutions. The sustainability literacy test (SULITEST) was administered twice as a pretest and a posttest to assess and enhance the sustainability knowledge and literacy of their hospitality students. The posttest results showed that all groups improved by 9% to 11% compared to their pretest results and exceeded the worldwide average. This integrated approach was met with high interest and strong support from the students, with over 67% of respondents valuing sustainability as "extremely important" for their future professional careers. The case highlights the potential of hospitality education in fostering sustainability literacy and encouraging a commitment to sustainable practices within the industry.

Such program demonstrates the importance and potential impact of integrating sustainability into hospitality higher education. Hospitality programs can include modules on sustainable tourism, green hotel management, and ethical food sourcing etc. Such education emphasizes not only the

knowledge of sustainable practices but also the application of these principles in real-world business operations. HEIs in hospitality education are required to focus on equipping students with skills to manage resources efficiently, understand eco-friendly operations, and implement sustainable business strategies. A study by Ali et al. [14] found the hoteliers view green competencies as important to their operations and put the onus on hospitality HEIs to impart these skills in their graduates. Thus, hospitality programs can include case studies and training on energy conservation, waste reduction, water management, and sustainable design in hotel operations. Many hospitality programs also integrate food and beverage courses focused on sustainable sourcing, waste management, and supporting local producers [15]. This includes teaching students about farm-to-table practices, reducing food waste through efficient menu planning, and understanding fair trade practices. One of most encouraging authentic commitment to sustainability actions from students is through community engagement [16], programs often involve students in projects that promote sustainable practices within their local communities, like participating in sustainable food festivals, helping local tourism agencies develop eco-friendly strategies, or working with hotels on sustainability audits. These experiential learning opportunities not only reinforce the KAP model but also foster community partnerships for sustainable development.

2.4 The KAP Theory

The KAP model is a theoretical framework that is often applied to education and training. It was initially used to understand family planning and population studies in the 1950s [17]. The theoretical basis for this framework is that, after obtaining information related to practice, individuals develop expected responses and ultimately generate practice in line with their attitudes. However, according to Ibrahim [18], knowledge is the ability to pursue and use information; it is a mixture of comprehension, experience, discernment, and skills. Attitude refers to inclinations to respond to certain situations in a certain way; to see and interpret events based on certain predispositions; or to organize opinions into coherent and interrelated structures. Practice is action caused by the application of rules and knowledge. The KAP theory holds that the right knowledge is the basis to generate positive attitudes and alter behavior to make it right, and attitudes are the driving force for behavioral changes. Only by acquiring the right knowledge and establishing the right attitude can an individual actively adopt the right practice. As for factors that affect behaviors, many scholars agree that an individual's knowledge has an influence on his or her attitudes, serving as a significant factor that affects practice [19].

In recent years, many scholars have applied the KAP model to various studies of the environment or food and beverage hygiene. Nordin and Saliluddin [20] conducted a study among students of University Putra Malaysia Serdang to investigate their KAP regarding recycling activities. The results indicated high levels of knowledge but negative attitudes and practice among the students. Al-Naqbi and Alshannag [21] examined United Arab Emirates University students' knowledge, attitudes, and behaviors toward education for sustainable development and the environment. The study showed that graduate students had a high level of understanding, strong positive attitudes, and moderately positive behaviors toward environmental sustainability. Cho and Heacock [22] carried out a study among

residents of British Columbia, Canada to examine their knowledge, attitudes, and practice regarding ugly produce. The study showed that young people were less knowledgeable about ugly produce; participants with higher education levels had more positive attitudes; and attitudes and practice were positively correlated. Serwah, Bah, and Abdul [23] explored KAP regarding the improvement of local dishes within the hospitality industry in Ghana by looking into restaurants registered with the Ghana Tourism Authority. The results demonstrated correlations between knowledge, attitudes, and practice, and also proved the feasibility of the KAP model for use in predicting the knowledge and attitudes of employees around the world. According to a study by Schwartz [24], nutrition knowledge, attitudes, and practice are interactive. The study also established four pathways of their relationships: 1. Attitude is a mediator variable between knowledge and practice. Both knowledge and dietary practice are influenced by attitudes, but knowledge and practice are not associated. 2. Knowledge and attitude are interactive, and the outcomes of the interaction affect practice. 3. Knowledge and practice are interactive, so are attitudes and practice. But knowledge is not directly related to attitudes. 4. Knowledge, attitudes, and responses are interactive. Afroz and Ilham [25] conducted a study on students at the University of Malaya. They designed a set of questionnaires based on the KAP theory to investigate the awareness levels of students toward the SDGs. The results showed that the students had high levels of knowledge about the SDGs, and such knowledge was positively correlated with attitudes. In addition, attitudes toward the SDGs were significantly positively correlated with practice. This study validated that knowledge, attitudes, and practice are interactive.

3. Research Design

3.1 Research Framework

This study mainly explored the current situation of the knowledge, attitudes, and practice regarding the SDGs among students in hospitality higher education in Taiwan and Hong Kong. The KAP model was employed to evaluate the relationships between the three dimensions. Based on the KAP theory and the aforementioned studies and research frameworks, this study proposed six hypotheses:

H1: Students in hospitality higher education in different regions have significant differences in their knowledge about the SDGs.

H2: Students in hospitality higher education in different regions have significant differences in their attitudes toward the SDGs.

H3: Students in hospitality higher education in different regions have significant differences in their practice of the SDGs.

H4: The knowledge of students in hospitality higher education about the SDGs is significantly correlated with their attitudes toward the SDGs.

H5: The attitudes of students in hospitality higher education toward the SDGs are significantly correlated with their practice of the SDGs.

H6: The knowledge of students in hospitality higher education about the SDGs is significantly correlated with their practice of the SDGs.

3.2 Sampling and Samples

This study focused on higher education students in hospitality and relevant fields in Taiwan and Hong Kong, aiming to explore and compare their KAP toward the SDGs. As an exploratory study, it employed the SDGs Scales for evaluation, distributing questionnaires to students within these regions. The data collection occurred from June to September 2023. Since the researchers were based in Taiwan, paperless digital forms were used to ensure efficient collection. However, the response rate of the questionnaires distributed in Hong Kong was lower than anticipated. Later, with the help of a researcher's high school teachers, the questionnaires were distributed to local higher education students to improve the response rate. In Taiwan, the questionnaires were distributed and collected digitally among students from the hospitality management department and the food and beverage management department of two universities. This study eventually obtained 132 valid samples for data analysis.

The merit of purposive sampling is that the samples can be selected purposively based on the research needs, as the researcher decides the most suitable candidates who can and are willing to provide the relevant information by their knowledge or experience [26] and thereby improving research efficiency and the resource utilization rate. However, it is important to acknowledge the potential limitations associated with this sampling method. Purposive sampling can introduce subjectivity, as the researchers' criteria for selection may inadvertently reflect biases, focusing on certain characteristics or opinions may limit the diversity within the sample. Moreover, this selection process can result in a lack of representativeness, as the sample may not adequately reflect the larger population, potentially affecting the generalizability of the findings. Additionally, the limited sample size and specific focus on hospitality students in three HEIs in Taiwan and Hong Kong restrict the extent to which the results can be extrapolated to broader populations. As a result, while the purposive sampling method met the needs of this exploratory study, it also necessitates cautious interpretation of the results.

To enhance the generalizability of the results, alternative sampling methods could be considered to address the limitations associated with purposive sampling. According to Creswell & Guetterman [27] one potential approach is stratified random sampling which is particularly relevant when the population has distinct subgroups (e.g., students from different hospitality programs or institutions). In this method, the population is divided into strata based on shared characteristics, and random samples are then drawn from each subgroup. This technique ensures representation across various segments of the population, yielding more generalizable results while maintaining balance across key characteristics. Another viable alternative is cluster sampling when dealing with a large, geographically dispersed population, such as hospitality students across multiple regions. This method involves selecting entire clusters (e.g., specific universities or hospitality schools) randomly and then sampling all or a subset of individuals within those clusters. Though it can be cost-effective and practical for large populations, this method may introduce more variability between clusters, which must be accounted for in the analysis.

3.3 Instrument

According to the research purposes, the SDGs Knowledge, Attitude and Practice Scales developed by Afroz and Ilham [25] were used for evaluation. The questionnaires gathered background information on the participants, including their grades, gender, university location (Taiwan or Hong Kong), and department.

3.3.1 The SDGs Knowledge, Attitude and Practice Scales

Among the KAP scales, the SDGs Knowledge Scale consists of 10 items that aim to examine higher education students' understanding of the 17 goals. Each item has a "Yes" or "No" response. "Yes" responses are coded as 1, and "No" responses are coded as 0. The SDGs Attitude Scale comprises 14 items whose purpose is to evaluate higher education students' attitudes toward the SDGs. It uses a five-point Likert scale ranging from "strongly disagree" to "strongly agree." The SDGs Practice Scale consists of 14 items that assess higher education students' practice of the SDGs. A five-point Likert scale is used, ranging from "strongly disagree" to "strongly agree."

3.3.2 Reliability and Validity of the SDGs Knowledge, Attitude and Practice Scales

The SDGs Knowledge, Attitude and Practice Scales used in this study were adapted from the original scales developed by Afroz and Ilham [25], to align with the specific context of hospitality higher education. Four experts in the fields of hospitality and tourism were involved in assessing the questionnaire items for relevance and applicability to the target audience of hospitality students. This ensured that the content of the scales appropriately reflected the nuances of sustainability in hospitality, such as sustainable tourism practices, green hotel operations, and responsible food and beverage management.

To achieve cultural and contextual validity, the items were first translated into Chinese by one of the researchers to suit the linguistic and cultural backgrounds of the respondents in Taiwan and Hong Kong. A back-translation process was employed, where hospitality and tourism scholars carefully reviewed the Chinese translations and translated them back into English to maintain the original intent of the items. The Knowledge Scale consisted of 10 items, and the Attitude and Practice Scales comprised 14 items each.

All items were inspected in terms of statements, word meanings, and wording. The scales were finalized with the agreement of the four scholars to ensure content validity through expert judgement. Currently, the most frequently used reliability indicator in behavioral sciences is Cronbach's α. It is used to evaluate the internal consistency of a questionnaire by evaluating the reliability of certain items. A Cronbach's α of .70 or above indicates high reliability; one between .70 and .35 indicates moderate reliability; and a value lower than .35 indicates low reliability, which means that the item should be rejected. The SDGs Knowledge Scale has a Cronbach's α of .713, the Attitude Scale of .909, the Practice Scale of .883, and the entire questionnaire of .934. Thus, the Cronbach's α values of the scales used in this study indicate the moderate or high stability and consistency of the questionnaire.

Furthermore, tests of homogeneity were conducted on the scales by assessing the internal homogeneity or factor loadings of the items. The analysis revealed that the factor loadings of all items in the SDGs Knowledge Scale were higher than .309. The Kaiser–Meyer–Olkin (KMO) value

was .767, and the Bartlett's value was 281.954 ($p > .001$). The factor loadings of all items in the SDGs Attitude scale were higher than .550 with a KMO value of .871 and a Bartlett's value of 756.384 ($p > .001$), indicating the presence of shared factors among the variables and the applicability of a factor analysis. The tests of the homogeneity of certain items were based on the standard of a factor loading of .3. When items have a factor loading below .3, it is necessary to consider removing them. The three scales involved in this study all passed the tests, indicating that the scale items were homogeneous.

4. Results and Discussion

4.1 Background of the Samples

This study focused on students in hospitality and relevant fields in Taiwan and Hong Kong. In terms of gender, 92 respondents were female (69%) and 40 were male (31%). Regarding university location, there were 79 students in Taiwan, accounting for 59.8%, and 53 students in Hong Kong, taking up 40.2%. With regard to department, 50 respondents (37.9%) were from the department of hospitality management, 29 (22.0%) from the department of food and beverage management, and 53 (40.1%) from the hotel management department. The respondents' basic information is presented in Table 1.

Table 1. Descriptive analysis of the research samples

Basic Information	Category	Number	Percentage (%)
Gender	Male	40	30.1
	Female	92	69.9
Location of University	Taiwan	79	59.8
	Hong Kong	53	40.2
Department	Hospitality Management	50	37.9
	Food & Beverage Management	29	22.0
	Hotel Management	53	40.1

Source: By the authors.

4.2 Analysis of KAP toward the SDGs

The mean of the items of the SDGs Knowledge Scale was 0.855 in this study; for the SDGs Attitude Scale, the number was 4.22, and for the SDGs Practice Scale, it was 3.99. The z-score of the SDGs Knowledge Scale of the students in hospitality higher education was 85.5, the highest among the three scales. The next was the Attitude Scale, which had a standard score of 84.4. For the Practice Scale, the number was 79.9, the lowest among the three scales. The number for the entire scale was 82.38. Overall, the students showed moderate to high performance in KAP toward the SDGs, with lower performance in practice.

Table 2. Analysis of the SDGs Knowledge, Attitude and Practice Scales and the entire scale (n=132)

Title of Scale	Number of	Full Score	M	SD	Individual	Z- Score

	Items				Item Mean	
SDGs Knowledge Scale	10	10	8.55	1.711	.855	85.5
SDGs Attitude Scale	14	70	59.10	7.644	4.22	84.4
SDGs Practice Scale	14	70	55.93	8.333	3.99	79.9
SDGs KAP Scale	38	150	123.58	24.09	3.02	82.38

Source: By the authors.

4.3 Differences between Taiwan and Hong Kong Higher Education Students in KAP toward the SDGs

Independent samples t-tests were conducted on the individual SDGs scales involving students in hospitality higher education in Taiwan and Hong Kong. The results showed a significant difference between the students in Taiwan and those in Hong Kong in knowledge about the SDGs and no significant difference in terms of attitude and practice. The mean of the SDGs Knowledge Scale items among students in Taiwan was 0.89, while that among students in Hong Kong was 0.80. The SDGs Attitude mean for students in Taiwan was 4.26, while that of students in Hong Kong was 4.17. The SDGs Practice mean for students in Taiwan was 4.05, while that of students in Hong Kong was 4.01. The SDGs Knowledge mean of students in Taiwan was significantly higher than that of students in Hong Kong, indicating that the Taiwanese students were more knowledgeable about the SDGs. From a micro-level perspective, Taiwan is a self-governed democracy with its policies and initiatives for sustainable development, while Hong Kong, as a Special Administrative Region of China, has a different governance structure that may influence how SDGs are integrated into education. Taiwan also has made significant progress in sustainability education, but Hong Kong, being an international financial hub, might have different emphases on sustainability in its HEIs. Furthermore, Hong Kong is characterized by its dense urban environment and economic focus on finance and trade, whereas Taiwan has a more diverse economy with both urban and rural landscapes. This difference can influence how students in each place view sustainability, especially in the context of urbanization, environmental conservation, and economic growth. Even though the means of attitude and practice for students in Taiwan were slightly higher than those for students in Hong Kong, the differences were not significant. Thus, H1 was accepted, while H2 and H3 were rejected.

Table 3. Summary of the t-test analysis of the SDGs Knowledge, Attitude and Practice Scales

Dimension	Location of University	N	M	SD	t value
SDGs Knowledge	Taiwan	79	0.89	.127	3.314**
	Hong Kong	53	0.80	.210	
SDGs Attitude	Taiwan	79	4.26	.560	.887
	Hong Kong	53	4.17	.525	
SDGs Practice	Taiwan	79	4.05	.623	.369
	Hong Kong	53	4.01	.653	

Note: **p<.01

Source: By the authors.

4.4 Correlation Analysis of Higher Education Students' KAP toward the SDGs

A Pearson's correlation analysis was conducted to understand the relationships between knowledge, attitude, and practice toward the SDGs among higher education students. An absolute value (r) of a correlation coefficient lower than .40 indicates low correlation, .40≤ r≤.70 indicates a moderate correlation, and r > .70 translates to a high correlation. The results are presented in Table 4.

4.4.1 Correlation Analysis of the SDGs KAP

The absolute value (r) of the Pearson's product-moment correlation coefficient between SDGs Knowledge and SDGs Attitude was .466 (p<.01), indicating a correlation between knowledge and attitudes toward the SDGs among students in hospitality higher education. Students who are more knowledgeable about the SDGs also hold more positive attitudes toward them. The absolute value (r) of the Pearson's product-moment correlation coefficient between SDGs Attitude and SDGs Practice was .196 (p<.05), indicating a correlation between attitudes and practice toward the SDGs among students in hospitality higher education. Students with more positive attitudes toward the SDGs are also more active in practice. The absolute value (r) of the Pearson's product-moment correlation coefficient between SDGs Knowledge and SDGs Practice was -.151, indicating a non-significant negative correlation. Students with good knowledge about the SDGs do not necessarily engage in positive SDGs-related practices. According to the results of the correlation analysis, SDGs Knowledge and SDGs Attitude are significantly correlated, and so are SDGs Attitude and SDGs Practice. Thus, H4 and H5 were accepted. Since a low and non-significant correlation was identified between SDGs Knowledge and SDGs Practice, H6 was rejected.

Table 4. Correlation analysis of SDGs Knowledge, Attitude and Practice Scales

Variable	Knowledge	Attitude	Practice
SDGs Knowledge	1	.466**	-.151
SDGs Attitude	.466**	1	.196*
SDGs Practice	-.151	.196*	1

Note: *p<.05; **p<.01

Source: By the authors.

4.4.2 Evaluation of the SDGs KAP model

Subsequently, a linear regression analysis was conducted to see if causality could be identified between the variables of the KAP model of the SDGs. The results showed that the regression forecasting value of SDGs Knowledge and SDGs Attitude reached a significant level of .01 (F=35.968, p<.01) with a β coefficient of .466 and an R^2 value of .211, indicating that SDGs Knowledge can explain 21.1% of SDGs Attitudes. The regression forecasting value of SDGs Attitude and SDGs Practice reached a significant level of .024 (F=5.210, p<.05) with a β coefficient of .196 and an R^2

value of .031, indicating that SDGs Attitude can explain 3.1% of SDGs Practice. However, the regression forecasting value of SDGs Knowledge and SDGs Practice failed to reach a significant level (F=3.048, p>.05), with a β coefficient of -.151, indicating that SDGs Knowledge does not have a direct influence on SDGs Practice. Thus, a high level of knowledge about the SDGs forecasts students' attitudes toward the SDGs, and positive attitudes forecast their performance in practicing the SDGs. In this way, a full mediation model was established with SDGs Attitude serving as a mediator variable. The results are summarized in Figure 1.

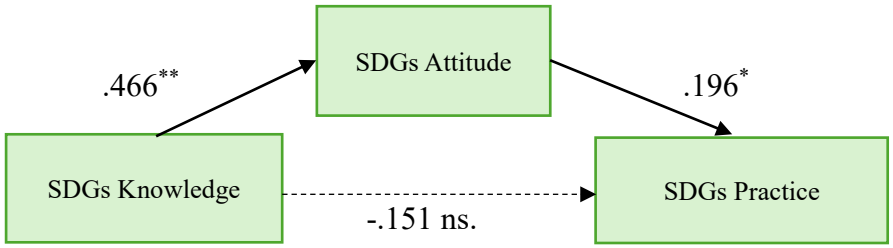

Figure 1. The analysis results of the KAP model

Note: ns. p>.05; *p<.05; **p<.01

5. Conclusions & Recommendations

Zamora-Polo et al. [28] asserted that the SDGs serve as a framework through which the international community can enhance the quality of life for future generations. In the university environment, students encounter various social transformations and are afforded opportunities to engage in sustainable development through multiple avenues, including organizational initiatives, educational programs, curricular frameworks, and research activities [29]. This study demonstrates the critical role that higher education plays in enhancing sustainability literacy among hospitality students, particularly in the context of achieving the Sustainable Development Goals (SDGs). The results reveal that hospitality students in Taiwan and Hong Kong display moderate to high knowledge, attitudes, and practices (KAP) toward the SDGs, though their practice levels lag behind their knowledge and attitudes. A highly positive correlation between knowledge and attitudes regarding the SDGs was identified. The same relationship was also found between attitudes and practice toward the SDGs. The results indicated that education for the SDGs is stressed in the higher education sectors of Taiwan and Hong Kong. A high level of SDGs knowledge had a positive influence on students' SDGs attitudes. In addition, students with more positive attitudes toward the SDGs were also more active in sustainability practice. According to the KAP theory, the right knowledge is the basis to establish positive attitudes and adopt the right practice, and attitudes are the impetus of behavioral changes [19]. However, the results also showed that the lack of a direct correlation between knowledge and practice highlights a gap in translating sustainability knowledge into actionable behavior. This result validates the first pathways proposed by Schwartz [24], which states that knowledge and practice are interactive, and so are attitudes and practice, but knowledge and practice are not directly related.

Ahamad and Ariffin [30] examined KAP toward sustainable consumption among higher education students. They revealed that students with high levels of knowledge about sustainable consumption only practice moderately, meaning that these students might lack high motivation for sustainability practice [31]. A study by Nordin and Saliludin [20] found that university students were highly knowledgeable about waste recycling and management, but they were negative in their attitudes and practice. In addition, the researchers found differences between students from different schools in recycling KAP, as well as a significant correlation between engagement and knowledge levels regarding waste recycling among students who had participated in recycling activity. Furthermore, different teaching strategies and methods also influence students' performance in KAP toward sustainability. The findings of the present study underline the need for HEIs to incorporate SDG-focused education into hospitality curricula, not only to build knowledge but also to shape attitudes and encourage sustainable practices. Interdisciplinary course designs that combine theoretical knowledge with experiential learning are recommended to enhance students' understanding and application of sustainability concepts. Practical courses that engage students in activities like green hotel management, sustainable tourism practices, and community-based sustainability projects can motivate them to implement sustainable actions in their personal and professional lives. Yang and Hsu [32] integrated a green competence course into practical courses in restaurant operation and management, which significantly enhanced students' knowledge and practice regarding green food and beverages. According to Ibrahim [18], practice is action resulting from the application of rules and knowledge. Thus, other important factors are still present between having high levels of knowledge about sustainability and acting for sustainability. These z-factors will influence students' practice of sustainability, which should be explored in future research.

HEIs are one of the most important platforms for promoting the SDGs. For instance, by incorporating faculty members as experts on each SDG, they are then able to incorporate SDGs into their teaching. This was an exploratory study of university students in hospitality and relevant fields in Taiwan and Hong Kong. However, by adopting purposive sampling, it failed to draw inferences from its results. In addition, the sample was small, which might influence the effects of the KAP model. Future research should focus on larger, more diverse samples to allow for generalizability and further exploration of the factors influencing sustainability practices. Distinguishing between low, medium, and high levels of KAP can provide more targeted insights into educational interventions. Moreover, identifying the underlying "z-factors" that influence the translation of sustainability knowledge into practice is essential for developing more effective strategies for fostering sustainable behavior among hospitality students. Such an approach will provide more specific results that hospitality higher education professionals can refer to when implementing or designing courses related to sustainable development.

HEIs are uniquely positioned to act as catalysts for sustainability, given their resources, academic expertise, and ability to engage in cross-disciplinary research and education. By embedding SDG principles into hospitality programs, universities can empower future industry leaders to contribute to a more sustainable hospitality sector and ultimately drive progress towards global sustainability

goals.

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