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RESEARCH LETTER

Factors influencing tourism students' intentions towards environmental sustainability

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ABSTRACT

The study aims to examine undergraduate hospitality and tourism students' intentions toward environmental sustainability and to compare factors (knowledge, attitudes, perceived behavioural control, and intentions) towards environmental sustainability among students in China and Thailand. A self-administered attitude questionnaire was used as the empirical data source (n = 785). The results of the study revealed that the factors of nationality, as well as year of study had a statistically significant relevance towards the students' intentions, wherein academic performance was not a significant factor. The findings are helpful for practitioners and educators alike. Moreover, the paper concludes with recommendations to provide institutions with guidance on how to tackle the outlined issues.

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KEYWORDS
Environmental sustainability; tourism education; perceived behavioural control

Introduction

It is reasonable to state that environmental sustainability continues to gain momentum and importance in the scientific community, the industry, and the educational sector (Swaim et al., 2014; Dolnicar, 2020). Swaim et al. (2014) also claimed that universities may present a challenging yet promising setting to teach sustainability given the traditional focus on economic concerns. The evaluation of educational activities is directly tied to progress in the development of sustainability activities in different areas of higher education institutions.

Sustainability is a very articulated and complex concept, widely discussed in many disciplines and many streams of literature. Scientific, social, and economic disciplines all contribute to sustainability and sustainability has emerged as a new academic discipline in the twenty-first century, a new science by itself (Mauri, 2020). As the tourism industry continues to grow, so does its negative environmental impact. New approaches to making tourism more environmentally sustainable are urgently needed (Dolnicar, 2020).

The underpinning theoretical basis for the study is founded on Ajzen's (1991) cognitive theory of planned behaviour (TPB). The TBP is a widely applied behavioural model in the context of social sciences, including hospitality and tourism research (Ulker-Demirel & Ciftci, 2020). The theory aims to explain behaviours over which people can exert self-control to predict their intentions (Ajzen, 2020). For this study, the model has been adapted to include the factors of attitude, perceived behavioural control, knowledge, and intention.

Environmental sustainability has been widely studied from various perspectives in the past (Dias, 2017; Mauri, 2020; Sharmin et al., 2020; Han, 2021). However, the literature currently ignores a possible relationship between factors that influence hospitality and tourism students' intentions towards

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environmental sustainability. To close this gap, this study was initiated with the particular aim to meet the following research objectives:

(1) To examine undergraduate hospitality and tourism students' intentions toward environmental sustainability
(2) To compare factors (knowledge, attitudes, perceived behavioural control, and intentions) towards environmental sustainability between hospitality and tourism students in China and Thailand

The studies of Goeldner and Ritchie (2009) summarized that the disciplines involved in studying a hospitality and tourism programme are important indicators when planning a hospitality and tourism curriculum. Among them, environment management is one of the crucial indicators highlighted. Significant challenges exist in effectively integrating sustainability into business education to reach diverse student mindsets (Swaim et al., 2014; Mauri, 2020).

Tourism education is at the forefront of impacting environmental sustainability in one way or another by educating tomorrow's tourism stakeholders (Goeldner & Ritchie, 2009; Swaim et al., 2014), hence samples were drawn from the largest tourism outbound market (i.e. China) and one of the largest tourism inbound markets (i.e. Thailand) according to pre-COVID expenditure reported by the UNWTO (2022).

Methodology

The scope of the study is to examine undergraduate hospitality and tourism students' intentions toward environmental sustainability. There are a variety of beliefs, intentions, and actions that relate to the concept of environmental sustainability (Oláh et al., 2020). In the context of this study, the participants were educated through informed consent about the definition of environmental sustainability. The following definition was adopted from the United Nations (UN) World Commission on Environment and Development (WCED) and shared with the participants, stating that 'environmental sustainability is about acting in a way that ensures future generations have the natural resources available to live an equal way of life as current generations'.

Moreover, factors (knowledge, attitude, perceived behavioural control, and intention) towards environmental sustainability between hospitality and tourism students in China and Thailand. To fulfill these objectives, the method of inquiry utilized for this study is a quantitative approach of online questionnaires with undergraduate students that study toward a hospitality and tourism degree in different parts of Thailand and China. The questionnaire was validated for content by three research experts and tested with a random target sample before its implementation.

The questionnaire included a total of 28 attributes of which 8 were used to establish the socio-demographic profile and 20 to assess and evaluate the students' attitudes. The default responses on the Likert-type scale ranged from 1 [lowest] to 7 [highest], i.e. Strongly Disagree [1], Disagree [2], Somewhat Disagree [3], Neither Agree or Disagree [4], Somewhat Agree [5], Agree [6], and Strongly Agree [7]. Additionally, Cronbach's Alpha Coefficient (α) was calculated to 'ensure consistency of test scores over different parts of the survey' (Raykov & Marcoulides, 2019; p. 201) and values ranging from 0.74–0.83 indicated high reliability for the research instrument that was used to collect the data.

Furthermore, the questionnaire was tested for comprehension with a limited sample (n = 10), although these responses were not included in the analysis. Lastly, the study adheres to the NESH principles applicable to Social Science Research (Norwegian National Research Ethics Committees, 2019). The questionnaire was administered with a bilingual option, i.e. Thai and English in Thailand and Chinese and English in China. Moreover, the questionnaire was administered at the Prince of Songkla University in Phuket, Thailand, as well as Chengdu University in Chengdu, P.R. China, in the fourth quarter of 2021. After screening the collected data, 15 inconclusive/incomplete responses

Table 1. Socio-demographic profile of the participants.

Characteristic	Frequency	Percentage
Gender		
Female	521	66.4%
Male	228	29.0%
I do not wish to say	33	4.2%
Others (not specified)	3	0.4%
Institution and Location		
Prince of Songkla University, Thailand	312	39.7%
Chengdu University, P.R. China	473	60.3%
Year of Study		
First Year	390	49.7%
Second Year	146	18.6%
Third Year	157	20.0%
Fourth Year	92	11.7%
Age Range		
18 years old	424	54.0%
19 years old	182	23.2%
20 years old	122	15.5%
21 years or above	57	7.3%
Nationality		
Thai	261	61.5%
Chinese	484	33.2%
Others	40	5.1%

were discarded from inclusion. The sample size included was 785 to represent the population in data analysis (Table 1).

Results

To answer the previously stated research objectives, several statistical analyses were carried out. A series of t-tests and ANOVA were performed to test differences in environmental sustainability factors between groups of students based on their socio-demographic characteristics. Moreover, multiple regression was performed to test the hypotheses.

Overall, Chinese and Thai students demonstrate statistical mean differences in all factors including attitude, perceived behavioural control, knowledge, and intention towards sustainability (Table 2). The findings illustrate that Thai students have lower mean levels of attitude ($t = -9.28$, mean = 5.83) and intention towards sustainability ($t = -8.36$, mean = 4.91) as compared to the Chinese respondents (means = 6.28 and 5.52 respectively). Conversely, the results demonstrate higher mean values of Thai respondents in two factors including perceived behavioural control ($t = 6.29$, mean = 5.40) and knowledge of sustainability ($t = 4.63$, mean = 5.46).

As reported in Table 3, t-test results were conducted to test differences in mean values of the same set of sustainability factors under study between male and female students. Three factors were found to illustrate statistical differences in mean scores between the two groups, demonstrating that scores for male students were consistently lower than the score for female students. These

Table 2. T-test of differences in attitude, perceived control, knowledge, and intention towards sustainability between students in Thailand and China.

	Mean		T-Test		
Factor	Students in Thailand (T) (n = 312)	Students in China (C) (n = 473)	*t*	*p*	Mean difference (T – C)
Attitude	5.83	6.28	−9.28	0.00	−0.44
Perceived behavioral control	5.40	4.96	6.29	0.00	0.44
Knowledge	5.46	5.13	4.63	0.00	0.33
Intention	4.91	5.52	−8.36	0.00	−0.61

Table 3. T-test of differences in attitude, perceived control, knowledge, and intention towards sustainability between male and female students.

	Mean		T-Test		
Factor	Male (M) (n = 228)	Female (F) (n = 521)	*t*	*p*	Mean difference (M-F)
Attitude	6.01	6.13	−2.39	0.02	−0.13
Perceived behavioral control	5.03	5.17	−1.83	0.07	−0.15
Knowledge	5.11	5.32	−2.66	0.01	−0.21
Intention	5.03	5.36	−3.98	0.00	−0.33

three factors include attitude, knowledge, and intention towards sustainability. The results clearly demonstrate that male students have lower mean scores in all these factors including attitude (mean = 6.01, t = −2.39), knowledge (mean = 5.11, t = −2.66), and intention (mean = 5.03, t = 5.36) as compared to female students.

Moreover, ANOVA was performed to test differences in attitude, perceived control, knowledge, and intention towards sustainability between students in different years of study; the results are reported in Table 4. Overall, three factors were found to display significant differences among the sample groups, including attitude ($F = 8.48$, $p < 0.01$), perceived behavioural control ($F = 4.33$, $p < 0.01$), and intention towards sustainability ($F = 10.67$, $p < 0.01$). After inspecting the Gabriel post hoc test results there are patterns to suggest that first year students tend to differ in these three factors from the rest of the students in years 2–4.

Overall, the model is significant with 59.0% of total variances being explained (Adjusted $R^2 = 0.59$, $F = 272.45$, $p < 0.01$). All four predictor variables provide significant contributions to explaining the intention towards sustainability, demonstrating all positive influences on the outcome variable. Nationality is also confirmed to predict intention towards sustainability. In addition, of the four predictor variables, attitude ($\beta = 0.35$, $t = 12.01$, $p < 0.01$) and knowledge ($\beta = 0.33$, $t = 10.52$, $p < 0.01$) are observed to demonstrate the highest influence levels on the outcome variable. (Tables 5 and 6)

Table 4. Comparison of attitude, perceived behavioral control, knowledge, and intention towards environmental sustainability between students in different years of study.

	Mean						
Factor	Year 1 (1) (n = 390)	Year 2 (2) (n = 146)	Year 3 (3) (n = 157)	Year 4 (4) (n = 92)	*F*	*p*	*Post hoc (Gabriel)*
Attitude	6.22	6.00	5.97	5.99	8.48	0.00	1 > 2,3,4
Perceived behavioral control	5.02	5.35	5.15	5.28	4.33	0.00	1 < 2
Knowledge	5.22	5.33	5.25	5.33	0.61	0.61	
Intention	5.47	5.12	5.13	4.95	10.67	0.00	1 > 2,3,4

Table 5. Multiple regression factors influencing intention towards environmental sustainability.

					Collinearity Statistics	
Factor	Standardized β	Std Errors	*t*	*p*	Tolerance	VIF
(Constant)		0.23	−5.82	0.00		
Attitude	0.35	0.05	12.01	0.00	0.63	1.58
Perceived behavioral control	0.21	0.03	6.65	0.00	0.53	1.88
Knowledge	0.33	0.03	10.52	0.00	0.55	1.81
Nationality (Dummy: Chinese: Thai)	0.28	0.06	10.41	0.00	0.75	1.33
R^2	0.60					
Adjusted R^2	0.59					
d/f	4/740					
F	272.45					
p	0.00					

Discussion and conclusion

A noteworthy and somewhat surprising result of the study was that the students' attitudes towards environmental sustainability deteriorated as they progressed in their studies. The study established a statistically significant relationship that attitude influences intention; therefore, this result implores the question of why the students' attitudes declined throughout their studies. There is no explicit evidence in the existing body of knowledge nor conclusive results in this study other than speculation.

Another remarkable result of the study is that female students rank consistently higher than their male peers on all four factors, which is consistent with previous studies that revealed a similar trend (Awan & Abbasi, 2013; Von Haartman et al., 2017; Chen, Jeronen & Wang, 2021). Chen et al. (2021) noted that 'the difference may be related to the stronger sense of social responsibility among females than among males, while social responsibility positively influences pro-environmental behaviour' (p. 11).

The results of this study are consistent with an earlier study (Swaim et al., 2014) that reported 'attitude serves as a powerful influence on their sustainability intention, which in turn affects behaviour' (p. 477). Moreover, the study revealed the important impact that attitude, perceived behavioural control, and knowledge can have on students' intentions towards environmental sustainability. For educators and practitioners, it is important to find ways to make use of this influence through enhanced pedagogy (Hamid et al., 2017). This would be helpful for hospitality and tourism educators to effectively plan their pedagogies and learning strategies.

Furthermore, there is an undeniable recognition amongst hospitality and tourism undergraduate students concerning the importance to protect the environment and enact environmentally sustainable behaviour, however, the analysis of the empirical data revealed that nationality has a statistically significant influence on the students' intentions concerning environmental sustainability. Nevertheless, the correlation between intention and academic performance (grade point average) of the students was tested but did not serve as an indicator that influences their intentions towards environmental sustainability. The results obtained open opportunities for future research in other universities (regional or international) and make a comparison of students' perceptions, attitudes, behavioural intentions, and knowledge.

Disclosure statement

No potential conflict of interest was reported by the author(s). Any opinions, recommendations, and conclusions expressed in this paper are solely the intellectual result of the authors and do not reflect the viewpoint of the Faculty or University.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Appendix

Table 6. Summarized responses displaying the questions per factor with their mean rating and standard deviation.

No.	Questionnaire	Mean	SD
Attitude			
Q1	In my opinion, it is important to protect the environment.	6.64	0.79
Q2	I actively practice environmental sustainability at home (e.g. energy conservation, recycling)	5.61	1.12
Q3	Everyone is responsible for caring for the environment	6.61	0.76
Q4	I am concerned about the long-term future of the environment	6.37	0.87
Q5	In my opinion, it is important to conserve natural resources	6.58	0.71
Q6	I think that environmental sustainability is a waste of time and effort	2.26	1.97
Q7	I am a passionate advocate of environmental sustainability	6.09	1.13
Perceived behavioral control			
Q8	It is easy for me to perform environmentally sustainable activities (e.g. energy conservation, recycling)	5.36	1.21
Q9	I have control over my actions to support the environment	5.69	1.05
Q10	It is my decision whether or not to perform environmentally sustainable activities	4.82	1.55
Q11	I have the ability to carry out environmentally sustainable activities	5.08	1.31
Q12	I have control over performing environmentally sustainable activities	4.75	1.57
Intention			
Q13	I plan to increase environmentally sustainable activities (e.g. energy conservation, recycling) in the future	5.64	1.12
Q14	I intend to seek out more opportunities to be more environmentally active in the future	5.69	1.11
Q15	In the future, I plan to look into how I can play a greater role in protecting the environment	5.51	1.17
Q16	I do not expect to increase my level of support for the environment	2.74	1.94
Knowledge			
Q17	I talk about the need to preserve the environment at home or with friends	5.21	1.32
Q18	I have learned about sustainability in high school or university	5.90	1.13
Q19	I am well informed about current issues that impact the environment	5.05	1.39
Q20	I feel confident to talk about issues related to environmental sustainability	4.88	1.36

* The attribute items Q1-Q5, Q8-Q12 as well as Q13-Q16 were adopted from Swaim et al. (2014) and further modified based on the item-objective congruence (IOC) index validation process. The attribute items Q6-Q7 were adopted from Kagawa (2007) and further modified based on the item-objective congruence (IOC) index validation process. The attribute items Q17-Q20 were adopted from Fuchs (2021) and further modified based on the item-objective congruence (IOC) index validation process.