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CONTENT VALIDITY OF AN INSTRUMENT TO ASSESS THE LOW CARBON APPROACH IN THE FRONT OFFICE DEPARTMENT OF TOURIST ACCOMODATION USING I-CVI AND MEAN ANALYSIS

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Abstract: The front office (FO) department manages reservation, registration, room and rate assignment, guest services, room status, concierge and bell service. The department services are crucial in developing a tourist accommodation into a low-carbon accommodation such as hotel, resort and others. The purpose of this study is to discuss the content validity of instruments for low-carbon tourist accommodation indicators in the FO department of hotels. Based on the theoretical framework, there are 53 indicators frequently used in constructing low-carbon FO instruments. The study employed the Item Content Validity Indexes (I-CVI) analysis method and mean analysis to assess content validity. The method comprised item clarity, language appropriateness, and score scale using a five-point Likert scale to analyze expert evaluations of items using a questionnaire form. The instrument was assessed by a panel of six professionals in tourism, hospitality, and industry involved in low-carbon research. An instrument is accepted and has a good level of content validity when it exceeds the take-off value of ≥ 0.80. One item was excluded from the instrument as it did not reach the take-off value. The average mean results of each expert review on the items ranged from 3.41 to 5.00, suggesting that no questions required repetition. Overall, 17 items were refined by fitting the items to the FO department work scope. The findings revealed that the instrument was acceptable and relevant. It provides an original and useful indicator to measure the low-carbon approach in the FO department of hotels as to achieve the agenda of low carbon tourism.

Key words: Content validity, low carbon, hotel and resort, front office department, I-CVI

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INTRODUCTION

The tourism industry is a primary contributor to anthropogenic global warming, predicted to contribute 7.5% of global carbon dioxide emissions by 2035 (Chen et al., 2018). Furthermore, the tourism industry causes approximately 8% of global greenhouse gas (GHG) emissions from aviation (40%), transportation (30%), and goods and services consumption (30%), including food and accommodation (Chen et al., 2018). Moreover, tour operators and tourists' indifference instigate the rise in high carbon emissions, which impacts the environment. Hence, increasing climate action in tourism is urgent as emissions could rapidly rebound once operations resume. Ultimately, the cost of inaction on climate is greater than the cost of any other crisis in the long term. The global tourism industry suggestions to develop low-carbon tourism are critical to ensure the country's tourism sector aligns with the goal. Managing global climate change requires cooperation from tourist lodgings such as hotels, resorts, and others to minimise carbon emissions from their daily operations, including COP 21. Additionally, the hotel industry must reduce carbon emissions by 66 per cent by 2030 and 90 per cent by 2050 (ITP, 2017). Specifically, the urgency should be recognised in tourism sector countries. For instance, Malaysia pledged to reduce carbon emissions by 45 per cent in 2030 at the COP 21 conference. The tourism accommodation sector must adapt to global and government objectives to reduce carbon emissions (CO_2) by employing a low-carbon approach to hotel or resort management.

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Studies and indicators of low-carbon approaches in tourism accommodation are limited and insufficient (Lee and Jan, 2019). Furthermore, no research has specifically examined the development of instruments to assess the low carbon approach in Malaysia's tourism accommodation sector, apart from the green concept that excludes carbon measurement in operations. An attempt to bridge the knowledge gap included developing low-carbon FO indicators in tourism accommodation.

LITERATURE REVIEW

Hotel Front Office Job Scope Overview

Hotels worldwide use the term "Front Office" to describe staff that interact with customers directly and are usually the initial point of contact for arrivals. The FO department is a rooms division subset comprising various functional areas, such as reception, reservations, guest relations, concierge, switchboard, bell service, and others. Moreover, FO is a significantly visible department and a vital information hub for hotel visitors and staff regardless of the hotel size or type and whether the sub-departments are involved (Nguyen, 2019). The FO job scope includes managing booking requests, collecting and providing information at check-in, or settling guest bills or known as front-of-the-house operations. Meanwhile, back-of-the-house operations include handling guest accounts, rate checks, and preparing guest bills and reports (Nguyen, 2019). The FO functions involve the different stages of the guest stay: pre-arrival, arrival, occupancy, and departure. Thus, the FO possess a crucial role in the hotel, overseeing the activities centre, customer service, hotel revenue, and hotel performance. One way to ensure the sustainability of the FO chain operation between hotel staff and guests is low-carbon practices. The hotel industry is estimated to account for approximately a quarter of tourism carbon emissions (UNWTO, 2014). Hence, the hotel sector has high and intensive energy consumption. Furthermore, implementing a low-carbon approach in FO hotels as an initial strategy is vital in influencing work culture.

Energy Consumption in Hotel Accommodation

The tourism sector contributes to energy emissions observable through hotel operations. Navratil et al. (2019) mentioned that the hotel accommodation sector grows while consuming increasing energy. Carbon emissions from the tourism accommodation industry are expected to increase by 3.2% per year, reaching 728Mt by 2035. Resultantly, the Asia-Pacific area is predicted to emit high carbon emissions in 2005, between 29% to 40% by 2035. Additionally, the tourism accommodation industry contributes 21% of all global carbon emissions (Mukhopadhyay et al., 2018). The energy consumed by accommodations includes heating and cooling, lighting, internal and external cleaning of the facilities, and salt water desalination (Isa et al., 2019; Isa et al., 2018; Isa et al., 2015; Yunos et al., 2015). Carbon emissions from the tourism accommodation sector are calculated according to energy consumption at the destination, comprising heat and electricity usage during the stay. The UNWTO (2014) highlighted that Asia's hotel accommodation energy consumption is higher than in Europe, specifically in three to five-star hotels, including Malaysia. Air conditioning systems intense operation contributes to the main energy usage. Hotel accommodations in Asia consume more water than hotel accommodations in other countries.

In Taiwanese hotels, the average air consumption is approximately 902 litres per night, the highest consumption rate in international standard accommodation hotels (Gössling, 2013). The emission of hotel liquids and solid waste causes degrading water quality and ecosystems. Furthermore, environmental maintenance costs in solid waste management are substantial. Therefore, the lack of sustainable solid waste and water management systems causes issues and contributes to carbon emissions. Table 1 presents the carbon emissions of hotels for each standard and per bed (Qiu et al., 2017). Observably, the higher the hotel rating, the higher the energy release. Carbon emissions from tourist destinations energy consumption can be lowered by considering the influence on accommodation structures. Electricity use for accommodation operations is controllable by implementing energy-efficient systems and adopting energy-saving behavioural changes (Isa et al., 2019; Isa et al., 2018). Hence, a low-carbon approach should be applied in tourism accommodation operations, including the FO Department.

Table 1. Differences in Energy Consumption Intensity and Emission Factors of Each Hotel (Source: Qiu et al., 2017)

Hotel Rating	Energy Intensity (MJ/per bed)	Emission Factors (kg/per bed/night)
5-star hotel	155	24.57
4-star hotel	130	20.61
3-star hotel	110	17.44
2-star hotel	70	11.10
1-star hotel	40	6.34

Hotel Front Office with Low-Carbon Indicators in Research Instrument Development

Tourism growth is expected to surpass 20 years, and the rising strain on natural resources and fuel consumption demonstrates the importance of low-carbon tourism. The low-carbon approach is a vital concept involving a deep appreciation for environmental issues and green ecology with energy-efficient consumption and minimal pollution (Lee and Jan, 2019; Isa et al., 2019; Isa et al., 2018; Isa et al., 2015; Yunos et al., 2015). Moreover, multiple studies highlight the elements of the low-carbon approach in hotel operations related to the FO department, such as low-carbon education and advocacy, carbon emission data and green lifestyle for staff and guests that should be employed in office management (Wejwithan et al., 2018; Rico et al., 2019; Tang et al., 2018). Apart from increasing awareness of the need to implement low-carbon practices in hotel operations, hotel operators should cooperate with the tourism industry to highlight energy consumption reduction and carbon emission policies (Wang et al., 2019a). Several low-carbon approaches in developing research indicators include using advanced technology management systems, such as green technology use in solid waste

management (Michailidou et al., 2016; Pan et al., 2018), providing energy-saving certification systems by assessing carbon-emission timeline predictions and promoting low-carbon products (Gössling and Scott, 2018).

The tourism sector can mitigate climate change by adopting low-carbon tourism accommodations, specifically in island destinations, by focusing on a low-carbon approach in daily operations. As low carbon accommodation research is still new in Malaysia, a construct is needed to develop a questionnaire instrument by investigating the expert validity evaluation of the low carbon approach items on tourism accommodation. Thus, the study examines the content level of low-carbon approach item measurement tools in the FO Department of tourist accommodations. Specifically, only a valid, reliable, and systematic questionnaire instrument can present precise and accurate data for the actual study.

Based on the literature review, there are 53 indicators used by the authors in constructing low-carbon FO instruments, as illustrated in Table 4 (Column B). After the validity process through expert evaluation and remark, the number of final items approved by the committee was reduced into 23 indicators, as presented in Table 5. The low-carbon FO indicators were divided into three primary aspects: Energy Saving, Green Waste Management, and Communicate Green Action. The following section of the study discusses the methodology and results of the questionnaire instrument validity assessment using the I-CVI and Mean Average method. The study also determined the constructs and sub-constructs of the questionnaire instrument according to experts' agreement based on the FO Department scope of implementation management.

MATERIALS AND METHODS

This study implemented Lynn's (1986) technique for item construction and validity applicable in new studies to establish low-carbon accommodation frameworks in the tourism sector. The approach comprises two stages: constructing the item and testing the item validity by experts to create a questionnaire instrument. The development strategy and item validity are divided into three stages.

Stage I. Development of Low Carbon Approach Items for Front Office Departments

The instrument development approach for the study questionnaire involved several stages. Summarily, the first step in instrument development involves identifying low-carbon approach items or indicators in the FO department of the tourism accommodation sector. The search for indicators was performed using systematic literature methodologies. The first searching number of items for the low carbon accommodation indicator was 121. Nevertheless, after considering various constraints in determining the final indicators aligning with the study objective, the acceptable items under the FO department were only 53 items included in the study instrument construction.

Stage II. Item Validity Assessment by Experts

The second instrument construction process involved experts assessing item validity before data collection and analysis by constructing questionnaires. Selected experts assess the item validity to obtain opinions and beliefs on the questions and determine the extent to which the questionnaire items reflected the examined constructs (Jansen and Hak, 2005). Additionally, expert instrument item validation is critical to achieving quality questionnaire data findings, reducing respondents' difficulties understanding item statements, and developing clear, concise, and short questionnaire questions. Generally, the instrument validity is crucial in determining the extent to which the instrument is able to measure the required aspects and represent the property substance important to researchers (Field, 2018).

Table 2. Group Profile of Study Instrument Validity Experts

List of Experts	Representative	Expertise	Position
Expert A	Public University	Tourism Hospitality	Senior Lecturer
Expert B	Malaysian Green Technology and Climate Change Centre	Green Technology and Low Carbon Approach	Senior Analyst
Expert C	Public University	Tourism Hospitality	Senior Lecturer
Expert D	Malaysian Green Technology and Climate Change Centre	Green Technology and Low Carbon Approach	Senior Analyst
Expert E	Public University	Tourism Hospitality	Senior Lecturer (Deputy Dean)
Expert F	Malaysian Construction Industry Development Board (CIDB)	Green Building	Chief Consultant

The absence of satisfactory validity impacts the psychometric characteristics of an instrument despite presenting a significantly high level of reliability (DeVellis, 2017). Hence, the process of conducting validity provides assurance that the instrument is defensible, accurate, appropriate, useful, and meaningful (Zainal, 2020). Validity is grouped into several categories with different purposes, such as face validity, content, criteria, and constructs. Additionally, content validity is an early stage in the instrument validation process (Bond and Fox, 2015; DeVellis, 2017). Hence, the study used content validity to assess every questionnaire item. Two basic aspects of conducting content validity are appropriateness and representability of the items in measuring what the researcher intends to measure (Rahim et al., 2018; Zainal, 2020). Expert review is needed to ensure item accuracy and content clarity in applying instrument validity. Thus, conducting content validation identifies a group of capable experts with the knowledge and experience of the focus of the study.

Particularly, the item validity is performed by experts in tourism hospitality and the implementation of low-carbon elements on tourist accommodations. The study selected six expert members or panels to validate the low-carbon approach items before conducting the pilot study and actual data collection. The study panel selection number is appropriate

according to Polit et al. (2007) and Lynn (1986), between three and ten experts. The panel assessed the questions according to their clarity, language use, appropriate scoring scale, and how much the experts agreed with the items presented. Each question was measured using a five-point Likert scale: (1) strongly disagree (2) disagree (3) not sure (4) agree and (5) strongly agree. Table 2 describes the experts' profiles. Furthermore, the validity testing period was one month to obtain the results of expert assessments on the items evaluated.

Table 3. Analysis of Each Indicator
Validity Criteria based on a 5-Point Likert Scale

Average	Validity Criteria
4.21-5.00	perfectly valid
3.41-4.20	valid/no revision
2.61-3.40	enough valid (average/no revision)
1.80-2.60	less valid/partial revision
1.00-1.80	invalid/total revision

Table 4. The Front Office Department Instrument's Validity Test Results

FRONT OFFICE DEPARTMENT

A	B	C	D	E	F	G
No.	**Item (Low-Carbon FO Approach/Indicators)**	**Sources**	Number of Experts Agree	I-CVI Value	Average of Mean Percentage	Final Results of the Content Validity Test
I. **Energy Saving**						
A1 Energy Efficient Lighting System						
1.	Using high-intensity discharge lamps.	Tsai et al. (2014) Lin et al. (2018)	5	**0.83**	**4.56**	Dropped (not suitable with FO job scope)
2.	Use of compact fluorescent bulbs/ lights.	Hsiao et al.(2017)	4	**0.67**	**4.67**	Dropped
3.	Avoid the use of halogen lamps and incandescent light bulbs.	Lin et al. (2018)	5	**0.83**	**4.83**	Dropped (not suitable with FO job scope)
4.	Optimisation of daylighting.	Yusof and Jamaludin (2015)	6	**1.00**	**4.67**	Accepted (with a more specific statement)
5.	Using energy-efficient lights such as LED (40% electricity saving than conventional light bulbs).	Aomar and Hussain (2017)	5	**0.83**	**4.72**	Dropped (not suitable with FO job scope)
6.	Use lighting automation system with decrease level of lighting (using timers).	Michailidou et al. (2016)	5	**0.83**	**4.72**	Dropped (not suitable with FO job scope)
7.	Use of photometric sensors in the corridor to minimise electricity consumption.	Dewiyana et al. (2016)	5	**0.83**	**4.50**	Dropped (not suitable with FO job scope)
A2 Heating, Ventilation and Air-Conditioner System (HVAC)						
8.	Using split type of air-conditioning units.	Huang et al. (2015)	6	**1.00**	**4.72**	Dropped (not suitable with FO job scope)
9.	Using centralised air conditioning system in common areas.	Huang et al (2015)	6	**1.00**	**4.83**	Dropped (not suitable with FO job scope)
10.	Fresh air transfer (open window to utilise the air from outdoor).	Gupta et al. (2019)	5	**0.83**	**4.78**	Dropped (not suitable with FO job scope)
11.	Keep curtains closed (to reduce heating and cooling gains and losses during hot or cold weather).	UNEP (2008)	5	**0.83**	**4.78**	Dropped (not suitable with FO job scope)
12.	Monitor room temperature at 24 degrees celsius.	Nilashi et al. (2019)	5	**0.83**	**4.72**	Accepted
13.	Air-conditioning automation system (shut down automatically when windows or balcony doors are opened).	Michailidou et al. (2016)	4	**0.67**	**4.39**	Dropped
14.	Install air filter cleaning equipment and energy-saving variable frequency drives in air conditioning system.	Hsiao et.al.,(2017)	5	**0.83**	**4.06**	Dropped (not suitable with FO job scope)
15.	Installing Zoned Temperature Control for HVAC.	Chan (2018)	5	**0.83**	**4.28**	Dropped (not suitable with FO job scope)
II. **Water Saving**						
A. **Water Efficient System**						
16.	Using solar thermal water heating systems (reduce the cost of domestic water heating).	Michailidou et al. (2016)	5	**0.83**	**4.78**	Dropped (not suitable with FO job scope)
17.	Using rain water harvesting system.	Dewiyana et al. (2016)	5	**0.83**	**4.83**	Dropped (not suitable with FO job scope)
18.	Reduce the water usage (all condensate water from air conditional system is directed to the planter box).	Dewiyana et al. (2016)	5	**0.83**	**4.83**	Dropped (not suitable with FO job scope)
19.	Equip with a low flow shower heads, toilets, and water urinals.	Wang et al. (2019b)	5	**0.83**	**4.78**	Dropped (not suitable with FO job scope)
20.	Reusing water such as grey water recycling system (provide internal or external water demand).	Nitivattananon and Srinonil (2019)	5	**0.83**	**4.78**	Dropped (not suitable with FO job scope)
21.	Install metering equipment to detect areas with higher or leaking water usage.	Gupta et al. (2019)	5	**0.83**	**4.83**	Dropped (not suitable with FO job scope)
III. **Waste Management**						
I. **Green Waste Management**						
22.	Recycling of waste.	Wells et al. (2016)	6	**1.00**	**4.67**	Accepted (with a more specific statement)
23.	Reusing item on site, reselling or donating (used linen to relief agencies).	Al-Aomar and Hussain (2017)	5	**0.83**	**4.50**	Dropped (not suitable with FO job scope)
24.	Use torn towels as clean rags.	Al-Aomar and Hussain (2017)	5	**0.83**	**4.39**	Accepted (with a more specific statement)

A	B	C	D	E	F	G
No.	**Item (Low-Carbon FO Approach/Indicators)**	**Sources**	Number of Experts Agree	I-CVI Value	Average of Mean Percentage	Final Results of the Content Validity Test
25.	Green recycling equipment is provided in accommodation facilities.	Wang et al. (2019b)	6	**1.00**	**4.83**	Accepted
26.	Prepare bins for food waste.	Wang et al. (2019b)	5	**0.83**	**4.39**	Accepted
27.	Request supplier to eliminate or reduce excess packaging materials.	Al-Aomar and Hussain (2017), UNEP (2019)	5	**0.83**	**4.39**	Dropped (not suitable with FO job scope)
28.	Appoint a company to recover the sorted materials after sorting or storing process (prevent from risks of waste exposure).	Nitivattananon and Srinonil (2019), UNEP (2019)	6	**1.00**	**4.83**	Dropped (not suitable with FO job scope)
29.	Using both sides of the paper with small margins and font size.	Aomar and Hussain (2017)	6	**1.00**	**4.83**	Accepted
	IV. **Food Safety and Services**					
	A. **Food Management and Safety**					
30.	Promoting the food and vegetarian culture to the customers.	Dong and Wu (2014), Hsiao (2015)	5	**0.83**	**4.00**	Dropped (not suitable with FO job scope)
31.	Promoting local product/ ingredient.	Lee and Jan (2019), Gupta et al. (2019)	5	**0.83**	**4.00**	Dropped (not suitable with FO job scope)
32.	Promoting a healthy green food menu.	Hsiao et al. (2017), Nitivattananon and Srinonil (2019)	5	**0.83**	**4.00**	Dropped (not suitable with FO job scope)
33.	Promoting food carbon label (food consumption) to the customers.	Liu and Pan, 2016, Lin et al. (2018)	5	**0.83**	**3.89**	Dropped (not suitable with FO job scope)
	V. **Communicate Green Action**					
	A. **Low Carbon Management**					
34.	Use low carbon vehicles in the hotel area.	Lee and Jan (2019), Nitiva-ttananon and Srinonil(2019)	6	**1.00**	**4.83**	Dropped (not suitable with FO job scope)
35.	Promoting environmental and greening beautification in hotels/resorts via landscape design (planting trees and environmental arranging).	Cho et al. (2016), Lee et al. (2018)	6	**1.00**	**4.83**	Accepted
36.	Provide travel guides and information on low carbon destination.	(Cho et al. (2016), Hsiao (2015)	6	**1.00**	**4.83**	Accepted
37.	Promoting local people as tour guides under vacation packages.	Cho et al. (2016)	6	**1.00**	**4.83**	Accepted
38.	Promoting authentic low carbon island-based product for tourist souvenirs.	Tang et al. (2018), Chen et al., (2018)	6	**1.00**	**4.83**	Accepted
39.	Promotion of low carbon hotels/resorts on social media.	Cho et al. (2016), Zhang (2017)	5	**0.83**	**5.00**	Accepted
40.	Encourage tourist to buy local products and handicrafts.	He et al. (2018), Pan et.al. (2018)	6	**1.00**	**4.83**	Accepted
41.	Enhance low-carbon service quality.	Tang et al. (2018)	5	**0.83**	**3.78**	Dropped (too general)
42.	Promoting eco-carbon label in accommodation services such as carbon label information (co_2 emission amount).	Eijgelaar et al. (2016), Chen et al.(2018)	6	**1.00**	**4.72**	Dropped (not suitable with FO job scope)
43.	Promoting the extension and the operational lifespan of tourist service facilities to avoid indirect energy consumption and carbon emission.	Hsiao (2015), Tang et al. (2018)	6	**1.00**	**4.17**	Accepted (with a more specific statement)
44.	Monthly training for employees (low-carbon knowledge and awareness among staff).	Hsiao et al. (2017), Wang et al. (2019b)	6	**1.00**	**4.89**	Dropped (can be classified as item 48)
45.	Actively participate in low-carbon activities.	Cho et al. (2016)	6	**1.00**	**4.50**	Accepted
46.	Allocate low-carbon funds.	Cho et al. (2016)	6	**1.00**	**4.50**	Accepted (with a more specific statement)
47.	Promoting waste reduction and cycling practices to the customers.	Hsiao et al. (2017)	6	**1.00**	**4.50**	Accepted (separate into two items)
48.	Organise low-carbon activities among employees.	Wang et al. (2019b)	6	**1.00**	**3.83**	Accepted
49.	Develop employees' habits and attitude for low-carbon behaviours.	Wang et al. (2019b)	6	**1.00**	**4.61**	Accepted
50.	Report documentation on carbon emission level and reduction (carbon audit).	Gössling and Scott (2018)	6	**1.00**	**4.83**	Accepted
51.	Promoting short haul travel (slow travel packages) with provided carbon efficient itineraries.	Rico et al. (2019)	6	**1.00**	**4.56**	Accepted
52.	Using e-marketing for low-carbon accommodation travel information.	Cho et al. (2016), Hsiao (2015)	6	**1.00**	**4.00**	Accepted
53.	Promoting discounts offered to tourists participating in low-carbon travel (participating in low-carbon vacation packages such as practicing low carbon behaviour throughout the vacation)	Huang et al. (2017), Zhang (2017)	6	**1.00**	**4.83**	Accepted

Stage III. Validity Analysis

Researchers use several methodologies to determine the validity results in the content validity process (Zainal, 2020). The study used the I-CVI analysis and the Mean Average analysis method. The analysis determines inter-expert reliability and measures quantitative content validity procedures (Mustapha, 2017). The technique also assists in establishing the requirement and acceptability of maintaining each item in the instrument. The I-CVI method was determined by calculating the relevant and agreed-upon mean score for each item using the formula below by Mustapha (2017).

$$Item\ Content\ Validity\ Indexes\ (I-CVI) = \frac{The\ total\ score\ agreed\ by\ the\ expert}{Number\ of\ experts}$$

To assess the acquired value (I-CVI), the total average of the scale was obtained by dividing the total score agreed by the experts by the number of experts. The value of an acceptable and relevant newly designed instrument is 0.80 (Polit et al., 2007). Results surpassing the take-off value (depending on the number of experts participating) suggest a good validity value of the instrument item. The next step is classifying the item validity criteria using the mean average calculation based on the following formula by Arikunto (2010):

$X = \frac{a\,1}{n}$ X = The average of each indicator; â‘I = Total number of the answers scores of the respondents; n = Numbers of respondents

The average mean result of each expert evaluation demonstrated the mean value in the range of 3.41 to 5.00. The results signified that the evaluated item was within the acceptable range of 3.41 to 5.00 and did not need an item repetition process. The mean classification used in this research is presented in Table 3. Experts' comments on the item statement were also considered, and actions were taken to aid respondents in understanding when answering the questionnaires, such as placing the item statement based on the suitability of the FO department work scope.

RESULTS AND DISCUSSION

Table 4 summarises the results of expert agreement on the content validity index items and mean average, including item clarity, language appropriateness, and an appropriate scoring scale ranging from strongly disagree to strongly agree. The I-CVI findings demonstrated certain items with a low value of 0.67, the sub-item under A1: energy-efficient lighting system. In selecting the final indicator of low carbon accommodation, the sub-item using bulbs or compact fluorescent lamps was excluded. The deletion was based on the experts' opinion that the item statement is unclear and difficult to grasp. Moreover, several appraisers with expertise in tourism hospitality management recommended deleting 31 items due to not fitting the scope of low carbon implementation tasks under the FO department. For example, the use of energy-saving equipment is more suitable in the Maintenance and Logistics Department. After considering the comments and recommendations, the content validity test findings were applied based on the construct in Table 4 (Column G).

Table 5. Low-Carbon Front Office Indicators

Low-Carbon FO Indicators	Low-Carbon FO Sub-Indicators
Energy Saving	• Optimisation of daylighting in office spaces/areas. • Open windows to utilise the air from outdoor (if without air-condition operation). • Set the office room temperature at 24 degrees Celsius.
Green Waste Management	• Recycle office waste collection (usable paper, cardboard, office and toilet equipment, packaging products, food and beverages waste, and others). • Use both sides of the paper with small margins and font size. • Use torn towels as clean rags for cleaning purposes. • Provide green recycling equipment in the office; Prepare bins for food waste.
Communicate Green Action	• Promote travel guides and information on low carbon destinations. • Promote authentic low carbon island-based products for tourist souvenirs. • Promote low carbon accommodation on social media. • Encourage tourists to buy local products and handicrafts. • Actively participate among staff in low-carbon activities. • Organise low-carbon activities (in accommodation management). • Allocate low-carbon funds (provide low-carbon moneybox at the front counter). • Encourage waste reduction practices; Encourage cycling practices. • Develop low carbon habit and attitude among employees. • Provide report documentation on carbon emission level and reduction (carbon audit). • Promote short haul travel with carbon efficient itineraries. • Use e-marketing for low carbon accommodation travel information to tourist guest. • Promote discounts offered to the tourists participating in low carbon travel (low carbon vacation packages from practicing low carbon behaviour throughout the vacation).

In the I-CVI and Mean Average item analysis, several low items were rectified or adjusted according to the FO department work scope in hotel and resort operations. Previously confusing items were summarised as clear and concrete as expert opinions. The method corresponds with Saleh (2020), whereby the listed items should be re-examined before refining. For instance, identifying the terms present in the items and the similarities with other items, specifically overlapping items. The experts' evaluations and comments demonstrated that several item statements were difficult to understand and overlapped meaning. Resultantly, the outcome of the items for the research instrument is 23 items to be used in the field study as shown in Table 5.

CONCLUSION

Developing research instruments is crucial in ensuring reliable and useable questionnaire data. To ensure that the instruments produced can be reused, instrument development must be performed precisely and appropriately from the standpoint of validity (Ahmad and Abdullah, 2020). A correctly constructed instrument will not pose problems in assessing the study variables. Hence, the I-CVI content validity test was employed to evaluate whether the experts' agreement on the item statement is high and surpasses the set boundary values. The study instrument (questionnaire) indicated a high and acceptable level. The experts' evaluation of the mean average on the extent to which the questionnaire items were clear, with appropriate language and an appropriate scoring scale were also satisfactory. Thus, recurrent expert re-evaluation was not needed. The results suggested that the questionnaire items construction can be considered and applied in future studies to measure low-carbon FO practices among the hotel operators.

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