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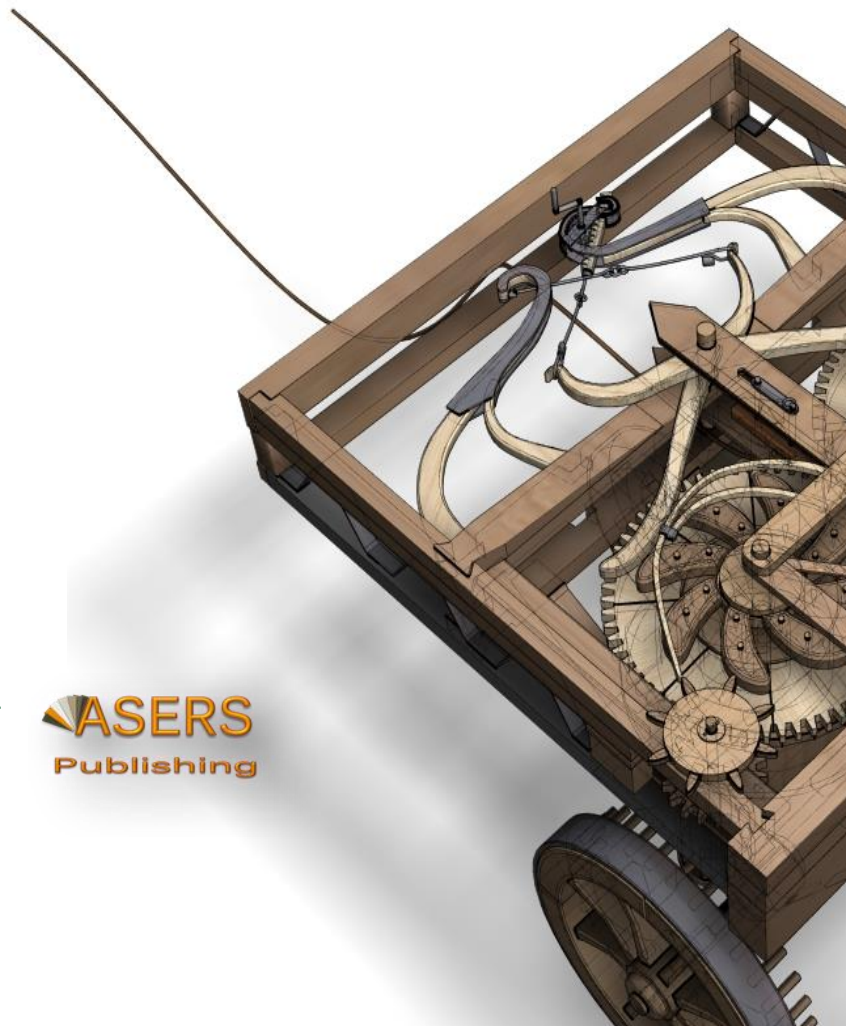
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Demand for Water Tourism by Rafting in the Upper Northeastern Region 1 of Thailand

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Abstract:

This research aimed to 1) study the components for the demand for water tourism by rafting among tourists in the New Normal, and 2) study the factors of water tourism by rafting among tourists in the New Normal in the Upper Northeastern Region 1, Thailand. The data was collected from 400 samples from five Northeastern provinces, *i.e.*, Udon Thani, Nong Khai, Loei, Nong Bua Lam Phu, and Bueng Kan; obtained by provincial quota sampling with 80 samples per province. Convenience sampling was also used. Exploration factor analysis (EFA) and confirmatory factor analysis (CFA) was conducted by using ADANCO ver.2.3 as per the objectives. It was found that 1) the components for the demand for water tourism by rafting could be categorized into one group with five factors, *i.e.*, rafting duration, previous rafting experience, demand for rafting, product cost, and service cost. 2) The factors influencing the demand for water tourism by rafting included the factors of water transportation and the factors of tourism, respectively. From the results of the study, it was found that the involved agencies and rafting entrepreneurs should pay attention to the standards of water transportation by rafting. To clarify, there should be a law identifying the characteristics of the rafts or tourist/passenger boats in terms of suitability and safety for both the tourists and service providers.

Keywords: demand for water tourism by rafting; tourism in the New Normal; Upper Northeastern Region; water tourism.

JEL Classification: Z32; R11.

Introduction

Tourism is one of the key industries for the socio-economic drive of Thailand because it is a factor influencing the increase of the gross domestic product (GDP) (Nonthapot 2017). In 2019, the Bank of Thailand stated that the proportion of the tourism industry from Thais and foreigners was 17% of the GDP (Bank of Thailand, 2019). Then, in December of the same year, there was the COVID-19 outbreak, which spread rapidly to a number of countries around the world (WHO, 2020). For this reason, tourism across the world stopped resulting in the reduction of tourists by 97% when compared with the previous year. This was the worst slump within the past 10 years. According to the Economics Tourism and Sports Division (2021), it was found that there were only 6.69 international tourists coming for tourism in Thailand, thus reducing by 38.1% because each country had announced strict entry-departure measures to reduce the COVID-19 outbreak.

Fortunately, Thailand's tourism could still move on because of the domestic market. Then, in July 2020, the Thai government set "We Travel Together," a domestic tourism promotion project to motivate expenditure. One of the famous sites for domestic tourism was secondary cities, *e.g.*, the Northeastern region, with huge

growth. For this region, in 2018, the number of international tourists expanded to 8.56% and the number of Thai tourists expanded to 6.09%, which was the top two expansions when compared with other regions (Ministry of Tourism and Sports, 2019) (Fig. 1). The Northeastern region is divided into five provincial clusters, *i.e.*, the Upper Northeastern Region 1 and 2, the Central Northeastern Region, and the Lower Northeastern Region 1 and 2. Specifically, the Upper Northeastern Region 1 or “Sabaidee” (Loei, Nong Khai, Bueng Kan, Nong Bua Lam Phu, and Udon Thani) are shown in Fig. 2. This provincial cluster is able to support tourists because it has a border adjoining to Lao PDR, *i.e.*, Nong Khai, Bueng Kan, and Loei; with convenient transportation throughout the provinces and interesting tourist attractions, *e.g.*, Phu Thok and Seven-colored Waterfall. There are also exuberant sources of water that have led to the huge popularity of water tourism like rafting for local tourists and visitors.

Figure 1. The percentage of change in Thai visitors in 2018 (Ministry of Tourism and Sports).

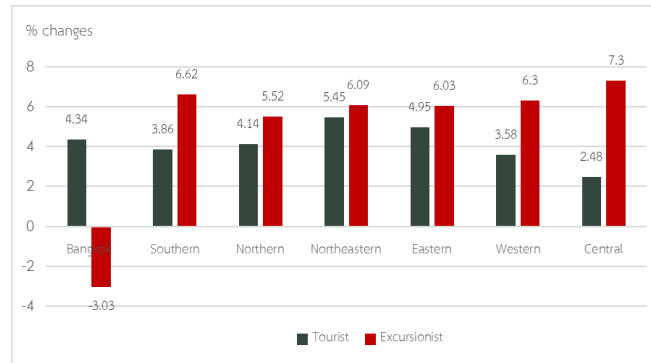
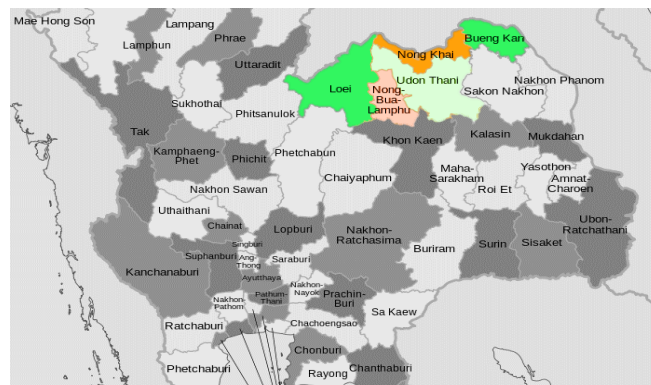


Figure 2. The Upper Northeastern Region 1 (Sabaidee) (WIKIMEDIA COMMONS, 2022).



Water tourism by rafting is a very popular activity among tourists and tends to increase every year because rafting services are available in many forms, *i.e.*, towed rafting, motorized rafting, and raft resorts. However, rafting in tourism is usually towed rafting. Service providers let tourists raft to different spots and return to the riverbank as scheduled. There are various activities for tourists while rafting, *e.g.*, food and drink service, stereo service, and pick up-drop off service in case of emergencies. Additionally, “Sabaidee” is a provincial cluster with popular sources of water for rafting, *e.g.*, rafting on Huai Krating, Loei; and rafting on Ang Nam Pan, Udon Thani. Nevertheless, since the end of 2019 till now, the COVID-19 outbreak has changed tourists’ behavior. For example, they travel less, stop taking long journeys, or avoid traveling to crowded places because they are afraid of getting infected.

As a consequence, the change of tourists’ behavior has influenced the demand for tourism, which could occur under changing situations. Thus, to fulfill the gap of the research, there should be a study on the demand for water tourism by rafting among tourists in the New Normal in terms of their demand for tourism after the COVID-19 outbreak in order to present tourism strategies that could respond to tourists’ demand, and to be a guideline for rafting entrepreneurs to manage tourists in the future.

1. Literature Review

1.1 Relevant Theories

Water transportation is a type of tourism by waterway. It can be set routes, tourism for relaxation, or just enjoyment among tourists as per their desires. As such, there is a demand for tourism that tourists show their need for tourism products or services along with their affordability to obtain those products or services.

Tourism is different from other industries and can be differentiated as follows: 1) The characteristics of demand for tourism change with other factors, *e.g.*, time or seasons, popularity of the tourism attractions, and the development as well as expansion of the tourism industry. 2) Factors associated with tourism include the indicators of the demand levels (demand measurement). The greater or less demand for tourism also depends on the behavior of each consumer (Mingmaninakhin, 2005 cited in Uiprasert, 2013). Moreover, there are several factors that determine the demand levels, *i.e.*, 1) duration of stay, 2) frequency of travel, 3) demand for travel, 4) product cost, and 5) service cost (Uiprasert, 2013).

1.2 Relevant Research

According to the literature review, to set the conceptual frameworks of demand for tourism by rafting after the COVID-19 outbreak from the analysis of the structural equation models (SEM) with the indicators of demand levels (Uiprasert 2013) could be measured by five latent variables, *i.e.*, duration of stay, frequency of travel, demand for travel, product cost, and service cost. The demand levels were influenced by the factors of tourism and the factors of water transportation (Phiansang 2013). As such, there were two conceptual frameworks in this study. The first one was to conduct a survey on several factors from the relevant concepts and theories. Then, they were brought to study the components of demand for tourism by rafting because there had been no previous studies on this issue as a guideline for the questionnaire design. Exploratory factor analysis (EFA) was conducted afterwards according to the first and second conceptual frameworks in the study of the factors influencing the demand for tourism by rafting after the COVID-19 outbreak by the SEM analysis (Fig.3 and Fig. 4). The demand for tourism by rafting in Fig. 3 was influenced by the observed variables from clearly proved relevant research, *i.e.*, the factors of tourism and the factors of water transportation. All variables were from the literature review.

Figure 3. Conceptual framework 1

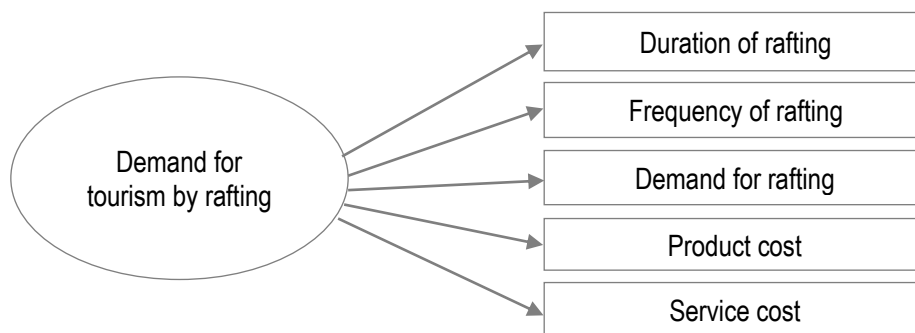
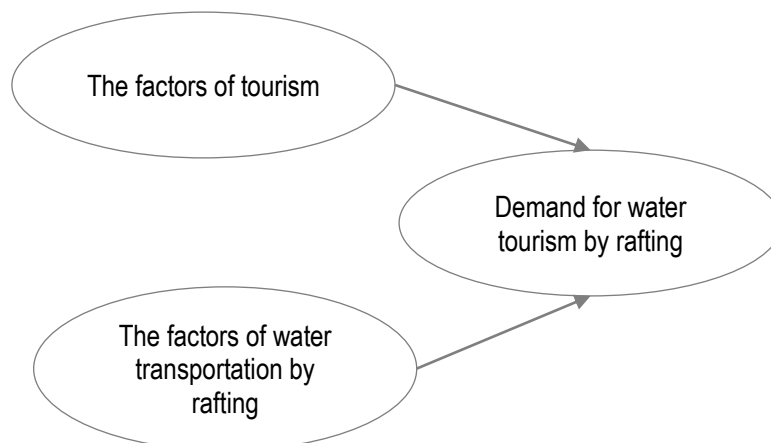


Figure 4. Conceptual framework 2



2. Methodology

2.1 Population and Samples

The target population in this research included 400 rafting tourists in the New Normal in the Upper Northeastern Region 1, *i.e.*, Udon Thani, Nong Khai, Loei, Nong Bua Lam Phu, and Bueng Kan, provinces. They were divided into 80 samples per province. The samples were obtained by convenience sampling.

2.2 Data Collection

The instrument for collecting the data was a questionnaire with a content validity index = CVI 0.95 > 0.8 (Davis, 1992; Grant & Davis, 1997; Polit & Beck, 2004; Waltz *et al.* 2005) tested by five experts. Then, 30 sets of the questionnaire were brought to pilot with the samples for the quantitative part. The questionnaire and its reliability were tested, which had a reliability score of > 0.7.

2.3 Data Analysis

EFA from SPSS was used by varimax rotation. Then, it was analyzed by SEM. In other words, confirmatory factor analysis (CFA) by ADANCO ver.2.3 was utilized to examine the content validity of the latent variables and to analyze the model fit (Fig. 5) with the criteria in Table 1.

Table 1. Model testing criteria.

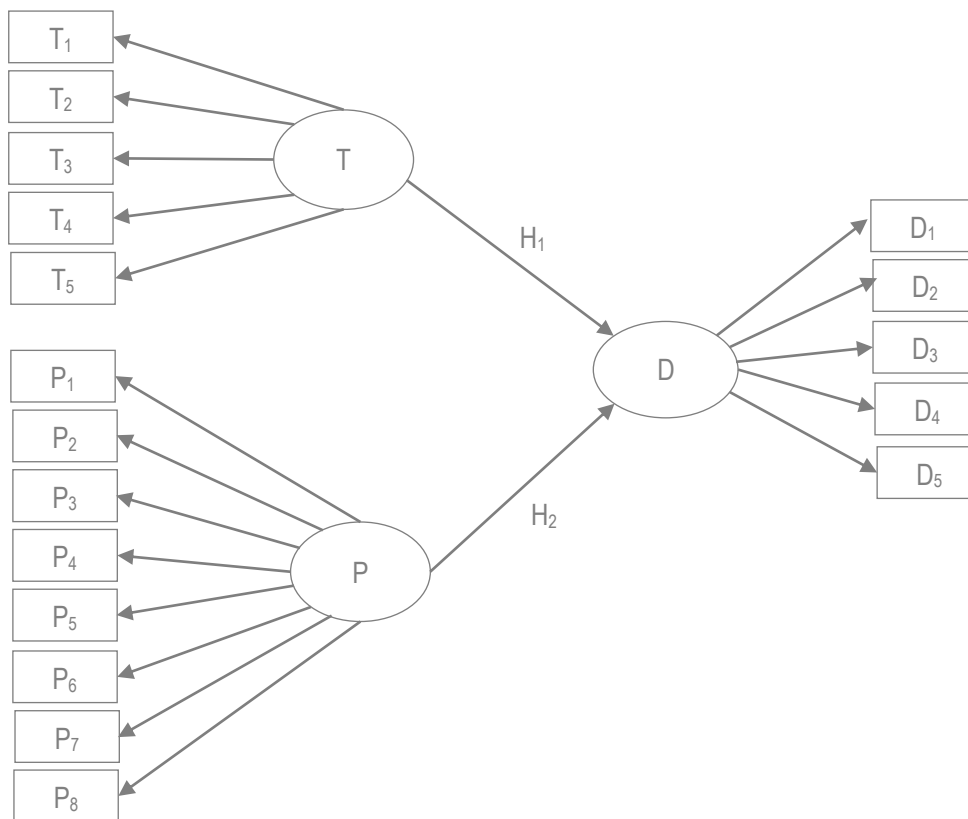
Value	Index	Acceptable Criteria
Construct Reliability	Cronbach Alpha	>0.70 Hair <i>et al.</i> (2010)
	Dijkstra-Henseler's rho (ρ_A)	>0.70 Henseler <i>et al.</i> (2016)
	Jöreskog's rho (ρ_c)	>0.70 Henseler <i>et al.</i> (2016)
	Composite Reliability	>0.70 Bagozzi & Yi, (1988); Hair <i>et al.</i> (2010)
	Indicator Reliability: This referred to the reliability of each observed variable, or its variance. The latent variables implied the reliability of the questionnaire.	>0.70 Chin (1998); Hulland (1999)
Convergent Validity	Average Variance Extracted) AVE (or the mean of the extracted variance	>0.50 Fornell & Larcker ((1981; Hair <i>et al.</i> ((2010
	Convergent validity: This referred to the scale validity to imply that the scale could measure the same construct.	>0.5 Bagozzi & Yi (1988); Hair <i>et al.</i> 2010
Discriminant Validity	Scale validity that could be measured for only its own construct. Scales of other constructs were not included. This validity was used to measure the discriminant validity based on the criteria of Fornell and Larcker, and Heterotrait-Monotrait Ratio of Correlations (HTMT).	Fornell & Larcker ((1981suggested that the AVE of each variable should be over thr coefficient of each latent variable.
		Henseler <i>et al.</i> ((2014suggested that HTMT could measure the discriminant validity better than the criteria of Fornell & Larcker ((1981.
Coefficient of Determination R^2	Precision of prediction	Chin (1998) set 0.19 = small, 0.33 = medium, and 0.67 = large. Hair <i>et al.</i> set 0.25 = small, 0.50 = medium, and 0.75 = large.
Predictive Relevance, Q^2	Stone-Geiser Test	>0 Geiser ((1975; Stone ((1974
Effect Size, f^2	The effect between the latent variables.	Cohen ((2013set 0.02 = small, 0.15= medium, and 0.35= large.
Path Coefficient	Path coefficient or direct effect of the path analysis.	Size, sign, and p-value Hair <i>et al.</i> ((2010

Source: Henseler *et al.* (2009), Wong (2014); Henseler *et al.* (2016) cited in Nonthapot (2019)

2.2 The Model and Hypotheses in the Study.

(1) Model

Figure 5. Model



The variables were set as follows:

Variable	Meaning
D	Demand for water tourism by rafting
D ₁	Duration of rafting
D ₁	Frequency of rafting
D ₂	Demand for rafting
D ₃	Product cost
D ₄	Service cost
D ₅	Demand for water tourism by rafting
T	The factors of tourism
T ₁	Activities while rafting and services
T ₂	Taste
T ₃	Leisure time
T ₄	Season
T ₅	Cost at the tourist attraction
P	The factors of water transportation by rafting
P ₁	Rafting cost
P ₂	Objectives of rafting
P ₃	Income
P ₄	Features and shape of a raft
P ₅	Boarding point
P ₆	Rafting time
P ₇	Rafting period
P ₈	Rafting experience

(2) Hypotheses

H1: The factors of tourism influence the same way as the demand for water tourism by rafting.

H2: The factors of water transportation by rafting influence the same way as the demand for water tourism by rafting.

3. Results

It was found that most of the samples as tourists traveling for rafting were female (46.0%), aged between 21-30 years (46.5%), with an educational level of a bachelor's degree (60.8%), students (48.5%), and had a monthly income between 5,000-10,000 Thai Baht (30.8% of the tourists in the Upper Northeastern Region 1).

For the EFA analysis of the components of demand for water tourism by rafting, it was found that KMO = 0.800, Bartlett's test of sphericity = 957.074, $df = 10$, and $p < 0.001$. This implied that the data obtained was suitable (Hair *et al.* 2010) (Table 2).

Table 2. KMO and Bartlett's test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.800
Bartlett's Test of Sphericity	Approx. Chi-Square	957.074
	df	10.000
	Sig.	0.000

Source: From the author's calculation.

Then, eigenvalues were considered by axis rotation by varimax. It was found that the value was over 1.00 by 1 (Table 3). This implied that the factors of demand for water tourism by rafting could be categorized into one factor.

Table 3. Total variance explained.

Component	Initial Eigenvalues			Extraction Sums of the Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.239	64.782	64.782	3.239	64.782	64.782
2	0.696	13.921	78.704			
3	0.484	9.683	88.387			
4	0.339	6.771	95.158			
5	0.242	4.842	100.000			

Extraction Method: Principal Component Analysis.

Source: From the author's calculation.

When considering the factors, each had to contain the loading > 0.70 to imply the categorization for the factors of the variables (Table 4).

Table 4. Component matrix.

Variable	Component
	1
Duration of rafting (D_1)	0.813
Rafting experience (D_2)	0.782
Demand for rafting (D_3)	0.784
Product cost (D_4)	0.834
Service cost (D_5)	0.810

Source: From author's calculation.

As shown in Table 4, it was found that all indicators demand for water tourism by rafting were > 0.70 based on the considered loading. This implied that all five factors could be categorized into the same group. The latent variables were also named to reflect the meaning of the overall factors, *i.e.*, demand for water tourism by rafting. According to the study on the factors of water tourism by rafting among tourists in the New Normal in the Upper Northeastern Region 1, the observed factors obtained from the relevant studies that could be clearly clarified were the factors of tourism and the factors of water transportation. This research used PLS-SEM analysis by using ADANCO VER.2.3 to analyze the observed variables to measure the reliability with the discriminant validity of each variable. The loading had to be > 0.7 , as shown in Table 5.

The latent variables had to be analyzed for the AVE, which should be > 0.5 . Dijkstra-Henseler's rho (ρ_A), Jöreskog's rho (ρ_c), and Cronbach's Alpha should be > 0.7 to be suitable, as shown in Table 6.

Table 6 shows that the AVE of all the latent variables ranged from 0.5982 - 0.6474, which was > 0.5 (Hair *et al.* 2010). This implied that the latent variables of demand for water tourism by rafting (D), the factors of tourism (T), and the factors of water transportation by rafting (P) could explain the variance of the observed variables at 62.15%, 64.74%, and 59.82%, respectively. Dijkstra-Henseler's rho (ρ_A) of all the variables ranged from 0.8534 - 0.9056 (Henseler *et al.* 2016). Jöreskog's rho (ρ_c) of all the variables ranged from 0.8913 - 0.9223 (ibid). Cronbach Alpha (α) of all the variables ranged from 0.8481 - 0.9035 (Hair *et al.* 2010), which was > 0.70 to be suitable.

Table 5. Results of the loading analysis.

Index	Demand for Water Tourism by Rafting (D)	The Factors of Tourism (T)	The Factors of Water Transportation by Rafting (P)
Duration of rafting (D ₁)	0.8083		
Previous rafting experience (D ₂)	0.7673		
Demand for rafting (D ₃)	0.7968		
Product cost (D ₄)	0.8370		
Service cost (D ₅)	0.8121		
Activities while rafting and services (T ₁)		0.7489	
Taste (T ₂)		0.7813	
Leisure time (T ₃)		0.8022	
Season (T ₄)		0.8274	
Cost at the tourist attraction (T ₅)		0.7796	
Raft rental cost (P ₁)			0.7338
Objectives of rafting (P ₂)			0.7497
Income (P ₃)			0.6987
Transportation equipment (P ₄)			0.7429
Boarding point (P ₅)			0.7814
Rafting time (Round) (P ₆)			0.8253
Rafting period (P ₇)			0.8199
Rafting experience (P ₈)			0.8252

Source: From the author's calculation.

Table 6. The statistics of the structural suitability measurement model

Construct	AVE	Dijkstra-Henseler's rho (ρ_A)	Jöreskog's rho (ρ_c)	Cronbach's Alpha (α)
D	0.6215	0.8534	0.8913	0.8481
T	0.6474	0.8672	0.9017	0.8639
P	0.5982	0.9056	0.9223	0.9035

Source: From the author's calculation.

Table 7. Discriminant validity: Fornell-Larcker criterion

Construct	T	D	P
T	0.6215		
D	0.3733	0.6474	
P	0.6829	0.3818	0.5982

From the author's calculation.

Table 8. Heterotrait-Monotrait Ratio of Correlations (HTMT)

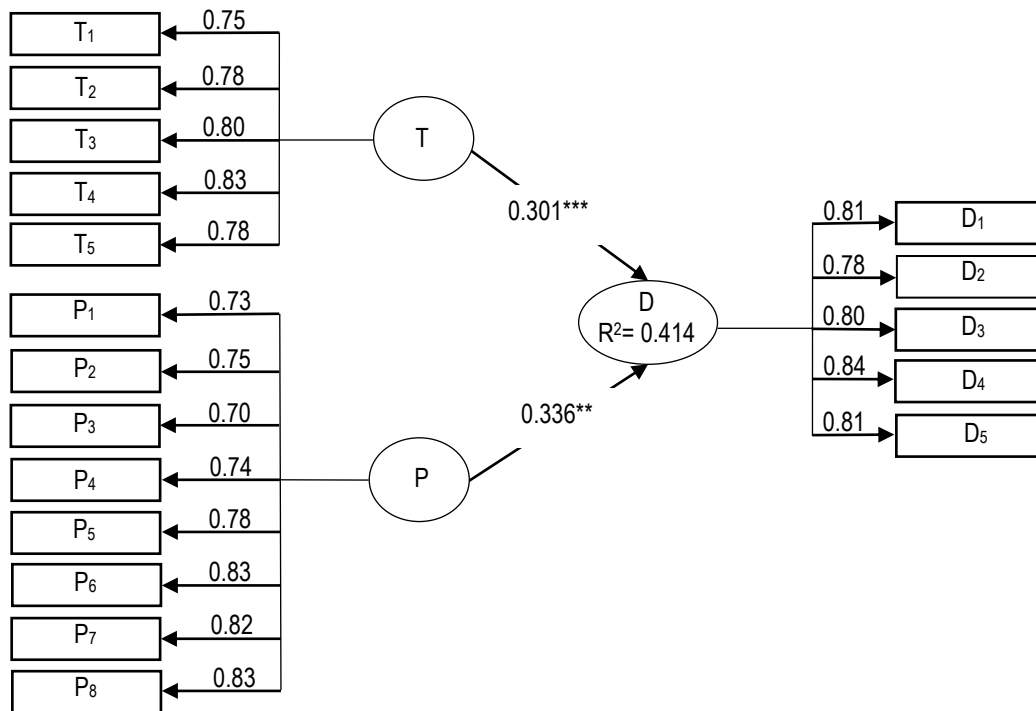
Construct	T	D	P
T			
D	0.7078		
P	0.9402	0.6896	

From the author's calculation.

For the discriminant validity of each structure (latent variables) Fornell and Larcker (1981) suggested that the AVE of each latent variable should be over the coefficient between the latent variables. In Table 7, it could be seen that there was one coefficient over the AVE. However, Henseler *et al.* (2014) suggested the Heterotrait-

Monotrait Ratio of Correlations (HTMT). In Table 8, the AVE matrix was displayed along the diagonal lines and the coefficient of the latent variable measured the discriminant validity directly, and it should be < 1 . According to Table 8, it ranged from 0.6896 - 0.9402.

Figure 6. Results of the analysis.



As demonstrated in Figure 6, the loading of each observed variable was > 0.7 . There was a total of 18 observed variables with the loading from 0.70 of P3 - 0.84 of D4. The statistics indicated that this model was reliable and could be concluded.

The SEM analysis was mainly considered by the path coefficient, *i.e.*, direct effect as in Figure 5 and Table 9; indirect effect, and total effect. R^2 of the latent variable = 0.414, with moderate effect (Chin, 1998) and when both influential factors, *i.e.*, the factors of tourism and the factors of water transportation, contained a statistical significance of 95%.

Table 9. Inference of the direct effects.

Effect	Original Coefficient	Standard Error	t-value	p-value	Conclusion
T → D	0.3012	0.0755	3.9915	0.0001	Accept
P → D	0.3363	0.0780	4.3092	0.0000	Accept
C → D	0.0457	0.0727	0.6283	0.2650	Reject

Source: From the author's calculation.

From Table 9, the analysis results implied that the factors of tourism, *i.e.*, activities while rafting and services, taste, leisure time, season, cost at the tourist attraction, and the factors of water transportation, *i.e.*, objectives of rafting, income, rafting cost, transportation equipment, boarding point, rafting time (Round), rafting period, and rafting experience influenced the demand for water tourism by rafting after the COVID-19 outbreak.

Table 10. Overview of the effect

Effect	Beta	Indirect Effects	Total Effect	Cohen's f^2
T → D	0.3012	-	0.3012	0.0456
P → D	0.3363	-	0.3363	0.0539
C → D	0.0457	-	0.0457	0.0016

Source: From the author's calculation.

As shown in Table 10, the analysis of the effect was based on the hypotheses from the direct effect or path coefficient. The path with the highest total effect was from the factors of water transportation on the demand for water tourism by rafting, followed by the factors of tourism on the demand for water tourism by rafting.

Conclusion

From the results of this study, the components of the demand for water tourism by rafting could be categorized into one group with five factors, *i.e.*, duration of rafting, previous rafting experience, demand for rafting, product cost, and service cost. These components caused the demand for water tourism. For example, each duration of rafting was calculated by the number of previous travels, which resulted in the revisit and image of travel in each form, including cost while traveling, *i.e.*, rental cost or other rafting expenditures, and the demand for travel to find experiences or for tourists to entertain themselves. These factors conformed to Mingmaninakhin (2005), who stated that more or less the theory of demand for tourism depended on the tourists' behavior who had different demands, which could be measured by the demand indicators with several factors, *i.e.*, leisure time, the number of travels, desire to travel, product cost, and service cost.

For the results of the analyzed factors from both aspects of influencing the demand for water tourism by rafting, it was found that the most influential factors were those of water transportation by rafting that influenced the demand for water tourism by rafting (coefficient = 0.336) because the provided rafts were suitable for tourists with the objective to relax, *i.e.*, rafting along the waterways with different atmospheres, different designs of the rafts in each site, and efficient transport management for tourists and food to the rafts. This was followed by the factors of tourism influencing the demand for water tourism by rafting (coefficient = 0.301) because water tourism included various activities, which the specifics were based on each individual's taste and the travel season that made rafting become popular. However, it was found that tourism after COVID-19 did not really influence the demand for water tourism by rafting because of the perceived COVID-19 outbreak and understanding that it was normal/natural as the outbreak was uncontrollable. This conformed to the study of Phiansang (2013), who found that the factors of tourism and the factors of water were related to the demand for water tourism.

According to the results of the study on the factors influencing the demand for water tourism by rafting, it was found that water transportation hugely influenced water tourism. Thus, rafting entrepreneurs should pay attention to water transportation. To clarify, the provided rafts should have strong, firm, and standard structures. Rafting time (round) should be specified clearly, so that tourists could set their suitable schedules. Moreover, the boarding points should be accessed easily and not crowded with clear direction signs. There should be clear and convenient contact points between tourists and service providers. Involved agencies should also pay attention to the standardization of water tourism by rafting or pick-up/drop-off boats in terms of suitability and safety for tourists and service providers themselves.

Thus, entrepreneurs should promote modern tourism, *i.e.*, water activities or services, such as increasing booking channels, fast and clean food order and delivery service, various payment method,; and public relations on social media to catch up with the current trend, which could attract and motivate tourists. Furthermore, involved agencies should support the public relations to attract tourists for their interest in water tourism by rafting, *e.g.*, enhancing this type of tourism as an acceptable and safe form of tourism for entrepreneurs and tourists. Alternatively, they could manage the business disciplines and trainings in terms of service quality for the best efficiency of services.

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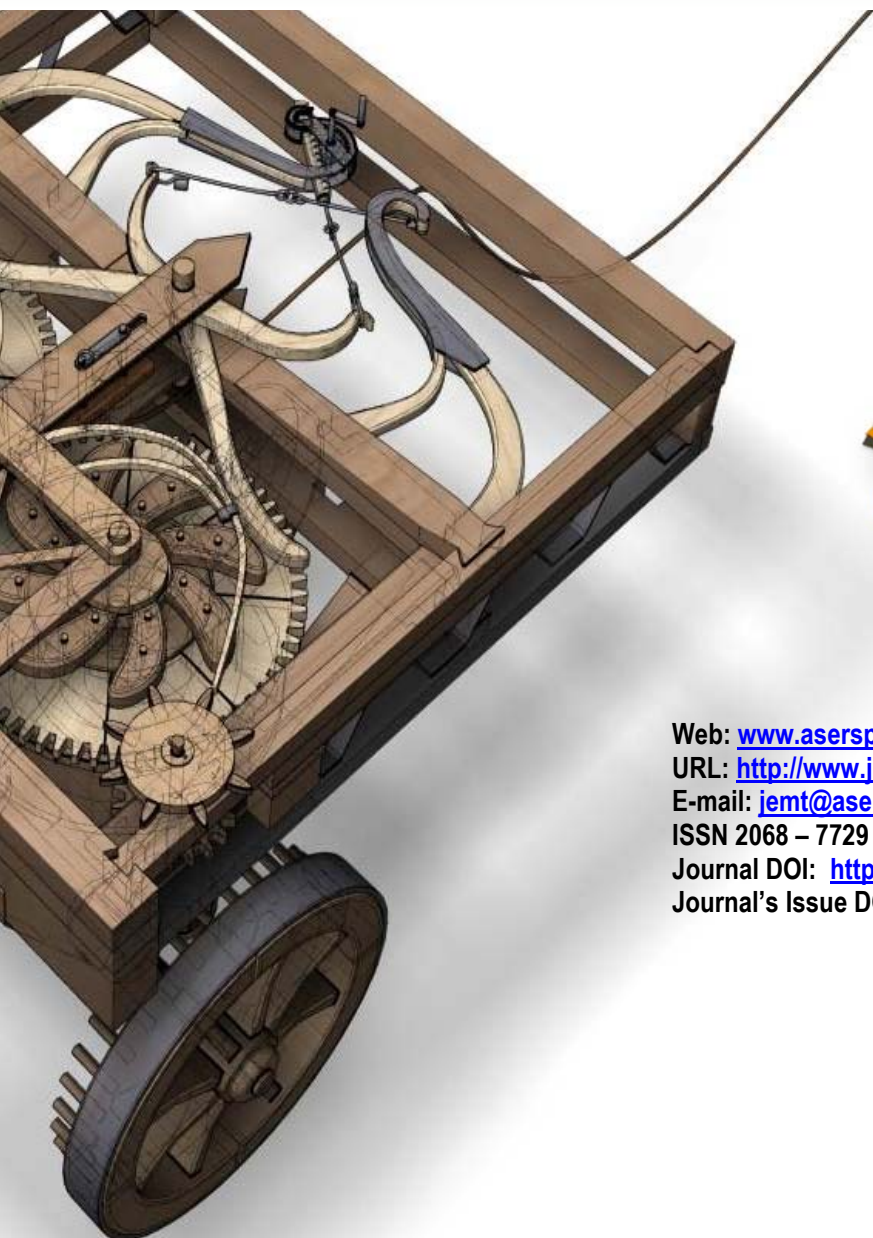
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