

# Why Do Divers Want to Liveaboard? Measuring SCUBA Divers' Motivations of Liveaboard Using a Cruise Perspective

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Diving is a recreational activity of growing significance in many countries. In the recreational SCUBA diving industry, a liveaboard service offers tourists to stay on board for several nights and that allows time to travel to more distant dive sites. SCUBA diving belongs to an adventure tourism, while cruise is much more leisure tourism activity. However, they share a similar travel mode, so it is very interesting to find the reason behind. Do cruise tourists be the potential diving tourists? The paper adopted the cruising motivation scale for diving tourists to develop a scale for SCUBA divers' motivations of liveaboard. Convenience sampling was used to select participants for the study. After exploratory factor analysis (EFA), the results showed that there were six dimension of SCUBA divers' liveaboard motivation, and the added dimension of divers' preference was valid. Finally, a measurement scale of SCUBA divers' liveaboard motivation was proposed in this study, and the discussion and implication were also presented in the paper.

*Keywords:* SCUBA diving, liveaboard, motivation, measurement scale

## Introduction

The ocean occupied two third of the earth, and people make a lot of efforts to explore the ocean. Marine tourism accounts for almost 85% of revenue in tourism industry (Meisel-Lusby & Cottrell, 2008). Recreational SCUBA diving is an important sector in marine tourism. "Participation in recreational SCUBA diving increased dramatically during the 1980s and continued to rise in the 1990s, promoting authors to claim that SCUBA diving was fastest growing recreational activity in the world" (Stolk, Markwell, & Jenkin, 2007, p. 336). In addition, it can help the tourists to realize the importance of the underwater environments and it can give economic benefit to the local communities (Petreas, 2003; Tapsuwan & Asafu-Adjaye, 2008).

In recent years, recreational diving tourism has developed rapidly all over the world. With the slogan of "Everybody can dive", Professional Association of Diving Instructors (PADI) issued more than one million certificates all over the world in 2018, and Chinese market contributes a significant percentage of it (refer to <http://www.padi.com> for details). In 2015, the revenue of the experiential SCUBA diving was 2.133 billion RMB (1 RMB  $\approx$  0.14 USD) in Mainland China (Chinese Underwater Association). And the revenue of diving suit industry in Mainland China increases almost five times from the year 2006 to 2015 (China Diving & Salvage Contractors Association). Diving tourism is developing to a multi-billion-dollar tourism industry (Ong & Musa, 2012).

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With the development of the global diving industry, more and more scholars start to notice this niche area. For example, Haddock-Fraser and Hampton (2012) discussed about the dive tourism's sustainability with different stakeholders using a case of Sipadan in Malaysia, and Ong and Musa (2012) established a structural equation model to find the influences of personality, experience, and attitude on diving tourists' underwater behavior. Besides, researchers attempted to understand why people choose to dive (Meisel-Lusby & Cottrell, 2008), and this study tried a little further to clarify why SCUBA diving tourists want liveaboard. However, there is no literature to study the motivation of liveaboard diving, and that makes a research gap.

## **Literature Review**

### **Liveaboard Diving and Sea Cruise**

In the recreational SCUBA diving industry, unlike a day boat operation, a liveaboard service offers its guests to stay on board for several nights (Fang, 2016). This allows time to travel to more distant dive sites. Sometimes, liveaboard is the only way to dive in some specific diving points, such as Galapagos (Ecuador), Raja Ampat (Indonesia), and Tubbataha Reef Natural Park (Philippines). Liveaboard is becoming a popular travel mode for SCUBA divers, especially for those enthusiasm diving tourists.

On the other hand, cruise is "a leisure experience wherein cruisers travel on a cruise ship to different destinations" (Hung, Wang, Guillet, & Liu, 2019, p. 207). There are several types of cruise, such as river cruise, sea cruise, and lake cruise. In this study, it is mainly talking about sea cruise, which is also the most common cruise type. Sea cruises involve passengers spending several nights on board. Sea cruise ships sail the world's seas and waterways, calling in at the most beautiful places on earth. These ships are the giants of the sea, often as tall as 10-floor buildings. They offer passengers all the services and facilities they need. If a port wants to accommodate these giant vessels, it must have adequate facilities (e.g., a big enough cruise ship terminal).

From the definition, the characteristics of liveaboard diving and sea cruise can be concluded as follows:

#### **Sea cruise**

- Traveling on the ocean
- Live on a ship
- Stayed more than one night
- Contains a lot of tourists
- Leisure activities
- Have several stops on the ports

#### **Liveaboard diving**

- Traveling on the ocean
- Live on a ship
- Stayed more than one night
- Contains some tourists
- More adventure activities
- Have several stops on the diving sites

From the list, the differences between sea cruise and liveaboard diving are the number of guests and the nature of activities. Therefore, from a cruise perspective, liveaboard diving can be defined as a small sea cruise for a specific purpose.

## **Motivation**

Motivation refers to the “internal psychological factors (needs and wants) that generate a state of tension or disequilibrium within individuals” (Crompton & McKay, 1997, p. 427). And travel motivation has been identified as a critical factor to explain tourist behavior (Crompton, 1979). Scholars are always curious about the reasons behind tourists' behaviors, so a lot of theories and studies are developed to examine it (e.g., Hung & Petrick, 2011; Driver, Tinsley, & Manfredi, 1991; Stein, Denny, & Pennisi, 2003; Meisel-Lusby & Cottrell, 2008). While SCUBA diving can be classified as a recreational adventure tourism (Ong & Musa, 2012), the Recreation Experience Preference (REP) was proposed by Driver et al. (1991) to meet the need of a psychometric instrument to identify the reason that tourists choose a certain recreational adventure activity. Moreover, Meisel-Lusby and Cottrell (2008) tried to find out the motivations and expectations for scuba divers, and in their research, the beginners were more attracted for the challenge and excitement for the underwater environment while experienced divers were more focus on social dimensions, like to be with similar people.

The previous literature was more focus on cruising experiences, customer satisfaction, decision-making, cruise, and destination management (Hung et al., 2019), and Hung and Petrick (2011) established a cruise motivation scale to explore tourists' intention to cruise. Due to the similar characteristics of liveboard diving and sea cruise, the study used the cruise motivation scale as a basis to determine the motivation of liveboard diving.

## **Recreational SCUBA Divers Preference**

The previous research showed that the first attraction for divers is the marine life (e.g., Giglio, Luiz, & Schiavetti, 2015; Inglis, Johnson, & Ponte, 1999; Kelleher, 1999). For the divers' point of view, the marine life could be divided into big marine animals, small marine animals, and corals. Giglio et al. (2015) claimed that the beginner divers were more attracted by the big animals, such as groupers, sharks, rays, turtles, and marine mammals, while the experienced divers are more interest in the small marine animals, for example, sea-horses, crocodile fishes, frogfishes, and mandarin fish. And the coral reef has always been a crucial attraction for divers and snorkelers (Tratalos & Austin, 2001; Wilks & Davis, 2000). Besides, Meisel-Lusby and Cottrell (2008) exposed that experience divers also preferred to see shipwrecks and use equipment.

## **Method**

Twenty-five cruising motivation items survived panel of expert's review were obtained from Hung and Petrick (2011). And depending on the research of Giglio et al. (2015), the recreational divers had their own marine life preferences and perceptions. Thus, the dimension of divers' preferences was added to the cruising motivation with six items. And the items are showed as Table 1.

## **Pilot Test**

Because the sample is mainly Chinese scuba divers who had the experience of liveboard diving, therefore, all items are translate into Chinese with a double-blind translation. After that, 10 experienced SCUBA divers proofread all the items, and tried to make it to be easy understand and more accurate.

## **Sampling and Data Collection**

A convenience sampling was used in this study, due to the very specific target group. The survey was distributed on Wechat (the biggest and most popular social media in China) of 20 active diving groups and used an online survey tool of Wenjuanxing (the most popular online survey tool in China). The data are collected

from 15/05/2019 to 10/08/2019. Finally, a total of 286 surveys were collected, 240 of them were valid.

Table 1

*Proposed SCUBA Divers' Motivations of Liveboard Items*

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*Dimension 1: Escape/relaxation*

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- I choose liveboard diving to give my mind a rest
  - I choose liveboard diving so that I can be free to do whatever I want
  - I choose liveboard diving to escape
  - I choose liveboard diving because I want to be pampered
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*Dimension 2: Exploration and evaluation of self*

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- I choose liveboard diving to increase my feelings of self-worth
  - I choose liveboard diving to derive a feeling of accomplishment
  - I choose liveboard diving to help me feel like a better person
- 

*Dimension 3: Social recognition/prestige*

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- I choose liveboard diving to do something that impresses others
  - I choose liveboard diving to be thought more highly of by others for doing this
  - I choose liveboard diving to photograph an exotic place to show friends
  - I choose liveboard diving to have a high-status vacation
- 

*Dimension 4: Learning/discovery*

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- I choose liveboard diving to experience other cultures
  - I choose liveboard diving to satisfy my curiosity
  - I choose liveboard diving to gain knowledge
  - I choose liveboard diving to enjoy nature
- 

*Dimension 5: Socialization and bonding*

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- I choose liveboard diving because my friends/family want to
  - I choose liveboard diving to interact with friends/family
  - I choose liveboard diving because I like to meet different people on a cruise ship
  - liveboard diving provides me a chance to meet new people
  - I choose liveboard diving so that I'll have common experiences with my friends
  - I choose liveboard diving to enjoy the company of the people who came with me
- 

*Dimension 6: Novelty/thrill*

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- I choose liveboard diving to enjoy activities that provide a thrill
  - I choose liveboard diving to do something new
  - I choose liveboard diving to have fun
  - I choose liveboard diving to "let me hair down"
- 

*Dimension 7: Divers' preference*

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- I choose liveboard diving to see megafauna marine life
  - I choose liveboard diving to see cryptic species marine life
  - I choose liveboard diving to see colorful corals
  - I choose liveboard diving to dive in wrecks
  - I choose liveboard diving to experience difference ocean topography
  - I choose liveboard diving to get an easy and efficient diving trip
- 

## Result

An exploratory factor analysis (EFA) was used to determine the dimensions of SCUBA divers' motivations of liveboard items with using Statistical Product and Service Solutions (SPSS). The results were shown as Tables 2 and 3.

Table 2

*Kaiser-Meyer-Olkin (KMO) and Bartlett's Test*

Kaiser-Meyer-Olkin measure of sampling adequacy		0.905
Bartlett's test of sphericity	Approx. Chi-Square	3742.661
	df.	465
	Sig.	0.000

Table 3

*Rotated Component Matrix<sup>a</sup>*

	Component						
	1	2	3	4	5	6	7
I choose liveaboard diving to give my mind a rest	0.048	0.129	0.176	0.107	<b>0.771</b>	0.049	0.129
I choose liveaboard diving so that I can be free to do whatever I want	0.221	0.051	0.235	0.192	<b>0.765</b>	-0.037	0.019
I choose liveaboard diving to escape	0.254	0.117	0.098	0.095	0.153	0.139	<b>0.668</b>
I choose liveaboard diving because I want to be pampered	0.504	0.036	0.028	-0.021	0.165	0.469	0.135
I choose liveaboard diving to increase my feelings of self-worth	<b>0.803</b>	0.156	0.047	0.103	0.184	0.075	0.069
I choose liveaboard diving to derive a feeling of accomplishment	<b>0.829</b>	0.166	0.159	0.137	0.083	-0.042	0.036
I choose liveaboard diving to help me feel like a better person	<b>0.804</b>	0.197	0.086	0.208	0.247	0.053	0.001
I choose liveaboard diving to do something that impresses others	<b>0.755</b>	0.094	0.075	0.293	-0.009	0.113	-0.034
I choose liveaboard diving to be thought more highly of by others for doing this	<b>0.772</b>	0.155	0.091	0.038	-0.041	0.277	0.182
I choose liveaboard diving to photograph an exotic place to show friends	0.482	0.260	0.206	0.057	-0.194	0.212	0.252
I choose liveaboard diving to have a high-status vacation	0.258	0.169	0.199	0.498	0.351	0.135	0.190
I choose liveaboard diving to experience other cultures	0.347	0.207	0.176	<b>0.548</b>	0.167	0.062	-0.231
I choose liveaboard diving to satisfy my curiosity	0.245	0.138	0.203	<b>0.719</b>	-0.049	-0.027	-0.051
I choose liveaboard diving to gain knowledge	0.267	0.283	0.136	<b>0.659</b>	0.144	0.098	0.151
I choose liveaboard diving to enjoy nature	-0.057	0.124	0.247	<b>0.670</b>	0.231	0.006	0.245
I choose liveaboard diving because my friends/family want to	0.212	0.097	0.148	-0.012	-0.061	<b>0.784</b>	0.046
I choose liveaboard diving to interact with friends/family	0.139	0.480	0.058	0.291	0.099	<b>0.546</b>	-0.033
I choose liveaboard diving because I like to meet different people on a cruise ship	0.216	<b>0.789</b>	0.034	0.053	0.050	0.050	0.183
liveaboard diving provides me a chance to meet new people	0.182	<b>0.799</b>	0.099	0.176	0.058	-0.037	0.220
I choose liveaboard diving so that I'll have common experiences with my friends	0.087	<b>0.758</b>	0.160	0.204	0.049	0.241	0.054
I choose liveaboard diving to enjoy the company of the people who came with me	0.189	<b>0.696</b>	0.276	0.168	0.132	0.236	-0.126
I choose liveaboard diving to enjoy activities that provide a thrill	0.304	<b>0.500</b>	0.434	0.053	0.143	-0.015	-0.144
I choose liveaboard diving to do something new	0.383	<b>0.505</b>	0.414	0.286	-0.087	-0.054	-0.113
I choose liveaboard diving to have fun	0.140	0.415	0.398	0.382	0.112	-0.239	0.255
I choose liveaboard diving to "let me hair down"	0.382	0.207	<b>0.512</b>	0.245	0.279	-0.110	0.228
I choose liveaboard diving to see megafauna marine life	0.124	0.056	<b>0.640</b>	0.346	-0.096	-0.107	0.263
I choose liveaboard diving to see cryptic species marine life	0.227	0.035	<b>0.654</b>	0.151	0.223	0.121	-0.064
I choose liveaboard diving to see colorful corals	-0.033	0.004	<b>0.703</b>	0.332	0.161	0.082	0.183
I choose liveaboard diving to dive in wrecks	0.054	0.289	<b>0.659</b>	-0.014	0.106	0.290	-0.039
I choose liveaboard diving to experience different ocean topography	0.073	0.278	<b>0.722</b>	0.100	0.147	0.086	0.041
I choose liveaboard diving to get an easy and efficient diving trip	-0.042	0.375	0.368	0.209	0.132	-0.180	0.417

Notes. Extraction method: Principal component analysis; rotation method: Varimax with Kaiser normalization; rotation converged in nine iterations.

According to the result of EFA, it can be concluded with six dimensions due to one dimension only has one item (I choose liveboard diving to escape). The SCUBA divers' motivations of liveboard measurement dimensions after EFA are shown as Table 4.

Table 4

*SCUBA Divers' Motivations of Liveboard Dimensions After EFA*

<i>Dimension 1: Relaxation</i>
I choose liveboard diving to give my mind a rest
I choose liveboard diving so that I can be free to do whatever I want
<i>Dimension 2: Self-esteem &amp; social recognition</i>
I choose liveboard diving to increase my feelings of self-worth
I choose liveboard diving to derive a feeling of accomplishment
I choose liveboard diving to help me feel like a better person
I choose liveboard diving to do something that impresses others
I choose liveboard diving to be thought more highly of by others for doing this
<i>Dimension 3: Learning/discovery</i>
I choose liveboard diving to experience other cultures
I choose liveboard diving to satisfy my curiosity
I choose liveboard diving to gain knowledge
I choose liveboard diving to enjoy nature
<i>Dimension 4: Bonding</i>
I choose liveboard diving because my friends/family want to
I choose liveboard diving to interact with friends/family
<i>Dimension 5: Socialization &amp; Novelty/thrill</i>
I choose liveboard diving because I like to meet different people on a cruise ship
liveboard diving provides me a chance to meet new people
I choose liveboard diving so that I'll have common experiences with my friends
I choose liveboard diving to enjoy the company of the people who came with me
I choose liveboard diving to enjoy activities that provide a thrill
I choose liveboard diving to do something new
<i>Dimension 6: Divers' preference</i>
I choose liveboard diving to "let me hair down"
I choose liveboard diving to see megafauna marine life
I choose liveboard diving to see cryptic species marine life
I choose liveboard diving to see colorful corals
I choose liveboard diving to dive in wrecks
I choose liveboard diving to experience difference ocean topography

### Discussions and Implications

From Table 2, it can be seen that the KMO is 0.905. It meant that the whole factor analysis was valid and reliable. Then, the result showed a positive correlation with cruising motivation and the motivation of SCUBA divers' liveboard. The proposed dimension was seven, and the final dimension was six, which were relaxation (two items), self-esteem and social recognition (five items), learning/discovery (four items), bonding (two items), socialization & novelty/thrill (six items), and divers' preference (six items). The added dimension of SCUBA divers' preference showed an effective component.

Some marketing implications can be discussed from this study. First, cruise customers could be a potential market for SUCBA diving industry. Previously, these two kinds of tourists could be considered very different, but this study showed that they had so many similar motivations. Second, the liveboard company or diving club could provide added product to meet the need of SUCBA divers' self-esteem and social recognition, like underwater photo shooting, in order to let them to show on the social media. Third, to response the needs of learning/discovery, the liveboard company or diving club could arrange some land itinerary besides diving, for them to experience the local culture and learn something more. For example, when you want to dive in the red sea, some land trips in Egypt could be an alternative option to offer to the diving tourists. Fourth, because of the bonding dimension, diving company could deliver the advertises of liveboard to some active diving groups in social media, they might want to come together. Fifth, the ship company of liveboard should try to improve their ship condition to fulfill the diving tourists' needs of relaxing. Last, according to the divers' preference, the liveboard itinerary should be diversity. From this study, it can be found that there are at least five aspects which are crucial to the liveboard diving tourists, which were megafauna marine life; cryptic species marine life; colorful corals; wrecks; and special ocean topography. The liveboard diving tourists could be more attractive and then it included more specialty in the liveboard itinerary.

### **Conclusion and Future Research**

The paper used a cruise perspective to establish a motivation measurement for liveboard diving tourists and combined the study of leisure tourism and adventure tourism. In addition, the study exposed the specific reasons why people want to dive liveboard. The study confirmed the importance of relaxation, social recognition, learning, bonding, and socialization to the tourism motivation (Hung & Petrick, 2011; Stein et al., 2003, Meisel-Lusby & Cottrell, 2008) and verified that the preference was a critical dimension to diving tourist's motivation (Giglio et al., 2015). This study could contribute to both travel motivation and marine tourism literature and propose a new thinking to the scholars.

The study also had its limitations. First, due the convenience sampling method, the sample of this study is mainly chosen from Chinese divers, so the result could not be generalized to the divers from other places. Second, the Chinese version of scale items could influence the understanding of the respondents because of the translation and culture difference.

For the future research, more tests of this scale can be done with difference samples to increase its generalizability. And the study only used EFA to verify the dimension of the measurement scale; future study can select more data and use confirmative factor analysis (CFA) to determine its reliability and validity. Besides, this study tries to adopt a cruise motivation scale to liveboard divers' motivation, and the quantitative research method is the only one which is chosen in the study. Therefore, more research methods, like in-depth interview, might supplement the measurement scale.

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