

Competency Model: Professional Development of Leisure Scuba Diving Instructors in China

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Abstract: Scuba diving specialization is a multidimensional index consisting of behavioral, cognitive, and affective domains. Based on the literature, the recreational scuba divers' specialization was an interesting research topic to understand further the competency of leisure scuba diving instructors and prepare for their professional development. Leisure diving instructors need to carry out important duties such as teaching, underwater tour guides, safety protection, and equipment installation. The limitations of recreational scuba divers in China impact their specialization and competency as instructors. The study examined the qualities of an excellent leisure scuba diving instructor and the necessary professional enhancement they needed to become excellent leisure scuba diving instructors. Through qualitative methods, it revealed that leisure scuba diving instructors in China were 31 years old and older and possessed positive competencies in terms of their diving professional knowledge, skills, and attitude. However, they were average or unexceptional in their career opportunities, training, and mentorship and scored low in underwater photography, post-conference with students, and self-evaluations which were integrated into the professional development program as the output of the study.

Keywords: Competency Model; Leisure SCUBA Diving; Professional Development of SCUBA Diving Instructors.

1. Introduction

Diving is a key technology for human beings to compete for the ocean, which is indispensable in the competition of marine resources. With the development of the world economy, human beings' desire to explore nature is increasing day by day, and leisure scuba diving activities are catering to people's desire. It integrates adventure, sports, entertainment, and adventure, so it is increasingly favored by modern people.

The recreational diving and its development have been represented by media even during the late 1950s along with the facet of shifts within the composition and values of the middle class. It has defined its social status along with the emergence of a new petit bourgeois that distinguished the cultural identity through consumption-driven lifestyles. In 1960s, the glamorous sexy connotations were associated with ideal expression and ideals of middle class inclined in SCUBA phenomenon. The self-contained underwater breathing apparatus (SCUBA) was used during this time in recreational diving which became one of the pre-eminent lifestyle sports of the middle class then. Recreational scuba diving became a phenomenon of the since then that was closely associated with the new brand of leisure-oriented masculinity. It emphasized and articulated the conspicuous consumption and narcissistic pleasure among young men (Osgerby, 2016).

Over time, recreational diving became one of the leisure activities which is beneficial and patronized not only to men but also other groups of people. For instance, a notable group of older Australian women claimed the benefits from scuba diving. Through empirical qualitative investigation in a beachside community, older women participated in diving activities and claimed how diving activities contributed to their well-being. These findings support the knowledge of serious leisure and continuation theory for adventurous older Australian women which was an unexplored study on the scuba diving community (Gregory & Dimmock, 2019).

Likewise, the narratives on leisure scuba diving among older women were collected to understand its role in active aging. Positively, they were described as confident, capable, curious, and motivated – all aspects of successful active aging. However, it was discovered as well that the same participants were constrained by pain, equipment, and lack of time and money which were new categories of leisure constraints influenced by physical and environmental influences of active aging and women's leisure. These constraints were negotiated by planning, prioritizing, and persisting, enabling continued diving.

Successful negotiation may result in fitness, connection, stress reduction, confidence, and learning benefits that contribute to enjoyable activity and active aging (Gregory, 2021).

Meanwhile, recreational scuba diving posited transformative experiences for people with physical impairments. Based on a study conducted, a group of physically impaired scuba divers experienced positive emotions, peace/relaxation, personal growth, self-awareness, development of skills, valuable accomplishments, social connections, freedom of movement, mental freedom, physical and mental healing, and lasting positive behavioral changes through that recreational activity. Moreover, they perceived that scuba diving was a strong contributor to enhanced self-efficacy and positive social identity. These findings introduced the potential of scuba diving as both a preventative recreation participation approach and a rehabilitation modality for people with physical impairments (Santiago Perez, 2022).

Similarly, recreational scuba diving and mindfulness techniques are both associated with slow and ample breathing as part of the training of divers. In the study of Trousselard (2017), the benefits of scuba diving on perceived stress and mindful functioning were investigated among members of a recreational diving group. They answered quantitative surveys before and after their week-long training and were

observed for a month to evaluate the stability of the effects on perceived stress, mood, well-being, and mindfulness. Results revealed that perceived stress did not decrease after the training and improvement in mood scale was observed which related to an increase of mindfulness abilities. Thus, it was concluded that recreational diving appears beneficial for reducing stress and improving well-being.

Moreover, involvement in leisure scuba diving was examined to have a strong connection with social support and happiness. In a study in Taiwan, the mediation of leisure involvement in scuba diving positively affects social support and happiness. Furthermore, leisure activity (e.g., scuba diving) can be an avenue for positive social support that could somehow influence happiness with a positive relationship. Consequently, this study renders managerial implications for the service providers of scuba diving agencies (Ho et al., 2019).

Undeniably, scuba diving has physical benefits as a regular activity because it increases cardiorespiratory endurance, muscular strength, and endurance, improves cognitive function, and decreases the risk of sudden cardiovascular death. The exercise behavior and its importance are needed to develop educational interventions to promote the need for structured physical activity in the diving community. In fact, descriptive data indicated that divers across all age groups participate in regular physical activity because they find it effective to their overall health, diving, and safety. Although their activity patterns were reported to change over time. Thus, the study suggested the need to include the importance of physical activity early in dive training and to maintain developed exercise habits throughout their active diving career regardless of age. This may motivate divers to increase their physically active patterns to prevent injuries (Kovacs & Buzzacott, 2017).

On the other hand, recreational scuba diving was impactful to the environment which could be detrimental to divers. For instance, it was found out that the diver's contact with coral reefs caused breakage, fragmentation and led to disease. Thus, the proponents who found this presented a new model that can minimize the coral reef and SCUBA diving impact which led to the use of non-regulatory and regulatory management strategies. This study was a good reference for future studies in SCUBA diving research (Sumanapala, 2023).

Altogether, recreational scuba diving provides more positive effects to divers regardless of their age and gender. Tourism has equal benefits in the development of this leisure activity which can give livelihood to skilled divers. For this reason, the specialization and competency of recreational scuba divers needed to be explored to consistently provide quality service to free divers and future scuba divers.

2. Statement of the Problem

This study analyzed the relationship between the diving profession and the professional development of leisure scuba diving instructors in China using a competency model framework. Specifically, this study answered the following questions:

(1) What is the profile of the respondents in terms of:

- 1) Age
- 2) Years of diving experience

(2) What is the respondents' assessment of their diving profession based on their:

- 1) Professional Knowledge
- 2) Professional Skills

3) Professional Attitude

(3) Is there a significant difference in the respondents' assessment of their diving profession when they are grouped based on their profile?

(4) What is the respondents' assessment of their professional development based on their:

- 1) Professional growth
- 2) Career opportunities
- 3) Sense of accomplishment
- 4) Training
- 5) Mentorship

(5) Is there a significant difference in the respondents' assessment of their professional development when they are grouped based on their profile?

(6) Do the professional development indicators impact the professional competencies of scuba diving instructors?

(7) Based on the results, what professional competencies can be included in the professional development of leisure scuba diving instructors?

3. Hypotheses

(1) There was a significant difference in the respondents' assessment of their diving profession when they were grouped based on their profile.

(2) There was a significant difference in the respondents' assessment of their professional development when they were grouped based on their profile.

(3) There was a significant relationship between the diving profession and the professional development of the respondents.

4. Scope and Delimitation of Study

This study thoroughly investigated the correlation between the diving profession and the professional development of leisure scuba diving instructors. The recruitment was done only in selected universities and colleges in China namely Lingnan Normal University, Guangdong Ocean University, The College of Sports and Leisure, Guangdong Vocational Institute of Sport, and University of Sanya. The recruitment involved leisure scuba diving instructors from different demographic backgrounds to guarantee a representative sample.

The research focused on assessing the diving profession of the respondents specifically their professional knowledge, skills, and attitude. At the same time, the study evaluated the respondents' professional development based on their professional growth, career opportunities, sense of accomplishment, training, and mentorship.

The study investigated the link between the diving profession and professional development using a cross-sectional approach, offering insights into possible relationships in the Chinese academic context. The research targeted to provide a basis for the competencies needed by leisure scuba diving instructors as part of their professional development. It was guided by the competency model to identify the distinctive competencies to be included in designing their professional development program as the results of the study.

On the other hand, the study anticipated the following limitations. First, the purposive sample technique that will be employed in the study limits the number of potential respondents from the selected universities and colleges considering diving courses were not regularly offered in

college programs.

Second, the responses may be limited to the professional development provided to the respondents by their academic institutions since the recruitment will be conducted in selected colleges and universities. Likewise, their responses may be limited to their training, formal education, and experiences as diving instructors.

Third, cultural influences may impact how diving instructors in China perceive the relationship between their diving profession and professional development, which could challenge the accuracy and relevance of findings. Nevertheless, ethical principles such as informed consent, privacy protection, and data confidentiality were strictly maintained throughout the study to protect the rights and welfare of participants.

5. Research Design

To fulfill the research purpose and answer the research questions, the study used a descriptive correlational approach to examine the link between the diving profession and professional development to distinguish the competencies of leisure scuba diving instructors. Descriptive correlational design provides unchanging ideas of situations and establishes the relationship between different variables. The descriptive data showed the emergence of certain patterns present in the demographics of the respondents and their assessments of the diving profession and professional development. While the correlational approach offers a meaningful understanding of these parameters to achieve the competencies for leisure scuba diving instructors.

This quantitative research design suited the need and purpose of the proposed research because it could uncover patterns, associations, and trends without manipulating the data. The data analyzed through this can then be used to improve training methodology and professional development programs for leisure scuba diving instructors.

6. Results and Discussion

1) Profile of the Respondents in Terms of Age and Diving Experience

Table 1. Frequencies and Percentage of Demographic Factors

Age	Counts	% of Total
21-30 years old	8	25 %
31-40 years old	12	38 %
41 and above	12	38 %
Years of Diving Experience		
1-5 years	9	28 %
11 years and above	9	28 %
6-10 years	14	44 %

Table 1 displays the frequencies and percentages of the demographic parameters of the participants, including the age of the respondents and the number of years they had been diving. According to the tabulated data, 25% of the individuals were within the age range of 21 to 30, 38% fell

within the age range of 31 to 40, and the remaining individuals were 41 years old or older. The data suggests that a significant proportion of the respondents are aged 31 years and older.

This result supported the age range of dive guides in Malaysia where most of the respondents were 30 to 39 years old (40.9%) and 40 to 49 years old (37.1%) (Set et al., 2023). It showed that the common age of SCUBA diving instructors in China and Malaysia is similar regardless of sex.

In terms of diving experience, 14 of the respondents have 6-10 years (44%), while 9 of them have 1-5 years (28%), and the remaining 9 have more than 11 years of diving experience (28%). The result was in contrast with the findings of Cardwell (2013) and Kannenberg (2022) where most recreational SCUBA diving instructors had less than 5 years of diving experience as instructors. The result showed that recreational SCUBA diving instructors in China were mostly experienced instructors.

Table 2 presents the assessment of the diving profession based on the professional knowledge of selected scuba diving instructors. The mean score is 3.73, and the standard deviation is 0.40, indicating a high assessment. This indicates that they have a strong agreement regarding the importance of implementing emergency, first aid, and rescue procedures specific to the location in order to minimize risks for both themselves and the group ($M = 3.88$). They also know how important it is to know about the physics and physiology of SCUBA diving, such as the direct and indirect effects of pressure and the signs, symptoms, prevention, and treatment of common risks like decompression illness, in order to perform safely ($M = 3.81$). Additionally, they acknowledge the hazards and risks commonly associated with the specific open-water specialized SCUBA diving activity ($M = 3.78$).

According to their answers, item number 11 received the highest average score of $M = 3.88$ which means that respondents were highly knowledgeable on emergency, first aid, and rescue procedures to ensure risk minimization to self and group. This finding was opposite to the professional knowledge of scuba divers who showed insufficient preparedness in emergency situations. In fact, their average scores in knowledge of safety, compliance with safety rules, and ability to cope with accidents and emergency situations were found very low (Park & Cho, 2015).

On the other hand, item number 6 (which pertains to the need for specialized knowledge in diving, such as understanding the different types and characteristics of underwater photography equipment used during a specialized photography dive) received the lowest average score of $M = 3.56$. The result depicted that recreational SCUBA diving instructors had minimal knowledge of the specifications of underwater photography.

According to Set et al. (2023), proficiency in underwater photography and comprehension of marine invertebrates, diving apparatus, technology, and diving devices are among the professional specialties of recreational scuba diving guides. Thus, operators of scuba diving equipment must acknowledge the value of ongoing training in these areas to improve their performance and job functions. Ongoing training serves as the solid foundation and crucial set of rules that direct performance and effectiveness.

Table 2. Assessment of the Diving Profession based on Professional Knowledge

Indicators	Mean	SD	V.I	Rank
I'm knowledgeable in...	3.69	0.54	High	9.5
1. Legislation, organisational policies and procedures and industry technical and safety criteria to enable safe and legal conduct of SCUBA diving session.				
2. Site specific information to assist in the planning process and enable management of potential specialised dive hazards and any special restrictions applying to the area.	3.59	0.61	High	11
3. Equipment types, characteristics and technology used for SCUBA diving, the advantages and disadvantages of the range of equipment and factors affecting appropriate selection.	3.72	0.52	High	7.5
4. Instructional techniques and theories applicable to a range of ages and learning abilities	3.69	0.47	High	9.5
5. Specialised SCUBA diving techniques and underwater communication systems used between buddy and other divers to reduce risk.	3.75	0.51	High	6
6. Specialist diving knowledge required for specific areas, such as the types and features of underwater photography equipment used during a specialist photography dive.	3.56	0.62	High	12
7. Physics and physiology, such as the direct and indirect effects of pressure and signs, symptoms, prevention and treatment of common SCUBA diving risks such as decompression illness to enable safe performance.	3.81	0.47	High	2
8. No-decompression dive tables and limits to determine air requirements.	3.78	0.49	High	4
9. Hazards and risks commonly associated with the specific open water specialised SCUBA diving activity.	3.78	0.49	High	4
10. Navigation techniques to avoid getting lost under water.	3.72	0.52	High	7.5
11. Emergency, first aid and rescue procedures appropriate to the location to ensure risk minimisation to self and group.	3.88	0.34	High	1
12. Minimal impact interactions and techniques to minimise negative impact on aquatic animal and plant life.	3.78	0.42	High	4
COMPOSITE MEAN	3.73	0.40	High	

Legend: 1.00-1.50: Strongly Disagree (Very Low); 1.51-2.50: Disagree (Low); 2.51-3.50; Agree (Average); 3.51-4.00: Strongly Agree (High).

7. Conclusion

The findings of the study led to the following conclusions:

1) The leisure SCUBA diving instructors in China were mostly middle-aged and experienced.

2) The recreational SCUBA diving instructors' competencies were directly impacted by their professional abilities and teaching quality. The students' expectations for the caliber of teaching they receive during their diving lessons might be satisfied by recreational SCUBA diving instructors and guides who possess superior knowledge, abilities, and disposition.

3) The scuba diving instructors' competencies were not influenced by their age and diving experience which can be considered as an advantage.

4) The leisure scuba diving instructors were confident that their professional development offered them significant opportunities for growth and a strong sense of achievement. This could be due to the findings that they constantly improve their diving skills and teaching techniques, which contributes to their sense of professional growth.

5) The evaluation of professional development remains consistent regardless of the age and diving experience of the

respondents, emphasizing its multifaceted impact on professional growth, career opportunities, sense of accomplishment, training, mentorship, and overall assessment.

6) Since the diving profession is specifically correlated with professional development, the leisure SCUBA diving instructors' competencies must be consistently maintained and monitored to satisfy the needs of their students.

8. Recommendations

The conclusions drawn from the results of the study led to the following recommendations:

1) The young leisure SCUBA divers can be encouraged to apply as instructors so they can start investing early in their teaching experience even in their 20s. This initiative may lead to an increase in students and the success of diving programs.

2) The professional development for recreational SCUBA diving instructors should target both their professional abilities and teaching quality. Professional knowledge, skills, and attitude should involve their teaching skills to support their competencies.

3) Promotion for recreational SCUBA diving instructors should be considered not only to support their professional

development but also to provide opportunities and leverage the seasoned and experienced instructors.

4) Since leisure scuba diving instructors have significant opportunities for professional development, underwater photography, post-conference with students, and self-evaluations should be integrated since these areas scored low in their assessments.

5) The evaluation and monitoring of the professional development of leisure scuba diving instructors should be implemented to maintain their competencies both in teaching and diving.

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