



ORIGINAL ARTICLE

The reliability and validity of Basic Offshore Safety and Emergency Training knowledge test

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Abstract This paper presents the development of a Basic Offshore Safety and Emergency Training (B.O.S.E.T) knowledge test. The knowledge test was developed to measure B.O.S.E.T knowledge retention among offshore professionals. This research requires the knowledge test to be administered every two months, in a period of six months. The objective of this paper is to present key points that validate the research tool in terms of readability and validity. Three readability tests (Flesch-Kincaid Grade Level Test, Flesch Reading Ease Test and Gunning's Fog Index Test) were used to identify the suitability of test language. In addition, the knowledge test was subjected to face validity and content validity. Seventy-nine B.O.S.E.T trainees took part in this research. The test results suggest that the contents and the language used on the knowledge test is suitable for target sample; hence the test can be used to identify knowledge retention among offshore professionals.

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1. Introduction

There are many risks and hazards of working in the offshore industry. These offshore risks and hazards include fire

explosions, helicopter ditching, boat capsize and many more. When such an accident does occur offshore, the situation becomes worse knowing that any form of rescue or help may take more time and effort to arrive. Thus, managing risk and hazards is an important aspect for safety in the offshore industry.

One of the methods of managing offshore risk is by ensuring offshore workers are equipped with offshore safety knowledge and skills. According to Hubbard (2009), offshore risk management refers to identifying and assessing offshore risks and identifying solutions to control or minimize the probability or the impact of such risk. In addition, Hubbard stated that while technological solutions have vastly improved offshore safety in many ways, more effort is needed to improve human capacity solutions. Human capacity solution plays an important role in managing offshore risks and hazards (Hubbard, 2009). An example of human capacity solutions is training; in this case – Basic Offshore Safety and Emergency Training (B.O.S.E.T).

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The general offshore safety training is called Basic Offshore Safety and Emergency Training (B.O.S.E.T). The B.O.S.E.T course is made of three topics – Offshore Safety Induction and Fire Fighting, Sea Survival and Helicopter Underwater Egress Training (H.U.E.T). The B.O.S.E.T course is implemented around the world and it is a pre-requisite upon enrolling into a B.O.S.E.T course that a trainee is required to produce an offshore medical certificate; which can be obtained from medical doctors. Doctors will award a medical certificate based on results from physical tests such as eye vision test, hearing test and lung capacity check. The medical certificate validates a person for a period of two (2) years. After the two (2) year period, the medical certificate becomes invalid and trainees are required to re-do the medical certificate again.

The objectives of the B.O.S.E.T course include to increase offshore workers survivability by understanding techniques for signaling, rescue and survival in the open ocean, familiar with survival situations in cold water as well as to obtain experience in the care, donning and use of immersion suits and survival swimming. In addition, the B.O.S.E.T course prepares offshore workers with knowledge of personal floatation device used in an emergency, techniques of vessel and platform abandonment and familiarity to marine life support equipment and its functions. Finally, the B.O.S.E.T course works to control offshore workers anxiety over real emergencies by participating in realistic underwater simulations, and through the use of Personal Protective Equipment (PPE) (Mior and Ramanie, 2009).

The objective of this research is to identify B.O.S.E.T knowledge retention among offshore professionals. However, this paper will only discuss the key points that validate the questionnaire used to identify the B.O.S.E.T knowledge retention.

2. B.O.S.E.T knowledge test

The B.O.S.E.T knowledge test was developed in four different stages. These stages were:

- (a) Define B.O.S.E.T knowledge test scope.
- (b) Define target population.

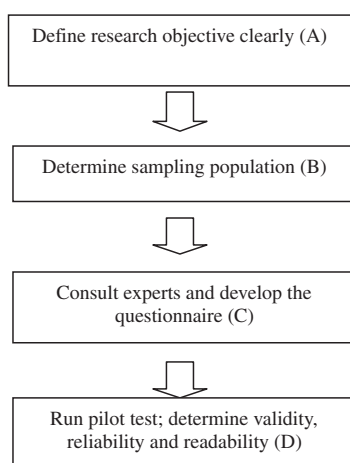


Figure 1 Knowledge test design outline. Adapted from Trochim (2005), Kumar (2005), Bradburn et al. (2004), Schwarz and Oyserman(2001).

- (c) Consultations with experts.
- (d) Pilot tests.

Fig. 1 illustrates the four stages in developing the B.O.S.E.T knowledge test.

2.1. Scope of Knowledge test

All of the questions in the B.O.S.E.T knowledge test revolve around the three main B.O.S.E.T course topics [Safety Induction and Fire Fighting, Sea Survival and Helicopter Underwater Egress Training (H.U.E.T)]. Fourteen questions were constructed for the test, of which three questions were from Fire Fighting and Safety Induction, five questions were refer to Sea Survival and six questions on H.U.E.T. The guideline for the development of the B.O.S.E.T knowledge test and the objective and reasoning behind the knowledge test questions are made available in Appendix A.

2.2. Target population

The second stage of the tool design involves identifying a sampling population or a group of people suitable for this research. This study defines the research participants as Class A offshore professionals. Here a professional is referred as someone who does a job that requires special training, education or skills, for example, electrical engineers. The research focuses on three groups of professionals:

- (a) Engineers.
- (b) Supervisors.
- (c) Managers.

These three groups of professionals were chosen because their associated responsibilities to ensure safety, health and welfare of the working force offshore.

2.3. Consultations with experts

The next stage of the questionnaire design was the consultation with the B.O.S.E.T experts in regards to the knowledge test. An expert is someone who has extensive knowledge of skills in a particular area. Since this research revolves around the B.O.S.E.T training course, the research consultation was carried out with the course providers. Difficulties had been encountered with the training centers in Aberdeen area due to data sensitivity. As the result, consultation and test were carried in Malaysia offshore industry which is more open and accommodating for research in this nature.

The first step taken in identifying offshore training centers in Malaysia was contacting Petroliaam Nasional Berhad (PETRONAS), Malaysia's national petroleum company. It was made known that PETRONAS sends their workers to the Construction and Industrial Safety Training Centre (CONSIST). Followed up with a discussion, the chairman of CONSIST training centre, Mr. Mior Ar Zawari, kindly agreed to allow the research to be facilitated at CONSIST as well as to contribute their expertise in the research. The manager of CONSIST is Mr. Ramani Hipnie who has over 20 years experience working in the offshore industry in Australia and Canada with Survival Systems. This research refers to Mr. Ramani and his team of B.O.S.E.T trainers as experts for consultations and guidance.

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