

Investigating the Awareness and Application of Sustainable Construction Concept in Construction Industry

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ABSTRACT: This paper investigated the awareness and application of sustainable construction concepts in construction industry. In achieving this aim, three objectives were outlined which includes identifying awareness level of sustainability concept principles, identifying benefits level of sustainable construction, and identifying barriers to implementing sustainable construction. A quantitative method was used in the research which using questionnaire. The questionnaire was distributed to 50 respondents who were involved in construction industry in Perlis, Kedah and Penang. The questionnaire was analyzed by using the quantitative data analysis techniques through the Statistical Package for Social Science (SPSS) IBM version 25. Results revealed that the respondents have good awareness regarding environment, economic and social as the Mean, Standard Deviation, Skewness, Kurtosis and Cronbach's Alpha values for most questionnaire statements is in the good range. Actions should be directed towards improving sustainable construction knowledge at all levels of the construction industry in order to improve the momentum of sustainable practice in the industry.

Keywords: *sustainable construction, awareness, construction industry*

1. INTRODUCTION

The environment impacts from the construction activities had led to a growing realization that there is a need for a more sustainable approach to the construction industry. In Malaysia, the problems of environmental dissatisfaction on construction initiatives have generally regarded in newspaper headlines with the effect of building and the irresponsible movements by way of contractors and builders referring to environmental protection. Sustainable construction is widely taken to mean the construction industry's responsibility for the efficient use of natural resources, minimizing any negative impact on the environment, meeting human needs and improving the quality of life [1]. Productivity and efficiency will become a key factor in the success of the construction project during the construction phase [2]. Sustainable urban development must meet three concepts namely economic, social and environmental sustainability goals in order to be well implemented [3]. The most significant of these are scope management practices, such as controlling the construction work.

Despite these contributions, the construction industry was a major source of environmental damage.

The main aim of this research is to investigate the awareness and application of sustainable construction concept by Malaysian construction industry with regard to economic, environment and social in order to ensure efficient use of natural resources, minimization of any negative impact on the environment as well as satisfaction of human needs and improvement of the quality of life. To achieve this, there were three objectives of study were planned in several phases along the course of research. First is to investigate awareness level of sustainability concept principles with regard to economic, environment and social in sustainable construction. Second is to identify and rate benefits level of sustainable construction. Third is to identify and rate barriers to implementing sustainable construction.

2. METHODOLOGY

Questionnaires were designed to explore information from respondents in a direct and systematic way [4]. A Statistical Packages for Social Sciences (SPSS) software programme was used to analyse the quantitative data gathered from the survey. Before the questionnaire was distributed to respondents, face validity was conducted as suggested by Franck, Khan and Walsh [5]. The respondent that involve in the face validity is the lecturers in Universiti Malaysia Perlis (UniMAP). The questionnaire that observed was modified based on the results of the face validity and the final list of questions was adopted to be used for the study. A research framework was used to illustrate what we expect to find through the research, including how the variables that are considering might relate to each other. Figure 1 show the research framework in this study. For the purpose of this study two type of variable were used namely independent variable and dependent variable. The questionnaire was design based on the research framework that relate with the aim of this research which is investigate the awareness and application of sustainable construction concept among construction professionals.

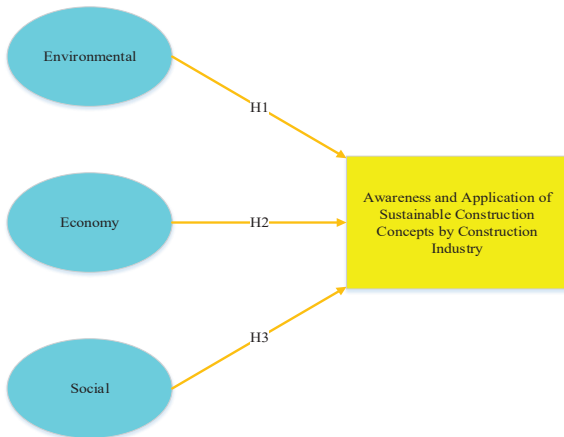


Figure 1 Research framework.

3. RESULTS AND DISCUSSIONS

From the framework of research, the questionnaire was design based the independent variable which includes environment, economic and social. The framework was assessed, primarily to examine the relationships between its constructs. These causal arrows signify the hypothesised relationships between the constructs, as presented in the framework research. Figure 2 shows the framework model, incorporating the factor structures and the hypothesised relationships. Overall, the model specified “Environment”, “Economic” and “Social” as an exogenous (independent) construct, whereas “Awareness and Application of Sustainable Construction Concepts by Construction Industry” were specified as endogenous (dependent) constructs. From the results obtained as shown in Figure 2, average Cronbach’s Alpha value for environmental concept is 0.853, economic concept is 0.905 and social concept is 0.930. All values are in the excellent range which is closed to 1.

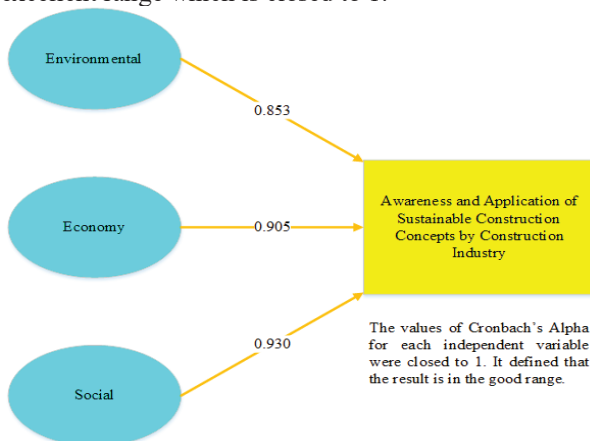


Figure 2 Results of Cronbach’s Alpha value for hypothesized relationships.

The independent variable is positively influences awareness and application of sustainable concept by construction industry. Although previous study by Abidin [6] revealed that the implementation of sustainability concept was low, this finding currently found that the respondent has high awareness on the environment, economic and social. The Cronbach’Alpha results in environment benefits, economic benefits and social

benefits showed all values is in a good range. The study findings indicated that sustainable construction benefits are significantly valuable in construction industry. These benefits also pointed by Chan, Lee and Lee [7]. In barriers level, the study findings demonstrated that sustainability barriers are little bit affecting the implementation of sustainable construction in construction industry. However, the Cronbach’Alpha results in cultural barriers, financial barriers and capacity/professional barriers showed all values is in a good range which is closed to 1

4. CONCLUSION

The results obtained indicated that the level awareness of respondent all in good range. The findings revealed that the respondents have good awareness regard to environment, economic and social concept. They aware to the importance of protect the environment and the impact of sustainable construction to improve the quality of working life. The results proved that the benefits of sustainable construction were valuable to the respondents. The respondents agreed that the sustainable construction can reduce energy consumption, increase the market for an engineer’s or contractor’s skill and enhance occupant comfort and health. The findings showed that sustainability barriers are affecting the implementation of sustainable construction.

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