

Study of Spider Web Design for Shelter

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Abstract

Shelter with concept of Spider Web is used as a shield from getting exposed to the sunlight. This innovation shelter can be used for multipurpose function and daily activities such as for leisure, gathering, student's discussion and open lecture. The main objective to build this shelter is to convenience all students and lecturers of Polytechnic Nilai with new design ideas. Besides that, it gives protection to the users from being exposed to the sunlight with this well innovated Spider Web Shelter. Other than that, it gave students and lecturers to release their stress and comfort spot when using it. This Spider Web Shelter has an attraction factor to influence users to use because of the unique design and also the climbers and plants planting surrounding the shelter. In other word, the shelter towards green living, also create sense of privacy. Questionnaires were distributed to 130 students in Polytechnic Nilai in order to approve the data of this study. A research questionnaire is referred on likert scale. Analysis data was using descriptive method in a form of percentage. Results show that users were excited and interested with the Spider Web Shelter design because of the design innovation towards green, user friendly and multifunctional.

Keywords: shelter, design, spider web, climbers

1. Introduction

1.0 Background Study

Public art, is an artistic expression that is positioned in a freely accessed public space for the public to use and for everyone to enjoy. Public art may include any art which is exhibited in a public space including publicly accessible buildings, but often it is not that simple. The term of 'public art' is subjected to a variety of interpretations. Public art can express community values, enhance environment also transform a landscape. The size can be huge or small and the shape can be abstract or realistic.

Deconstructivism is a postmodern architectural style characterized by the idea of fragmentation of the construction building. The idea of deconstructivism comes from word "Deconstruction". Deconstructivism often manipulated the structures surface skin and creates non-rectilinear shapes that appear distort.

Shelter provides a necessary service to protect people from the sun and rain and also can include an attractive hint of colour and shape to recreation facilities. Shelter plays with climbers plants not only contribute privacy and shade but also offer colour, freshness and romantic fragrance for fragrant type of climbers. The ideal design of our shelter is for studying an innovation Spider Web Shelter. We provided shelter by using PVC as a material for the shelter wall which is legs of spider with four colours such as red, purple, blue

and yellow. There are several factors that we need to consider in shelter such as the structure, design, colours and others to relate with our theme and concept.

1.1 Problem Statement

The problem of this study is 100% of Mechanical Engineering Department site area at Politeknik Nilai does not have a shelter. Students does not have suitable place for their activities. Otherwise, they need to go to cafeteria or library to carry out discussion and also no place to prevent them from sunlight during hot weather.

1.2 Objectives

- i. To provide an innovation shelter for users protection from sun or hot weather.
- ii. To give pleasurable shelter for students to release their stress and also for leisure purpose.

1.3 Significance of Study

The significant of this study is to give an innovation idea of spider web shelter with establishment of climbers plants on the top of shelter in order to provide shaded shelter. Next, to prove the design of the shelter can attract users especially students for their activities purpose such as open lecture and also function as a protection during sunny day or hot weather. Most importantly is to establish shelter as a relaxing area for leisure purpose among users.

2. Research Methodology

The research was proven with the data analysis. Data collected from survey using questionnaire distribution to the students and staff at Politeknik Nilai. The size of the sample selected for the study is 150 respondents. 50 of the respondents are staff (lecturer) and 100 of the respondents are students. A respondent was man or women, and the multi-racial (Malay, India and Chinese). The population will be randomly. About 100 respondents students from semester 1 until 6 and 50 respondents are staffs of Politeknik Nilai.

2.1 Research Design

Shelter is known as a place for leisure purpose. From this research, we will prove it that the combination of shelter and design will perform a better shelter for the area. This research produced a shelter that relate to the theme of public art and deconstructivism and the concept of Spider Web Shelter. In terms of design, the shelter was design according to the needed for users. We finalized the research design based on the data collection from questionnaire in percentages calculation.

3. Literature Review

3.1 Study on Design of Spider Web Shelter

The design of shelter can provide a place of privacy for the users. Design is the science and art making things useful to human kind. The standards for designing must consider the privacy, dignity and security of users also the ability to add partitions in shelters to achieve greater privacy (International Organization for Migration, 2012).

Superstructure design shelter must be strong and suitable with a place to avoid hazards such as wind, storms, also avoid hot weather and rain. The standards for designing shelters not only consider for privacy, dignity, and security of users, also the as well as encourage flexibility in design (International Organization for Migration, 2012). This type of shelter is designed and built to be more permanent in the future through alterable structural components (IFRC/RCS, 2013).

3.2 Study on Suitable Types of Climbers for the Shelter

Climbers usually planted at ground level and climb up a wall or with support. There are many types of climbers. Climbers give the environment benefit such as regulate temperature climate, have high in humidity and reduced air pollution by absorbing the chemical vapor and also keep dust free (Dunnett Nigel, and Noel Kingsbury, 2008).

Carolina jasmine tolerates either full sun or partial shade. The flower growth in high density when full sun weather. It is to planting good in containers and as a ground cover also help to control erosion (Peter L. Warren, 2013). *Quisqualis indica* is grown as an ornamental garden plant. The flowers are white, pink and red flowers that give out distinct perfume. The flowers contain high quantity of polyphenol that are believed to be strong antioxidants beneficial for human health (Amic et al., 2003).

Clitoria ternatea the plant is a tall, slender, climbing herbaceous vine with five leaflets, white to purple flowers (Cook et.al., 2005). *Petrea volubili* while the full sun, growth well in condition with shade and a deep soil. Use it as a rambling or controlled vine or maintain it as a shrub or small tree with one or short floral branches (Sharathkumar et.al., 2017). *Passiflora incarnata*, is the showiest of the native *Passiflora* species. It is an evergreen, flowering vine that climbs by tendrils. The height and spread varies depending on the structure it climbs on. The flower colours are pink and purple, generally reaches a width of 3 to 5 inches (Edward F. Gilman, 1999).

3.3 The Impact of Color Toward Users on a Shelter

According to Huchendorf (2007), we are live in world of colour. Colour will bring harmony and objective rationale to the use of colour in all aspects

of life. In landscape, colour is one of the design elements that should be included to highlight the public art on shelter. The shelter is not only used for resting place, but it will be used to healed emotions to people. So that, selected of the right colour is very important for users.

Based on the various researches, the colour that surrounds us in our daily lives has a profound effect on our mood and on our behavior (Babin et al, 2003). Installed colour on landscape can actually be used to level out emotions or to create different moods (Aves, 2002). Research founded that the warm and cool colours such as red, yellow, green, and blue can give the positive impact to the emotions of users. From the Cimbalo and Sendzia (2000) was tested association between the colors and emotion that yellow and blue as a happy color, and red and violet is a sad color. In the other aspect, color will give impact to the user health. Kido (2000) suggested that blue stimulated the sympathetic nervous system. This system is responsible for heartbeat, low blood pressure and perspiration.

4. Result and Discussions

4.1 Study on Design the Spider Web Shelter

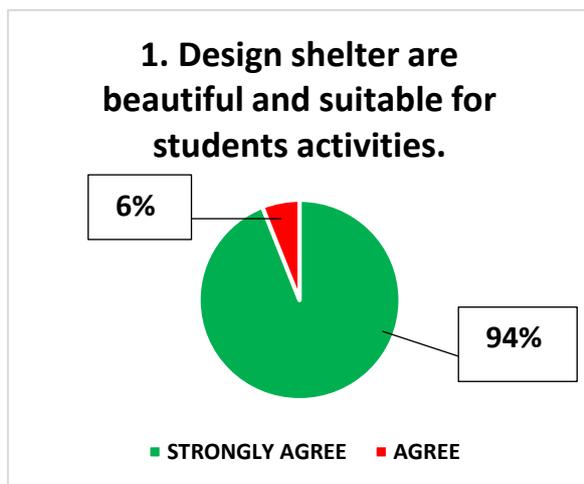


Chart 1

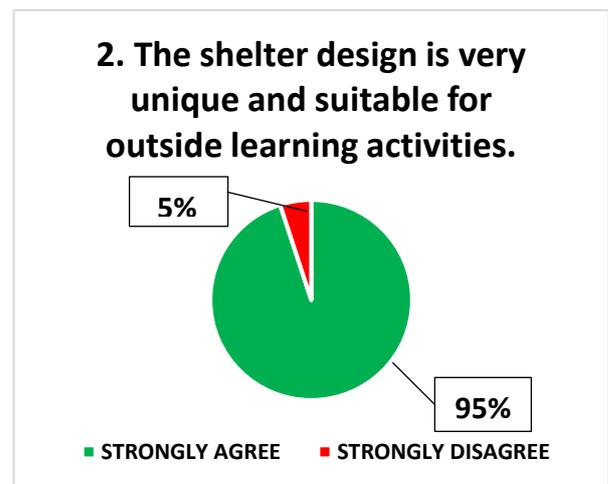


Chart 2

4.1.1 Discussion

From the data collection shown that 94% of users are agreed with the statement that design shelter was beautiful and suitable for student's activities. Next 95% of users agreed the shelter design was very unique and suitable for outside learning activities.

4.2 Study on Types of Climbers Suitable for the Shelter

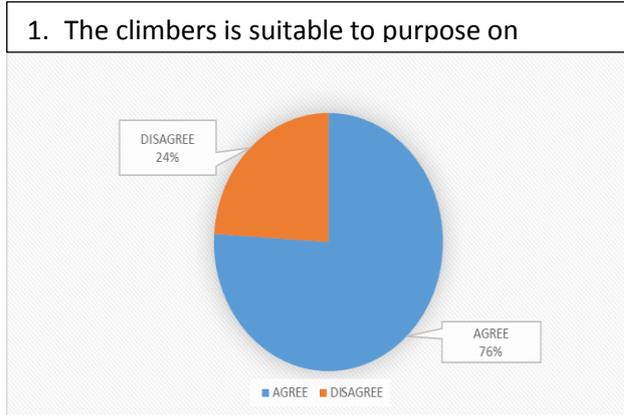


Chart 3

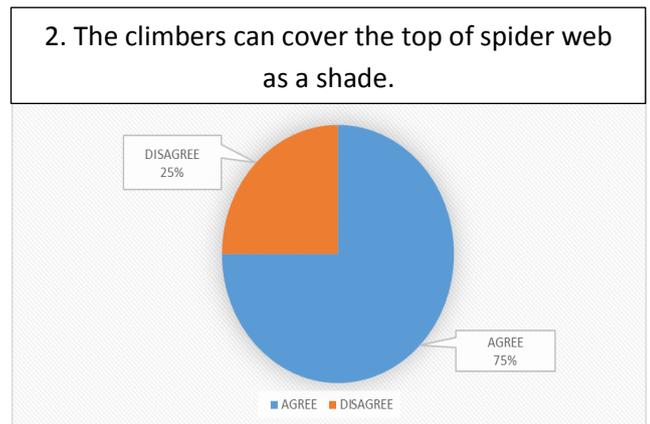


Chart 4

1.2.1 Discussion

According to the data collection, 76% of the respondents was agreed that the climbers is suitable to purpose on shelter and 75% of respondents say yes that the climbers can cover the top of spider web as shade.

1.3 The Impact of Color Toward Users on a Shelter

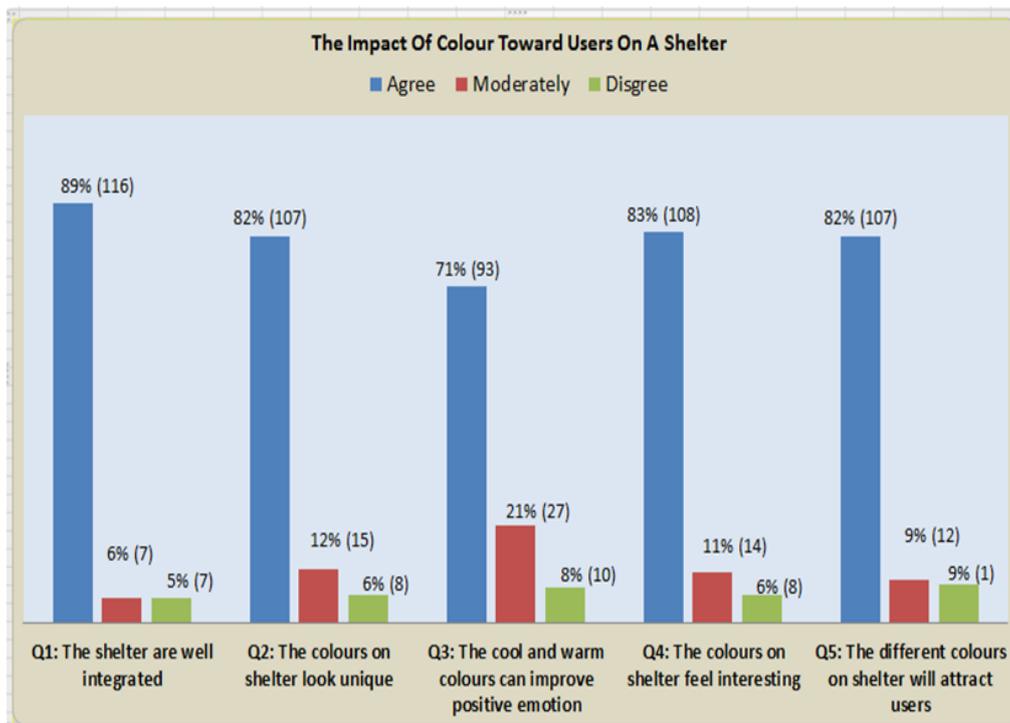


Chart 5

4.3.1 Discussion

Questionnaire was shown that mostly users are agreed with the colours selection on the shelter. Firstly, 89% of the respondents are agreed with the statements of shelter are well integrated. They are also agreed that the colour on shelter was unique and neat with 82%. Next, 71% of the respondents were agreed the combination of cool colour and warm colour can improve their positive emotions. Other than that, the percentage of the respondents whom agreed the colours on shelter were feeling interesting is 83%. Lastly, 82% of the respondents were agreed that the variety colours on shelter will attract users to use the shelter.

1.0 CONCLUSION

In conclusion, this innovation shelter was designed based to look unique and stylish and the nylon string that design as spider web will help the climbers to grow up and shaded the shelter area. Besides that, the climbers give an aesthetic value to attract users to the shelter. The stage plays an important role in the Spider Web Shelter as an additional element for users to do discussion and open lecture. Furthermore, majority of students enjoy with the Spider Web Shelter as a pleasurable place for students to release their stress also for the leisure purpose. They also satisfied with the selection of cool and warm colour that applied on shelter. The Spider Web shelter was successfully received the positive feedback from all respondents based on data collection by questionnaires. Overall we can conclude that the innovation of Spider Webs Shelter ideas was successfully achieved all of the objectives that we aimed from beginning.

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