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Importance of Preserving the Natural Environment in the Design Schools in Malaysia

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Abstract

The atmosphere of a learning environment is crucial in stimulating the design students in producing creative works. Preserving the green, retaining most of part the topography and balancing with the climate is the core of sustainable design, which is the vital life principle for all humankind. The research attempts to investigate the importance of preserving the natural environment of design schools, based on the analysis of observation and questionnaire surveys. For a preliminary study, the research analysed three samples of design schools in Selangor, Malaysia. Findings indicate that students prefer having natural environment in surrounding, and it can stimulate the students' creativity process.

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Keywords: Design; schools; natural; environment

1. Introduction

In recent years, the establishment of new design (art and architecture) schools in Malaysia is rapidly increasing. Unless the schools are within the master plan of either public or private universities, the location of the small schools depend on the owner preference area, where it is commercially strategic and conveniently reach location by using public transportation. Locating the schools within a natural green setting that could induce peaceful and stimulating learning atmosphere has become expensive due to the land value, construction and maintenance cost. Furthermore, most of natural environment that still exist is

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always quite far from the city centre, where public transportation is infrequent. The concern is not only it is a healthy environment for students' learning environment, but also the connection transpires between them is significant for the students. Unfortunately, the natural environment, even though is emphasized to be essential for sustainable living, healthy lifestyle and inspiration to learning environment, but the hassles of the maintenance seems to precede the reason of not to preserve. Furthermore, schools located in a hot humid climate are unlikely to be outdoor enjoyable places to stay because of the hot, humid and rainy weather. Even though enjoying the natural environment is a challenge for these students, but it does not hinder the students from referring to them as a source of reference in their quest for creativity. According to history, it is undeniable that the natural environment have helps many of famous designers in getting great ideas in their projects and artworks. Advance technology also has made students conveniently staying in-door and only uses internet to find information. No more first -hand experience or practice their senses in order to stimulate their thinking. The lack of emotion and deep thoughts of many out-come of current design students could be due to the distance of students in observing, understanding and analyzing what around them. From old days, people have referred to their environment, especially the natural environment as their guidance of knowledge. It is clearly stated in the famous Minangkabau saying "Alam takambang jadi guru", interprets as the surrounding environment is the teacher or source of reference. It means the element of nature around us can teach us to solve problems. Thus, the research attempts to investigate whether the natural environment should be preserved at surrounding of the design based school so as to inspire the design students for creative ideas.

2. Aim and Objectives

The main aim of the research is to investigate the importance of preserving natural environment in the design (art and architecture) schools, in order to shape and stimulate the students design creativity. In attempt to achieve the main aim, the investigation outlines objectives of the preliminary study. The objectives are 1) to observe and analyze the chosen schools natural environment and 2) To find out the students' opinion whether natural environment is an influence in their learning process.

3. Literature Review

Natural environment has been a source of knowledge exists from the beginning of mankind. Not only it provides a supplement of fresh air and food to the people, its creation has mysteriously formed by god to help people in solving problems of daily life on earth. As stated in the Quran verses 13:3 *"And it is He who spread out the earth, and set thereon mountains standing firm and (flowing) rivers; and fruit of every kind He made in pairs, two and two; He draweth the night as a veil over the Day. Behold, verily in these things there are signs for those who consider."* According to Islamic beliefs, Allah has created the earth for us to live in comfort. The natural and beautiful surrounding such as the sea, green and mountains is a gift by Allah for our daily use. (Brockwell, 2014). It is clearly stated that human are created together with its natural environment for them to survive and learn how to survive by using all the elements within the environment. The richness of component in the earth; mountain, seas and green holds the answer to our question. The natural systems that Allah has created such as the biosphere or ecology system give advantage to all being. The equilibrium of his creation is to balance the system, in order for human and other being to live harmoniously. It is an advice for human not to be extreme and uncontrolled, which has bad effects to their lives and place they live in. Allah requires all Muslims to appreciate the nature by using it wisely and not to take for granted or be greedy and selfish. It is critical that the Muslims inculcate these Islamic values to the mind of the young generation.

3.1 Learning from the history

History has revealed that nature has been the source of inspiration from a painting of caveman to the architectural masterpiece of the modern era. The vernacular architecture approach has forward the significant of nature into the interpretation of design, manifestation of the physical form and application of material use. This humble approach is to teach us to apply what belong to land, climate and surrounding, which actually the most appropriate elements that can sustain. The ethnic Minangkabau people, for example has high respect and appreciation towards nature, that most of the cultural and living attributes are influenced by the nature. The front elevation of the traditional house –Rumah Gadang has to face the east where the sun rises as a sign of respecting the sun. The north end walls (*pangkal*) are always facing the mountain and the south end walls (*hujung*) are facing towards south. The building materials derived from the nature; the timber and bamboo strips wall and floor boards, river stone for the column plate and the thatch (palm fiber) roof. The significant roof forms derived from horn of a buffalo (Kennedy.J, 2004). The construction of column and wall of Rumah Gadang which is slanted and with the stone as the column plate provide resistance towards the vibration of earthquake. The carved wooden motives in the interior of the house are based on floral and geometrical representation of nature. This reflect their Islamic belief and culture (Elda Franzia, Yasraf Amir Piliang and Acep Iwan Saidi, 2015) The lives of Rumah Gadang can reach to hundred years if it is not abandon and the maintenance is frequent. Other ethnic groups and tribes also have strong association with nature in determining their daily life such as the Chinese. The Chinese believes in "Feng Shui" which is interpreted as an art of living harmony with the earth. The belief focuses on positioning object where the positive energy flows in order to gain success in their lives. Even though some of the belief seems superstitious, yet they believe by respecting the nature their life is blessed by their ancestors and their lives will be healthy and prosperous.

3.2 Architectural precedent

Many great architectural masterpieces have close association and relation to nature. Either the design is inspired by nature or the physical form of the building sat harmoniously with nature as a sign of respecting and honoring the nature. For example, the famous design of Sydney opera house is said to derive from the concept of shell, the Olympic Stadium in Beijing is a reflection of a bird nest and the Sagrada Familia in Barcelona is creative interpretation of organic architecture. The popular design approach which based on nature called the biomimicry design concept has explored the idea of nature as an inspiration or reference. Nature has inspired architect in designing human habitat and it appears to be an impressive and creative work of art. The concept has many success stories; from burrs from burdock plants to the invention of valcro and from the termite mound to the building with energy efficient system. Not only it inspires designers but the product based on biomimicry has increased the demand and profit. Yurtkuran et al (2013) experiment on biomimetic design in architectural education showed a positive response among the students. The students found it interesting, informative and enjoyable. Indeed, the biomimicry method or any similar ideas trigger should be part of the education syllabus of architecture and design degrees to let the young generation aware and explores the potential in design innovation (El Zaieny, 2012). In her study, selected case studies emphasize that integrating biomimicry within interior environments requires introducing the approach at the very stages of the design process, ideally prior to any preliminary ideas have even been produced. To the extend, it also involves inviting a biologist to the design table as a full team member. El Zaieny also identifies that using biomimicry as a problem solving methodology will help us discover sustainable and effective solutions to the most important issues in the interior environments: day lighting, thermal comfort, energy efficiency, durability, and productivity.

There are other similar concepts that have close reference to nature, namely vernacular architecture, sustainable design, green design and eco-friendly design.

Architect should be sensitive to the context and surrounding of the building. Different location has its own soil, vegetation, source of water and form of topography. Good architecture should blend with nature harmoniously. Either in the design or in the construction phases, respecting nature should be a vital attitude in order to protect the nature as not to damage the land and the green. The implication of ignoring nature would be extremely dangerous, when lives of many people would be the cost of the inconsiderate design and construction process. Many natural disasters such as landslide, flooding and rise of temperature are due to the design and planning which greed for profit and take for granted of the beautiful nature that god has given to us. Destroying the forest, cutting hills and modifying the water channel and catchment such as rivers and waterfront are part of the reasons. There is one example of great architect project who marries building with nature harmoniously, such as the Falling Water by Frank Lloyd Wright. The setting of the building and the use of material are impressive application of living with nature.

3.3 Health, awareness and education

Nature can enhance the quality of healthy living. It is stated that nature such as parks and green spaces may stimulate social interaction and de-stressing through exercise or communication and provide a peaceful setting. Having green at workspace can also help office workers to be more focus. (Kaplan and Kaplan, (1989) and Heerwagen, J.H. and G.H. Orians (1993) agree that nature in urban area that was designed as parks and walkways integrated into building offer peaceful and motivating environment and inspire knowledge seeking, curiosity and attentiveness. According to Kirkby, M (1989), nature experience is essential to motivate imagination and creativity, cognitive and intellectual growth and social relationship. Study by Shibata, S and N. Suzuki (2002), shows that participants performed better on creative task in rooms having foliage plants, compared to no plants. This study interprets that nature has provide inspiration and trigger the participants' creativity. Nature provides positive environment for learning and interaction, thus it alleviate mental stress and illness.

The closeness between man and nature will increase awareness, learning experience and relationship that will lead to the love of nature. It indicated how importance the Green and natural environment to be part of the students learning process. It also proved that the relationship between Green and Education are closely related to support each other, and further, benefits the students in design based programs. The UNESCO Tbilisi declaration (1977) has emphasized the importance of environmental education. The agreement is to create awareness and sensitivity to the environment and its challenges. It also provides knowledge and understanding as well as infuses the appropriate behaviour and concern for the environment.

Environmental education also hopes to recuperate or protect environmental quality, so that people would involve in activities that lead to solution of the environmental problems.Design education includes natural green environment and sustainable architecture in the theoretical knowledge, which is why the students should be exposed to the natural surrounding and the perfect architectural design portrays by their own school building for practical part. They could always sit and discuss, observe, study, and find ideas through the natural environment surrounding them. Outdoor learning environment fosters and nurtures this precious gift by supplementing traditional learning with natural learning, creating a curriculum that goes far beyond what young children and even us; the adults learn from a book.

The Malaysian primary and secondary schools education program has introduced the first-hand experience to connect student with nature, however the implementation depending on the school's effort and commitment. The metropolitan city of Singapore which housed many high-rises and have minimum

tropical forest has planted green as much as possible to replace what the city cannot have like other neighboring countries. The two famous art and architectural schools; La Salle City Campus and the School of Art and Design and Media, Nanyang Technology University have physically designed the school with green at the surrounding as to practice the simple concept of connected to nature and the sustainable design. Figure 1a shows how students enjoying the green turf at the campus landscape for individual reading and studying and group discussion. Figure1b shows the shape of the building with free form and cross ventilation through the blocks. Frantz and Mayer (2014) have emphasized the importance of environmental education which they believe can help students to be connected to nature and lead to change of attitude towards nature. The students become more responsible to their environment and are likely to conserve electrical use.

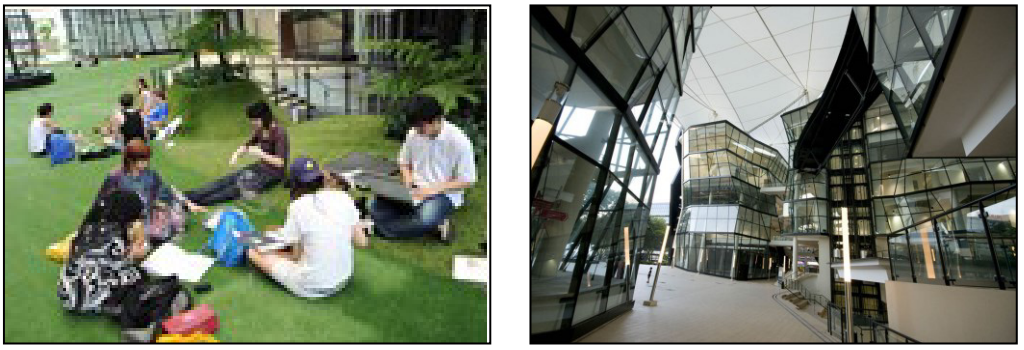


Fig. 1. (a) Students studying on the turf of the La Salle City Campus soft landscape; (b) View of center atrium with irregular glass walls and organic shape of workspaces.

Learning about environment in the appropriate environment assist student in better understanding and led to actual practice in the future. Current trend lifestyle emphasizes on sustainability and green in production and everyday practice. Being in the surrounding which has lots of green and untouched nature may create awareness on the sensitivity of having nature in the surrounding. Advantage and disadvantage of being surrounded by nature can be a good experience for the future designers to be aware of the problem and to learn how to solve it. Mahdavinejad et. al., (2013) found out it is important to implement the nature-oriented architectural learning in the current architectural school programs as it will encourage socio-cultural participation in the students' knowledge seeking process. Yukseka, I. (2013) highlights the importance of integrating the nature related courses in architectural education. The research found that most schools surveyed have included the nature conscious knowledge only under different name courses.

4. Method of Data Collection

Two methods were chosen for the investigations: Observation and questionnaire surveys. Three selected samples of design school were chosen; Kulliyah of Architecture and Environmental Design, International Islamic University Malaysia (KAED, IIUM), Malaysian Institute of Art (MIA) and Raffles Design International (RDI). The institutions were selected as each sample representing varieties of design work from architecture, art and fashion. They were also situated at different settings; university campus, commercial area and residential area.

4.1. Observation

Observation on the three samples documented on the background of the building s and students' activity in using the outdoor spaces within the institutions' layout. The criteria of the checklist are: establishment, architectural image and surrounding context. See Table 1.

4.2. Questionnaire surveys

A set of simple questionnaire was designed to measure the preference of students on the outdoor learning environment. The students of the three design colleges were chosen as the samples, each representing different design variations. They are architecture, art and design (painting, fashion and etc). The questionnaire was designed to obtain both facts and opinions from the participants. The questionnaires were distributed to twenty (20) students from each school.

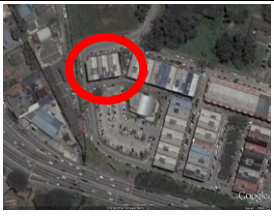
5. Results and Analysis

The results from two methods have been successfully gathered within three months for this preliminary study. The results and analysis will be explained based on the method delivered.

5.1. Observation

The observation of the three schools shows huge different variations. Table shows that IIUM has an advantage of being part of university master plan, the location and setting has given IIUM exposure to natural surroundings. Locating in a valley, IIUM is placed within a hills and rivers. The natural environment is preserved as much as the university can in order to maintain the ecology. In KAED, IIUM there are two courtyards that has been used one as working area as it is near to workshop and laboratory and the other one as students' events such as sports, dinner and barbeques. Surrounding the building the students can view rivers, hills and greenery. The other two schools since they are small private schools the management did not spend on the luxury of natural environment. Situated in a commercial area the MIA eating area in between building and the shaded five foot walkways has become the leisure part for the students to gather. Most of internal spaces have been used for classroom and studio/workplace. The surrounding of the building is merely roads and car park. The semi-open restaurant with a tropical ambiance nearby has become part of the student hang-out place. The RDI which is located at a residential area is within a calm and quiet area. Having gate around the compound and similar to the neighbouring context, has made the school alone itself. Students prefer to be in-door as the surrounding has no proper place to hang-out. Besides being in quiet neighborhood, not much of natural environment that inviting to the students. The green merely a minimal soft landscape which can easily maintained such as in an office or a house.

Table 1. Summary of the Observation of three design schools: IIUM, MIA and RDI

Assessment Criteria	KULLIYYAH OF ARCHITECTURE ANDENVIRONMNETAL DESIGN, (IIUM)	MALAYSIAN INSTITUTE OF ARTS (MIA)	RAFFLES DESIGN INTERNATIONAL (RDI)
Background	 Built in 1997 and part of IIUM Gombak campus masterplan	 Built in 1967 and occupying commercial (shop house) building	 Built in 1994 and occupying residential (2-storey bungalow) renovated building.
Architectural Images	 • Design with the concept of east meet west architectural design. • Standardization with other Kulliyyah buildings (images and material applied)	 • Typical commercial shop-house building design • MIA building occupying 6 whole units of shop lots with boxy shape - all tinted glass façade.	 • Modern house design with latest construction materials and features • A bungalow with its own yard, converted into college building. • Part of the façade looks commercial with retrofitting of shading devices.
Building Layout and surrounding context	 • The main entrance will lead users to the centre gallery with two courtyards on both wings.	 • Situated at the edge of Melawati's commercial area. • Linear space arrangement and less green space. • The corridor is the only shaded open space.	 • The bungalow lot has its own green compound and gated fence. • The plan is following typical double-storey bungalow house.

5.2. Questionnaire surveys

The questionnaire surveys were successfully responded. Sixty questionnaires were analyzed. Figure 2a, b, c, d, e and f show the result of the questionnaire survey. Figure 2a is the summary of the number of students responded to the questions. Five significant questions (Figure 2b, c, d, e and f) were extracted from the questionnaire set to highlight the findings of the research. At all schools, most respondent seems to be more of female students than the male students. Students from commercial and residential setting do not prefer having outdoor classes. Both MIA and RDI have less than 50% students who prefer outdoor setting for their learning environment, as shown in Figure 2b. Majority of students (80% of IIUM, 50% of MIA and 75% of RDI) thinks that nature can reduce stress. (See Figure 2c).

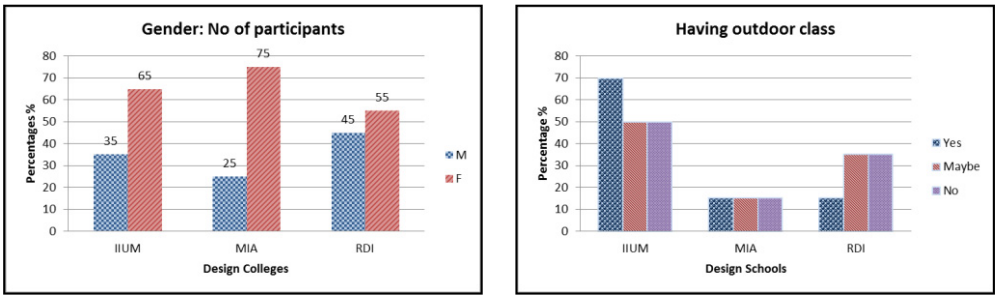


Fig. 2.(a) Percentage of male and female respondents of each school; (b) Students opinion of having outdoor class

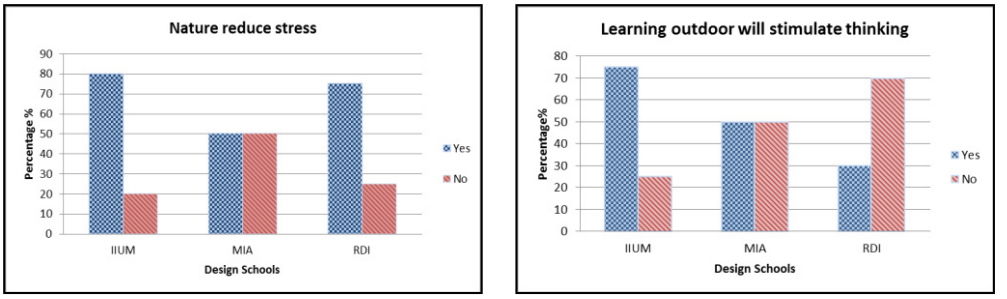


Fig. 3. (a) Students opinion whether nature can reduce stress; (b) Students opinion whether learning outdoor can stimulate creative thinking.

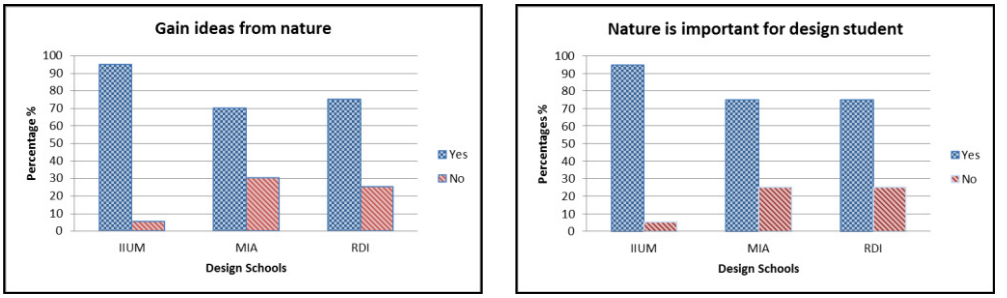


Fig. 4. (a) Students felt that ideas can gain from nature; (b) Students opinion whether nature is important to them

However, 50% of MIA respondents and 70% of RDI respondents do not think that learning outdoor can stimulate creative thinking. See Figure 2d. Perhaps, having used to the environment which lack of nature and spend most of the time indoor have made them comfortable to be indoor rather than outdoor. Not many study spaces available outdoor that they used to spend time can also be another reason why MIA and RDI students were not likely to prefer outdoor learning environment. As shown in Figure 2e, most students from all schools agreed that they can acquire ideas from nature and majority agrees that nature is important to design students (Figure 2f).

6. Discussions

The research is on a preliminary state to seek the perspective of tertiary education students in their awareness of having a nature at their learning environment. In trying to promote natural environment surrounding campus layout the findings directly and indirectly agree with the statement of nature can promote healthy living and helps their imagination in stimulate design ideas. Learning at outdoor or from the surrounding will also help to stimulate their thinking. Perhaps, having access to outdoor natural environment either physically or visually should be encouraged for the design based students.

7. Conclusion

In summary, the research has highlighted the importance of having and preserving the nature at the surrounding, particularly for the design (art and architecture) based students. This is not only important to balance the freshness of air and healthy living, but most significantly is for source of ideas, first-hand educational experience and increase awareness and appreciation towards nature. Literature reviews have supported the idea of nature to preserve at the surrounding of the institution. Overall, the observation and questionnaire survey findings seem to indicate encouraging preference towards preserving nature. Students who study at the surrounding that lack of nature, have inclination to think that having outdoor classes will not help stimulate creative thinking. Schools' locations where nature is scarce have not many outdoor spaces for students to spend time and hold any activities. Out of studios, the design based students require other spaces to discuss on team project or to brainstorm ideas. Therefore, having places to gather, either physically close to nature or only visually accessible to nature can help trigger design ideas and at the same time help them value nature appropriately so as not to destroy it through their creative work. Though the outdoor climate can be an obstacle for students to get close to nature, design of insertion of green in the planning of design based school should be creatively designed in order to achieve comfort and sustainability.

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Appendix A.

The results of questionnaire surveys: based on number of respondents.

Samples of Colleges	Gender		Having outdoor class			Nature reduce stress		Learning outdoor will stimulate creative thinking		Gain ideas from nature		Nature is important for design student	
	M	F	Yes	Maybe	No	Yes	No	Yes	No	Yes	No	Yes	No
IIUM	7	13	14	3	3	16	4	15	5	19	1	19	1
MIA	5	15	10	3	7	10	10	10	10	14	6	15	5
RDI	9	11	10	3	7	15	5	6	14	15	5	15	5
TOTAL	21	39	34	9	17	41	19	31	29	48	12	49	11