



## Translation of Nature in Educational Environment



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### Abstract

Recently changing the atmosphere of the educational environment such as library to cater to the needs of the users and attract potential users and modifying the library's image from a place filled with stacks of books and clusters of computers to a place where people might relax and enjoy reading has been taken into account. In this paper it is considered that there is a notable gap which suggests to investigate student's preference for best representation of nature in library. The methodology which has been used in this research is based on primary and secondary data. Questionnaire and interview will be undertaken as a primary data and Secondary data will be collected through literature review of contemporary relevant books and articles .The research objectives are to identify the most preferred component of nature in library, to identify the most preferred attributes of nature in the library, to identify the most preferred form of visual representation of nature in library and to identify how natures enhances the educational environment. This research is significance because will help designers to identify which components, attributes and form of representation of nature are important to be considered and which can enhance the general educational environment as well as fulfilling the academic needs. After doing the study it will be explored that how nature can provide the academic needs of students through translation of nature instead of actual nature when there is no access to outdoor environment. Translation of nature is representation of nature by using symbols of nature to depict it in educational environment.

Key words: Representation of nature, Educational environment, Library, Students

### 1.1INTRODUCTION

Quality of life and happiness go hand-in-hand with a well-designed space. "If you are comfortable in your environment, then you will be better equipped to face life's challenges,"

Experience tells us that visual surroundings can greatly affect our mood. Several studies have been done on the visual effects of interior environment, focusing on various aspects such as colors, patterns , textures of materials . Recently, physiological surveys as well as psychological ones have increasingly been conducted, and have shown that visual environments may affect humans not only psychologically but also physiologically .One of the visual elements which has strong impact on humans is nature.

Nature and natural elements in the interior design not only do bring some factors like as; happiness, comfort, but push every human passive mind toward the environment , this indicate the importance of designing in today's life. Bringing nature into interior places for instance educational environment influence user's perception. New interior design in Dresden and Göttingen State- University library, the Seattle Public library and the Idea Stores in London offer students access to information guidance

(information skills) possibility for communication working environment inspiring atmosphere .Their design is based on the following main principles: Access to the library and its medias should be obvious and easy for everybody. There should be multifarious space for formal and informal communication between customers and staff. The interior should offer an attractive and comfortable environment for both customers and staff. The library building should adequately represent its institutional philosophy and aims. Its building design, structure and appliances should give consideration to sustainability

## *1.2 RESEARCH BACKGROUND*

Environmentalists (e.g., Berry, 1997; Leopold, 1949; Orr, 1994) and nature writers (e.g., Louv, 2005; Muir, 1894; Thoreau, 1854) have long maintained that humans derive physical and psychological benefits from spending time in the natural world. The past two decades of research in environmental psychology have supported this contention. Using a variety of methodologies and measures, researchers have shown that exposure to the natural world decreases negative behaviors and states (e.g., aggression, anxiety, depression, illness) and increases positive ones (e.g., affect, health, cognitive capacity).The big picture is clear: Exposure to nature leads to many desirable outcomes (see Health Council of the Netherlands and Dutch Council for Research on Spatial Planning, 2004; van den Berg,2005;Frumkin, 2001).

Benefits have been reported on the basis of survey and experimental data with regard to nature experiences of varying kinds, and in environments of varying scales, from wilderness (e.g., Hartig, Mang, & Evans, 1991; Kaplan & Talbot, 1983) to neighborhood parks (e.g., Fuller, Irvine, Devine-Wright, Warren, & Gaston, 2007; Grahn & Stigsdotter, 2003), gardens (e.g., Dunnett & Qasim, 2000; Lewis, 1973) and natural features around residences (e.g., Talbot & Kaplan, 1991; Wells & Evans, 2003). Relevant to the indoor–outdoor transition provided by windows, researchers have reported that viewing natural features provides psychological benefits (e.g., Hartig, Evans, Jamner, Davis, & Ga'rling, 2003; Kaplan, 2001).

So far many studies has been done on interior environment and impact of indoor plants on people`s perception. One of the interior environment which is influenced by nature and its positive effect on human is obvious is educational environment like library and classroom. The study of educational environment characteristics and its contribution to students learning is a major focus of research studies in the recent past. These studies revealed that there is a positive and significant relationship between classroom educational environment and students cognitive and affective outcomes (Goh & Fraser, 2000; Fraser & Chinonh, 2000; Wong & Fraser, 1996; Waldrip & Wong, 1996; Fraser & Walberg, 1993; McRobbie, Roth & Lucus, 1997). Research studies reveal that the campus where the environment is fascinating for students and they feel ease and enjoyment, their achievement is good (Hijazi & Naqvi, 2006; Lizzio, Wilson, & Simons, 2002; Baek & Choi, 2002; Howes, 2000). In many studies of association between educational environment and students' achievement, educational environment has dimensions that have consistently be identified as determinants of learning (Khine, 2002). Educational environment which students perceive as affirmative, favorable, and fulfilling tend to lead toward increasing students achievement (Chang & Fisher, 2001). In this research it will examine the positive effect of representation of nature on students in library.

## *1.3THE PROBLEM STATEMENT*

One reason that makes some places feel uncomfortable and others seem pleasant is affinity. Even if we have never been to specific place before, a place may feel familiar and comfortable by reminding us of another place we know. Affinity is not gained instantly; it is the result of many small increments (Kaplan et al., 1998) like bringing nature into the interior spaces artfully by translating into some elements.

According to table (1) and (2) lot of studies have been done on benefits of interior plants on human's perception in interior places like offices and hospitals and a few of them is done to change the atmosphere of library to enhance the general educational environment and catering academic needs of students . Therefore it can be noted that no research has been done to investigate people's preference for best component of nature to be represented in library and its positive effect on students' perception. Representation of nature in educational environment is a serious factor that affect on student's perception in educational environment and influence their attention capacity . According to ART(Attention Restoration Theory (ART) (Kaplan, 1995; Kaplan & Kaplan, 1989), being in contact with outdoor vegetation, views of natural elements through windows, and indoor plants may all contribute to attention restoration (Kaplan, 1993). Exposure to plants may have a restorative effect on attention during short or long breaks from work, leaving directed attention to rest more effectively (Kaplan & Kaplan, 1989). In fact, Kaplan (1993) introduces the term 'micro restorative' experiences and suggests that undirected attention can be activated during very short breaks such as glancing out of a window while working. Although several experiments have been conducted to examine restorative effects of indoor nature interventions (e.g. Berto, 2005; Hartig, Book, Garvill, Olsson, & Gärling, 1996; Hartig, Evans, Jamner, Davis, & Gärling, 2003; Laumann, Gärling, & Stormark, 2003), very few studies have looked at possible benefits of representation of nature in interior places.

TITLE	AUTHOR	OBJECTIVE	RESULT
Benefits of indoor plants on attention capacity in an office	RuthK.Raanaasa, ,, Katinka Horgen Evensena, Debra Richb, Gunn Sjøstrøma and Grete Patila	explore if the plants affect attention capacity in an office setting, examines whether the presence of plants during a working session, and/or during a break between demanding tasks, led to improved performance relative to a no-plant condition	that natural elements can affect cognitive performance in an office work environment
The connectedness to nature scale: A measure of individuals' feeling in community with nature	F.Stephan Mayer and Cynthia McPherson Frantz	to measure individuals' experiential sense of oneness with the natural world.	CNS(connectedness to nature scale) is a reliable and valid scale.
The psychological benefits of indoor plants: A critical review of the experimental literature	Tina Bringslimark ,Terry Hartig , Grete G. Patil	whether indoor plants offer them some of the same benefits provided by experiences of nature outdoors. Overview and critique of the	indoor plants can provide psychological benefits such as stress-reduction and increased pain tolerance

		experimental evidence on psychological benefits of indoor plants	
Interior plants may improve worker productivity and reduce stress in windowless environment	Virginia I. Lohr, Caroline H. Pearson-Mims, and Georgia K. Goodwin 2	examine the impacts of interior plants in windowless working environment on human well-being and productivity. Responses of subjects in the presence and absence of plants were compared	quicker and more complete recovery from stress, using measures including pulse transit time, a correlate of systolic blood pressure, in subjects who viewed nature scenes compared to those who viewed urban scene.
Stress-reducing effects of indoor plants in the built healthcare environment: The mediating role of perceived attractiveness	K. Dijkstra a , M.E. Pieterse b, A. Pruyn	investigates whether the stress-reducing effects of indoor plants occur because such an environment is perceived as being more attractive	stress-reducing properties of natural elements in the built healthcare environment. Moreover ,it sheds light on the underlying mechanism causing this stress reduction.

Table1: Review of previous researches on bringing nature into indoor places

AUTHOR	DESCRIPTION
Lin, P.-C. , Chen, K.-N. , Chang, S.-S.	Before there was a place called Library - Library space as an invisible factor affecting students' learning
Tobia, R.C. , Feldman, J.D.	Making lemonade from lemons: A case study on loss of space at the Dolph Briscoe, Jr. Library, University of Texas Health Science Center at San Antonio
Kao, P.a ,Chen, K.	A park in the Library: The "New Reading Paradise" in the National Taiwan University Medical Library
Hohmann, T.	New aspects of Library design
Tooley, M.J.	Renovated, repurposed, and still "one sweet Library ": A case study on loss of space from the Health Sciences and Human Services Library, University of Maryland, Baltimore

Table2:Review of previous researches on interior design of library

According to table 1, there have been many researches related to impact of nature on human well-being and productivity .Exposure to nature can provide psychological benefits such as stress reduction and increases attention capacity in indoor places such as working place or healthcare or educational environment. According to table 2 there are few researches which discuss some changes in interior design of library (educational environment) to change the cold and monotonous atmosphere of library and make it colorful by bringing new elements such as elements of nature or renovating environment to meet the user`s expectation and providing a location for stress-free reading, relaxation of mind and body, and even academic discussion. Based on the reviewed literature, there is a notable gap in the research which strongly suggests that there is a need to investigate students` preference for best components of nature to be represented in library and its positive effect on students` perception.

#### *1.4 RESEARCH AIMS*

The aim of this study is to evaluate the most preferred educational environment of a library that caters to the academic needs of university students in the context of preferred form of Nature.

#### *1.5 RESEARCH OBJECTIVE*

Generally , an objective is a means of achieving a target by conducting a research on related /topic. Objective that will be reached are the following:

- 1)To identify the most preferred component of nature in library.
- 2)To identify the most preferred attributes of nature in the library.
- 3)To identify the most preferred form of visual representation of nature in library .
- 4) To identify how Natures enhances the educational environment.

#### *1.6 RESEARCH QUESTION*

- 1) What component of nature is perceived by students as the best visual representation of nature in library?(water, plants ,animal..)
- 2) What attribute of nature can be best represented visually in the library?(form, color, line and texture based on jonathan g. Taylor. Ervin h. Zube. And james l. Sell )
- 3) What visual form of representation students prefer to perceive most in the library?(poster ,mural ,painting, photograph)

#### *1.7 SIGNIFICANCE OF RESEARCH*

The result will help designers to identify which components, attributes and form of representation of nature students most preferred that can enhance the general educational environment as well as fulfilling the academic needs of students in pursuit of acquiring knowledge in a campus libraries An exploratory survey has been conducted on all the public universities to ascertain the interest or preference for nature as an important aspect of library interior spaces.

#### *1.8 RESEARCH SCOPE*

The scope of this study shall include doing a case study of research universities and private universities those are established well in Malaysia .Two kinds of universities are selected because we should be looking at the variety rather than simply study about only research universities so that data will be much larger and richer. The reason that research universities and private universities are selected is because research universities have extra concern about quality of education and any source of information is library itself .So that library is the most important part of research universities and it`s an institution. Therefore there are many sophisticated facilities and many supporting services which can improve the quality of education in research universities. Private universities are selected as well because they are in business of selling education and knowledge and one way to prove that they are well established universities is to have a library like an institution and improve the quality of services and one of the services is library. Moreover, they try to impress the users that they are comparable to research universities. Users who will be entirely students of the selected universities will one of the sources of the data collection. Reading areas which already have

existing aspects of nature in their spaces or spaces which have the potential to accommodate aspects of nature will be chosen as locations of reference during data collection procedures.

## *1.9 LITERATURE REVIEW*

### *INTERIOR DESIGN*

On the word of National Council about the qualification of interior design a multi- faced profession have been applied because of using creative and technical solution and it is endorsed within the structure to built the interior environment.

Interior design is about so much more than ‘what looks right’. It is about taking a holistic view of the way that individuals use and enjoy the spaces that they inhabit. It is about finding and creating a cohesive answer to a set of problems and dressing the solution so as to unify and strengthen our experience of the space. Many people understand this and that they do not have the necessary skills to tackle the job themselves. And so there is the need for professional interior designers.

Recently, physiological surveys as well as psychological ones have increasingly been conducted, and have shown that visual environments may affect humans not only psychologically but also physiologically.

The determination of a color scheme is due to the Lighting which is taken into account. Some vivid colors such as red, brown, purple or black color can produce an excessive deal to the mood fashioned environments, in addition beige, and pink have the same influence. on the other hand mood fashioned room can achieve by some cool and warm colors like blue, gray, yellow, orange and even brown. The expansion of a space can be the effect of some colors such as white or light colors. Other colors blend unremarkably with the other ones; difference in shades or can become outstandingly emphasized in the same colors. The contrast of colors in back ground of the room can be rendered the small objects obviously.

Educational environment:

### *INTERIOR PLACES AND PLANTS:*

Keeping plants to the home, and interior design to decorate and ornament, have deep real old history . the evidence of chirography which may obsolete , but valuable represents the creativity of Egyptians while brought plants into their trench and especially into inner parts of home so as to decorate , it was about 3<sup>rd</sup> B.C. and by collapsing Pompeii after many years it revealed that the interior plants design were used around 2000 years ago.

Some noticeable reasons about the lower transportation and production costs have been seeing during the surveying tropical and subtropical plants which they used both in interior design practices and change to a norm of higher indoor temperatures that made it possible to keep plants indoors at the higher latitudes. Today, all around the world, people bring plants indoors at home, at work, and in waiting-areas, shopping centers, restaurants, hotels, and other settings of everyday life .

According to the all sorts of research that have been surveyed indicate the beneficial effects and it has provided the way to understand the nature and impacts of indoor plants in some more vital methods. Albeit psychological effect have not vanished into its beneficial nature experiences, but some less attention drew into indoor plants. This might cause an implicit linkage between “nature” and’ outdoors.” Such a linkage like this may itself represent how people think of environment in terms of the basic dimensions of natural–built, outdoor–indoor.

### *WATER:*

The other component of nature is water. Sources of information on human perceptions, meanings and values associated with water in the landscape are very diverse. At the most fundamental levels, water is essential for life. It is one of the principal controlling factors in all the biological systems. Social science research and theory has emphasized the role of water in human perception, evaluation and interpretation of places. The importance of water as an aesthetic element in the landscape was recognized as early as the Mesopotamian and Egyptian gardens, and the importance of water

continues to be recognized by contemporary landscape planners and designers. Water features have consistently been found to be important to human perceptual evaluations of landscape scenic quality and to the quality of many outdoor recreation experiences. Viewing water in the landscape has been found to have beneficial psycho physiological effects, potentially serving important restorative health needs.

Water can be calm and reflective, lying still in a horizontal plane, or it can be in energetic motion forming rough vertical or angular planes. Water movement takes many forms, and it can strongly contrast with the still elements on its edges. Since the late 1960s, perceptual preference research has consistently reported the presence of water as a strong positive contributor to perceived landscape attractiveness (Shafer et al., 1969; Zube et al., 1974, 1982; Kaplan, 1977; Ulrich, 1983). In addition, researchers report that subjects cognitively discriminate between landscapes with and without water by placing them into separate typological categories (Palmer and Zube, 1976; Herzog, 1985; Amedo et al., 1989). Views of water have been shown to produce beneficial psycho physiological effects, potentially meeting restorative health needs (Ulrich and Simmons, 1986; Hartig et al., 1991; Parson, 1991). While water is clearly an important landscape element, the more detailed effects of water quality, quantity and form in different landscape contexts have yet to be fully explored.

#### *UNDERPINNING THEORY :*

According to Kaplan and Kaplan (1989) and Ulrich (1983; Ulrich et al., 1991) theory which are about the attention restoration and stress reduction it's concluded that exposure to the nature or elements of nature can reduce stress and increase attention restoration of students in library while they are reading in a place which is equipped by elements of nature in a reading area. So that bringing nature to interior places is effective to help students after a short break by sitting beside indoor nature in reading area or looking at them focus on their studies more effectively and increase their attention capacity. Several of the studies started from Ulrich's (1983) theory about environmental influences on psychophysiological stress-reduction. This theory concerns affective and aesthetic responses to visual stimulus. It posits that an environment (or scene) with particular qualities, including moderate complexity, moderate depth, the presence of a focal point, gross structural qualities, and natural contents such as vegetation and water, can evoke positive emotions, sustain non-vigilant attention, restrict negative thoughts, and reduce physiological arousal. The explanations of these effects of nature were mainly sought in evolutionary theory (Ulrich et al., 1991), which states that humans have a natural tendency to prefer natural elements to man-made objects (Kaplan, 1987).

#### *1.10 RESEARCH METHODOLOGY*

A section on methodology is a key element in an architecture dissertation. Methodology refers to the choice and use of particular strategies and tools for data gathering and analysis. For conducting this research and to obtain the objectives, primary and secondary data will be gathered and will be analyzed qualitatively and quantitatively .According to the research conducted by Kasthuri Anandasivam and Choy Fatt Cheong (2008) , for conducting this research interview and questionnaire will be done.

##### *1.10.1 DATA COLLECTION :*

The data collection includes the collection of primary and secondary data. It also includes the field survey of the site and sources. Primary data will be collected via focus group interviews, questionnaires and observation. Secondary data will be collected through literature review of contemporary relevant books on libraries, interior design and nature in interior spaces in general and libraries in particular.

##### *1.10.2 SAMPLING DESIGN*

A group of students who are studying as senior year students, those who consistently use libraries will be selected as respondents for the research. Half of the respondents will be male and half will be female. 100 respondents will be chosen randomly in the libraries. It is proposed by (Vaus 2002) that in each subgroup, at least 50 individuals is suitable. (Vaus 2002) also claimed that the minimum of 50 to 100 individuals is the smallest subgroup and because of the usual 20% non-response, the

sample size should be 20% larger, where according to this sample size the error of the result is at most 10%.

### 1.10.3 RESEARCH INSTRUMENT:

These data will be collected from different sources including, written documents, Maya software, records , observations, interviews. Without these paramount and inevitable data truly nothing will be done. The major instruments used during serving and collecting data are; interview, questionnaire and observation.

### 1.10.4 EXPLORATORY SURVEY:

One of the hypotheses of this research is that students prefer nature in library since it has positive effect on them. To examine this hypothesis, interviews have undertaken. Students of research universities participated in this interview. The exploratory survey has been done with 50 participants

- 1) Which university do you belong to ?
- 2) If your library is appropriate for learning activity would you prefer to have nature inside library?
- 3)What element of nature you prefer ? ( water, plants, animal(small creature like fish, birds...))
- 4) which representation form of nature you prefer in library? sight( poster , mural, painting ) , smell( smell of flower ,..) ,touch ( texture of tree or ..) , sound, taste

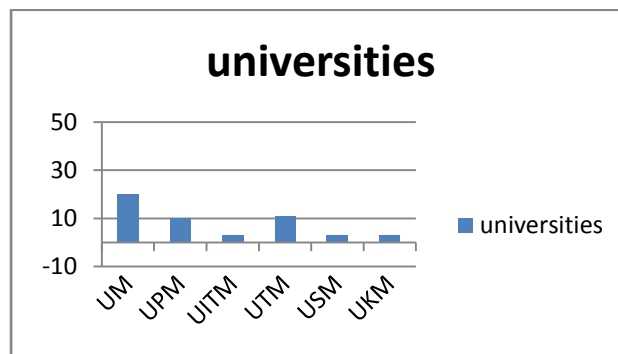


Figure1:The number of Students of research universities answered to question 1

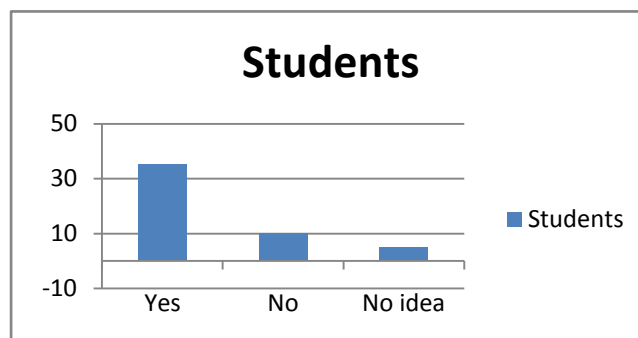


Figure2:The number of Students of research universities answered to question 2

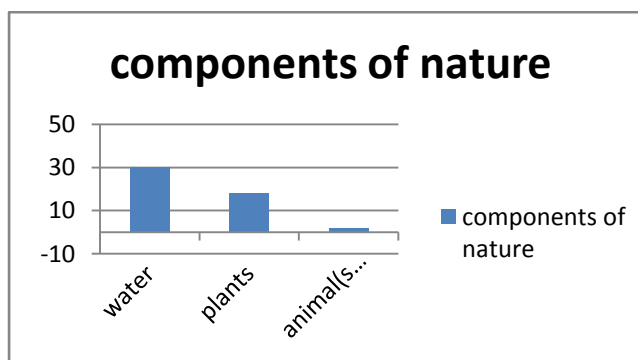


Figure3:The number of Students of research universities answered to question 3



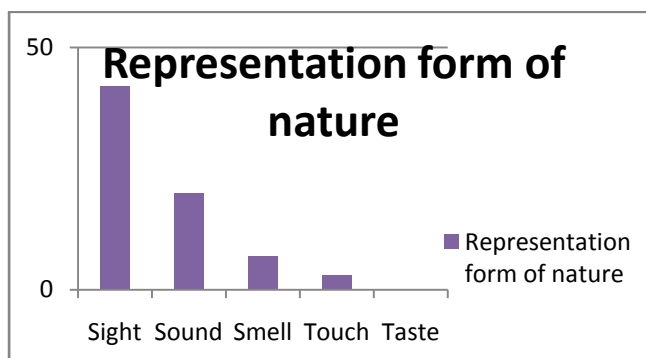


Figure4:The number of Students of research universities answered to question 4

### 1.10.5 INTERVIEW

Ziesel (1981) stated that interviewing the respondents (who experienced of the past) is to uncover historical data, and must taken into account the gliding events which take place over time. This method is a supporting element to strengthen the evidence of historical research and literature review.(Cheng and Monroe 2010) conducted their research by interviewing children about their attitude.

To get a deeper response of users` perception, interviews will be done. For this study, interview will be defined as a semi-structural conversation used to complete a survey. All the respondents will be interviewed and their answers will be recorded. A few number of questions will be prepared as a guide. The purpose of the interview is to find the psychological benefits that can enhance their learning capacity and cues to find out most preferred component of nature.

### 1.10.6 QUESTIONNAIRE

Abraham Naftali Oppenheim stated that questionnaire can serve as a textbook for research students and undergraduate in social science. A set of questions will be designed after a pilot survey is undertaken which will be used to gather data. It will be utilized as a tool to compiling data about different notions of respondents regarding preferred aspects of nature in interiors spaces of libraries. The design of the questionnaire will be a combination of closed-ended and open-ended questions to provide respondents with the opportunity to develop their own ideas when responding to the questions. The purpose of the questionnaire is to ascertain the respondents` opinions about which form of representation of nature students most prefer to perceive in library.

### 1.11 PROCEDURE OF RESEARCH

In this research the data gathering procedure includes indentifying and selecting individuals for study and obtaining their permission to study them. The next step is to gather information by interviewing respondents of the research and distributing questionnaire then observing student`s behavior per week four hours when entering library and to observe which seat they will choose, beside window or away from window. The research hypothesis is that students prefer nature in library since it has positive effect on them . exploratory questionnaire will be used to test research hypothesis .

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