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**GLOBALIZATION AND REGIONALIZATION:
CHANGE IN CLIMATE, CHANGE IN EDUCATION**

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ABSTRACT

This paper is stressing the genuine problem of global changes in designing the built-environment, which is the forgotten factor; design with climate. It is further arguing the necessity of it in the curriculum of design education, as a mandatory course. The outcome of 21. Century, shows that sustainable architecture is the recycled term of vernacular architecture. It is the global warming that makes the people aware of the consequences of intense use of technologies. If the climate is changing, the principles of design with climate remain unchanged. Since the essence of design can act independent from its location, it is not important where it takes place. Therefore, the new boundaries of vernacular architecture are defined by the climatic regionalism. As David (2006, p.170) suggested “the ‘Age of discovery’ to the new millennium, process of change have been underway that have altered the relations and connections between peoples and communities- process which have been captured by the term ‘Globalization’”. I would like to stretch this idea of process of change to the built-environment. In this respect, traditional architectural features of the building forms and spaces will appear at distant locations from their origins.

This paper deals with new perimeters of design education due to globalization versus regionalization. In order to determine the degree of globalization, Berg suggested the formula; division of people who live outside of their hometown to the total number of population. (quoted in Günsoy, 2006, p.9). Same formula can be applied to the field of architecture and education. Gathering all this information helps us to see how the essence of design principles and its relation with climate will actually be rediscovered.

Finally, the purpose of this paper is to question the role of globalization in the field of architectural education. How much can globalization make an impact on curriculum change? The contribution of this research will pull the attention of related parties to realize that regionalism and globalization are interdependent to each other. On the other hand, this research will show us how environmentally aware architecture eliminates a dilemma that high technology has created. In order to raise the awareness, these issues should be focused on during the education, in the content of the

design curriculum. This research will not be conclusive, rather raise critical overview for the built environment and education of the designers. It may lead the scientist to begin searching the locations of new climatic regions due to melting icebergs, global warming and unpredictable weather conditions on one hand, and be an initiative for curriculum assessment committees to take active role, injecting courses related to global issues, on the other hand.

Keywords: Globalization, Regionalization, Design with climate, Education, Sustainability.

INTRODUCTION

As, a designer in the field of building industry, I know that we create new ways of comforting people in their enclosed environment. These new ways have always been parallel to any inventions of technology and communication, which affect the human comfort, field of architecture and its education methods. With the advanced communication, it has become very easy to see and to reach these new materials and their application methods since they are only one button away on keyboards. Because of these advancements, world has become small and easily accessible which create the new word, called 'Globalization' since late 20th. Century. Living through all these changes raises the questions: What is globalization? How does it affect the profession of architecture, interior architecture and education? What impact does it have on the environment? Where are we, and what will be the next?

I believe that the umbrella of advanced technology provides the opportunity to architects to design buildings, which conform to the limits of technology, not the ecology. So that we cannot recognize our surroundings when we look at the buildings. Buildings become universal and standardized, regardless of the climatic zones in which they have been built. However, I believe that the principles of design are universal, not the buildings. Otherwise, It causes, loss of identity. This technologic aesthetic is actually the product of irreplaceable energy usage in the building industry. Consequences of all of these aspects result in global warming and changes in our climate and our environment.

At this point, I would like to address globalization under two topics in response to global warming: The first one is about seeing the traditional or vernacular architecture out of their original context since climate is changing due to global warming. The second one is

about seeing the technologically pleasing global architecture at any corner of the world. I shall assume that globalization should not render the built environment standardized and monotonous manner around the world. This, in fact, goes against the character of design. As an approach to environmentally sensitive architectural design education, this paper first poses a simple but a crucial question: Is it globalization or global postmodernity or glocalization that the design education is leading? Furthermore, I also argue the courses related to environmental issues are as necessity and as important as other mandatory courses of the architectural education. Implementation of these issues into the design studios is discussed according to the survey, conducted to the students of the graduation design studio and first year basic design students of Bilkent University, Ankara, Turkey.

GLOBALIZATION AND REGIONALIZATION

As we understand from its meaning, a globe is a large and rounded mass (Webster, 1990). Since this large mass is the world itself, we may question whether it is a mass or a mess when we face with the affects of globalization. As Mulgan (quoted by Held, 1998, p.19) states that it has some vital dimensions like pollution of the environment all bring the world's people closer together (Held,2000).

The meaning of globalization is to make everything worldwide in scope and application (Webster, 1990). How something happens locally but known globally. We, as human beings work hard over the years, especially in the field of technology, and make this possible. It is the speed of communication, which makes people easily reachable and interconnected. If an unrecognizable technologically aesthetic building has been built at one location of the world, it is known easily worldwide due to the advancements of technology. Since the people admire such new applications without any 'critical Thinking', we can see such buildings all around the world.

It is advanced technology that makes the skyscrapers and glass buildings livable and comfortable. They are built by means of high construction techniques, mechanical heating and cooling systems and new use of materials; they all require excessive use of energy. Nevertheless, this privilege brought the sameness to the built environment, that contextual requirements lost importance to

technological advances. Foreign architects have been commissioned to design beyond their national borders. According to Ibelings (1998, p.69), “their buildings stand as beacons in a sea of uniformity, yet singularity gives them an oddly misplaced quality”. Could it be the architect’s manner, the ethics or the quality of higher education, which result in such, built environment, so totally out of context? We, as designers of the built environment, must value the differences and design built environment of commodity, firmness and delight, as stated by Vitruvius, in the first century, BC.

Valuing differences is hidden dimension of regionalization. Regional concentration refers to the issues related to climate, culture, locally available materials and the orientation of building. These make the buildings unique, indigenous and contextually fitting. While communication and transportation technologies create innovations and negates the distances between places, their excessive consumption of the non-renewable energy resources, creates pollution (Berkebile, 1994). This is also valid for production of advanced building materials and techniques. For this reason; I shall raise the subject of the importance and the need for regionalizing of global architecture. I shall also address concepts of Vernacular, Sustainable and Ecological Architecture, respectively.

‘Node of expression’ is the corresponding meaning of the word ‘vernacular’ (Webster, 1990). This node is regional and related to all extended local issues. Expression is that architecture, which is formed by climate, culture, environment, and locally available materials. I believe that sustainable architecture is the recycled word of vernacular architecture. Oktay (2001) states that sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. Hence, vernacular, almost by definition, is sustainable, and will not exhaust the local resources. In other words, sustainable architecture deals with recyclable materials, energy efficient buildings, on-site use of waste systems, and sustainable way of living and less energy intense materials. For example, Fisk (1994, p.43) states that “ Sulphur is 97 % less energy intensive than Portland cement, and is the 14 th most available element on the earth.... by just spraying the sulphur, joints of drystacked blocks jointed by it” There are other scientific innovations concerning less energy intensive materials, which can be used in the field of building construction. It is not possible to reach such information

unless you choose to do so. Thus, I encourage curriculum changes, which reinforces student's environmental awareness. I attended a lecture in March, 2008 at the Embassy of the United States, Ankara, given by Orgen, a professor of the school of architecture at Auburn University, new teaching techniques of architectural design studio. It was set up farther a way from the campus that students face an opportunity for group interaction with clients in designing and erecting a building recycled and locally available materials. It is the only positive and concrete progression; I am aware of which involves sustainable issues of architecture in a real life design studio environment, during the education process.

On the other hand, Crowther (1992, p.34) stated; "Ecological Architecture takes its inner form from efficient and healthful interior solar and climatic space planning..." Ecological Architecture has also a contextual approach to design a building: site, orientation, form, openings, intervention, expectation and construction techniques of the building should satisfy the ecological issues. On the other hand, solar energy for heating air and water utilities of the buildings is another ecological solution, which is actually the product of technology and uses the free and renewable energy, but has not often been a choice of neither a designer nor a customer.

Does the chosen paint cause allergy? How the upholstery or its finishing may affect the respiratory system of the users? Answers of these questions should be studied and applied to building designs. It is important to realize that ecological design merges the interest of sustainability, environmental consciousness, green, natural and organic approaches to evolve a design solution. If the building is not satisfying the environmental balance and we keep depleting the world, we create local, regional and global degradation of environments. We should regionalize the globalization and eliminate its negative impacts by thinking critically about technology and innovations, which affect our built environment, our health and our eco systems.

CHANGE IN CLIMATE:

As we proceed towards the 21st. Century, change is inevitable. Research studies in every field result in new developments for human beings to make living conditions easier; but not safer. Eventually, what we see when we look back, is just devastating. All

these improvements are not actually advancements. As Berkebile stated (1994, p.7, 8) in his article, there are serious outcomes due to these advanced technologies, some of them are listed below:

- A hole in the ozone layer allows the penetration of UVB, which causes the melting of icebergs, changes in water levels, changes the shape of lands and endangering health of human beings.
- Energy needs to produce aluminum from bauxite is one of the most energy –greedy processes in the construction industry.
- Use of energy for the production and the transportation of exported building materials like granite and wood are unsustainable.

All the above conditions happen due to excessive use of unnecessary energy usage and irresponsible attitudes of human beings. We become so dependent on what we have developed in a way that it began to change the nature and the fabric of our communities (Berkebile, 1994). This condition will lead to two contradictory stances: First, we reject the total change of climate and live as nothing is serious and will be serious or reduce the result of global warming and ecological degradation in order to regain our world in, which we live. If we cannot eliminate the impact of global warming totally, we can at least decrease its effect by major changes of our living standards, which seem impractical. As Strong and Fraic (1994, p.79) stated; “engagement of a well-informed public will be essential to maintain the political actions and to carry out the appropriate altitude for the transition to sustainability”. It means that radical changes are required at every level of society.

Eventually, we accept the fact that climate change is inevitable. Then, we should regionalize this global affect. This regionalization takes place due to new climatic conditions. If change in climate is inevitable, so are changes to regions. For example, tempered regions become hot arid due to this assumption. Eventually, we shall begin to see traditional and vernacular architectural features of building forms and living spaces appearing far from their origins. In other words, because of globalization, both vernacular features of the architecture and its climatic conditions are moving from their original regions to new locations. It also forces a person to buy homes, designed for other countries; another characteristic of globalization. Since the principles of ‘design with climate’ act

independently, our regionalization should begin at this point: principles and components of architectural design should be applied to every building of the any climatic regions of the world, with the privilege focus given to sustainability and ecology. When we accept climate changes, we should also accept the migration of people, as it happened in ancient times. Since global movement of people is one of the patterns of globalization, it can be measured by Berg's formula: 'division of people who live out of their hometown to the total number of population' (quoted in Gunsoy, 2006, p.9). With the same approach: Levels of exchange between the climatic regions can also be measured by this formula: Quotient of traditional buildings, which are built out of their original context to the total number of traditional and vernacular buildings. Perhaps, emerging trends may be the topic of another research project.

Since we are not able to reject global warming and change in climate, sustainability is a necessity to overcome the effects of global warming on the built environment. This is not only the designer's responsibility to maintain the world. It should be regulated nationally. There are some non-governmental organizations, citizen groups and educational institutions which have gained world-wide recognition. But, It shows that there has been over 25 years of awareness, but unfortunately is not adequate to make the responsible parties to take serious actions. Perhaps, their education failed to instill an ethical stance towards the environment. Training or even perhaps brain washing about maintaining our world should start as early as possible in our education institutions and should be reinforced during our professional studies. In the arena of Architectural studies, especially environmental factors should be stressed, with an emphasis on 'design with climate'- A 'change in climate' demands A 'change in education'!

CHANGE IN EDUCATION

It has been stated by Young (Lauder, Brown, Dillabough, Halsey, 2006) that the acquisition of knowledge is the key feature that distinguishes education (general or vocational) at any level from all other activities. I would like to stress this keyword as expressed by Judith Williamson:

“..... What really matters about knowledge is that it is true or rather that we can learn or find the truth or truths as best

we can, in any field. This is what education and more specifically, universities are for.” (quoted by Young, 2006).

Young (2006) further, summarize this expression by stating that education presupposes the possibility of both knowledge and truth (Lauder, Brown, Dillabough, Halsey, 2006).

Since I am focusing on the training process of architectural education, it is the truth and the knowledge about ecology and sustainability that I shall emphasize whether design students are aware of both, theoretical and practical means. In order to discuss the degree of importance of these environmental subjects, in design education, first, I prefer to discuss what has been suggested recently as a similar research study, and secondly, to explain the conducted local survey.

In Egypt, Suggested way of educating design students, in concept, relies on both regionalization and globalization. Ahmed (2006, p.282) claimed that the quality of architectural education as a process is, or should be, primarily measured and evaluated through its ability to ‘produce’ an architect who is capable of dealing through architectural design, with the issue of locality in a sensible and innovative way. It has been solved and adapted by the Egyptian architectural educators that new trend is based conceptually on locality in term of meaning and values, utilizing the up-to-date global technologies and features. It is actually the combination of two words: global and local. It has been explained by Ahmed (2006, p.293), that Glocalization is a term joined from two terms “Global” and “local”. It also stresses on ‘Critical Thinking’, which I really admire. What I have also noticed is that the concept has been adapted by Egyptian educators in architecture, for both design studio and specifically-tailored compulsory courses.

Aksoy (1967) stated that form, function, technology and ecology are the components of design. It has also been suggested by the Vitruvius that Commodity, Firmness and Delight are the proper ambitions of architectural design (Stemear, Steane, 2004). It is further suggested by Steamer and Steane that commodity and delight correspond to the comfort of human being as it is related to thermal conditions and quantity of light. Commodity has also been coupled with firmness and defined, as to address to the adaptability of time, the structural and environmental strategies that make buildings environmentally reliable and sustainable. Similarly,

delight component is considered as the aesthetics of the built environment. On the other hand, Antoniades (1986, p.174) has prescribed the environmentally relevant work of architecture with the formula of Form + Function + Economy + Everything Else. As a result, I decided to list 16 components and prepared a survey, based on the above formula. It measures level of importance of each component, which students consider during their design. Five choice values were offered: Very important, important, mildly important, less important, and unimportant.

This survey is given to the first and fourth years of Interior Design students at Bilkent University and also to the arbitrarily selected practicing architects with over ten years of experiences, in Ankara. The main purpose is to find differences between first and fourth year design student's component choices, according to their importance level in their design and wanted to learn how is the components ranked separately for each class. I have used the SPSS program to test the survey results. I ranked the components according to their mean frequencies and I also compared the degree of importance of environmental components, with respect to other selected components: Climate, Sustainability, Ecology, Context, and Orientation as compared to Form, Aesthetics, Economy, and Technology separately. Results are as shown below:

I-Level of Importance to the Components According to Bilkent University IAED Students and Practicing Architects:

Descriptive statistic studies show that the components of aesthetics is at the fourth, technology is at eleventh in the rank whereas sustainability is fourteenth for the first year students. For the students of fourth year design studio, aesthetic component is the fourth, form is the seventh, climate is at the tenth and the sustainability is the fourteenth in the rank. All these rankings have been done according to their mean values. For example: Mean importance level of Climate component that fourth year students at Bilkent University yield 3.68, whereas mean level of Aesthetics component is 4.28 . When we look at the practicing architect's choices of importance levels of practicing architects, the lowest one is the Ecology component.

II-Comparing First Year and Fourth Year IAED students of Bilkent University to the selected components :

The Bar Chart shows that there is a summation of frequencies of very important and important marks of both students of first and fourth year. Aesthetics has the largest number of frequencies when compared to climate, context, ecology, orientation and finally, the sustainability. For each component, fourth year students' frequencies is lower than the first year students.

III-Comparing Paired Components for IAED fourth year Design Students at Bilkent University:

The component aesthetics has been paired with climate, Context, Ecology, Orientation, Sustainability respectively. According to the Paired Sample t Test; there are nine pairs that each pair has statistically significant difference in their means with 0,05 significance level. For the sample group of Practicing Architects in Ankara, test shows that Form and Aesthetics have also statistically significant difference in their means with 0,05 significance level.

IV- Comparing selected six-paired components of first year and fourth year IAED students of Bilkent University:

The chart shows the summation of important and very important frequencies for the selected components of design. They have been ranked from the highest to lowest, to show which component is more important than the other when we are comparing first year and fourth year students. Generally, It show that importance levels of each component of first year students is higher than with fourth year students.

CONCLUSION

In conclusion, it is debated that one of the most important result of globalization is global warming. It affects our environment so intense that we became slaves of what we produced. Every profession has contributed to this phenomenon in various scales. In the profession of architecture, we should take it seriously because of the fact that, if only half of the new commercial buildings reduced their energy consumption by just 50%, each year we could save our environment from enduring 6 million metric tons of CO₂ emissions (taken from unprinted presentation). As we all know, it increases the size of hole in the ozone layer, causing global warming.

To prevent degradation of environment, there must be established awareness programs that fits everyone. For the nonworking professionals, there must be local centers, managed by local authorities, so that it could be easily reached. For the practicing professionals, related associations and public services should provide obligatory training seminars. In this way, they will understand the meaning and adapt an altitude to contribute at least to their close environment. It should also be undertaken by the universities as an extension of their programs, offering community education, based on global warming and environmental concerns.

I prefer to begin my suggestions, by evaluating my survey. When I look at the level of importance of the architectural design components, components of climate, context, sustainability, and ecology are moving down from higher frequencies to lower frequencies for both first year students and fourth year students, but first year students have higher mean values. It shows that even though the sample class is a freshman class, as new comers, university students are more aware of the environmental issues. It is necessary to mention that fourth year students are 'independent' than first year students. Another survey should be undertaken after four years, for the than freshman students now graduating.

The pair of aesthetics and form, was also more, demanding components than sustainability for fourth year students. Nonetheless, it is also admirable to see that technology in its tenth place is less important than climate. It could be the affect of the design project with the emphasis given to sustainability for fourth year students. Since there is also statistically significant difference between economy and other environmentally important components, I wonder, how do they interpret or understand economy, since they don't have any professional experiences and any courses related to economy. This may lead us to another research topic.

According to the analyzed data, as shown in change in education portion of this paper, I realized that sustainability is not a topic to be thought only once, and in one semester. It should be maintained as per Ahmed's suggestion (Ahmed, 2006, p.294-295), by compulsory courses like 'Critical thinking in Architecture: Local, Global, and Glocal' and Theory of Architecture.

In this case, I further extend the idea of educating environmentally sensitive designers by letting them take mandatory courses from

related departments. Why not taking courses from Environmental, Chemical, Metallurgical and Material Engineering departments? There must be courses specifically designed for designers, offered from these departments. They are not the elective courses, which gives the students freedom, since the real freedom is the livable world. These courses should begin as early as possible during their four-year educational period, to raise awareness and to lead the students towards designing un-plugged buildings. They should get into details of passive energy, wind power, advanced local materials and natural ventilation for un-plugged built environments. Further, there must be series of lectures which are given by the master professionals, related to ecological problems and solutions and these lectures should be attended by the students similar to the one credit orientation course required to be taken by the freshman students in order to graduate. Additionally, the most important point is to establish a course, specifically design for the department of architecture, and interior architecture, which deals with 'Unplugged-glocal' issues, combined with small design projects. That way students with knowledge about sustainability and ecology, will be prepared to applied this knowledge not only to their projects in school and in the world, but also to their living standards.

I also interpret the pair sample test of practicing architects that they are placing more importance to form and aesthetics as compared to ecology component. Actually, knowing the value of ecological architecture, I propose a series of job-training lectures, offered from related chambers with certification like Leadership in Energy and Environmental Design (LEED) certification program in USA and CANADA.

On the global scale, aside of the local activities related to ecological problems of our world, I believe that, there must be established and united institutions which control world - wide developments concerning global issues, including educational activities, in order to save the world, we live in. Otherwise, It will be a mess not a mass that we will be living on.

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Note: Tables and Figures will be presented with power point.