
THE PSYCHOLOGICAL EFFECT OF SUSTAINABLE DESIGN IN PRE-BASIC EDUCATIONAL BUILDINGS ON STUDENTS' ABILITY TO INTERACT

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Abstract

In the past few years, changing the way education has become a major topic of discussion, and we are then discussing the need for education, creativity, cooperation, and other life skills in our children through changes in teaching methods and methods. We have to develop the places where our children study, and how these can help or hinder the educational process and given its importance as an educational stage, it is imperative to pay attention to the specifications of pre-primary educational buildings in terms of location, number of rooms and facilities, and dimensions of space in it, as well as the interior design of pre-basic education classrooms and their impact on needs. The psychological nature of the child because of its great importance in the formation and upbringing of the child according to the principles of sustainable design in order to provide for the needs of future generations, rehabilitate the deteriorating environment and fill the needs of the human being in a manner that achieves a balance between economic growth and the requirements of protecting the surrounding environment, which is integrated with all its determinants, closes its deficiency and addresses its defects, and is a design method. In terms of site selection, it is concerned with respecting the natural environment, saving energy and resources and achieving comfort. Thermal, sound insulation, selection of environmentally friendly building materials, construction methods, taking into account the natural, urban and human environment surrounding the kindergarten building, reaching the zero-energy building.

Keywords

Psychological, Sustainable Design, Educational Buildings, Interact.

Introduction:

Educational buildings before basic education are educational and social institutions that seek to properly rehabilitate the child to join the elementary stage or the first stage of basic education, so that the child does not feel a sudden transfer from home to school, as it leaves him with complete freedom in practicing his activities and discovering his abilities, inclinations and potentials, and thus It seeks to assist the child in acquiring new skills and experiences and rejects the principle of coercion and coercion, but rather focuses on the principle of flexibility, creativity, innovation and inclusiveness, and the educational process in the pre-basic education stage aims at comprehensive and integrated development for every child in the mental, physical, kinetic, emotional, social and ethical fields, taking into consideration. Individual differences and the development of the ability to think, innovate and imagine, it also aims at healthy social upbringing and works to meet the needs and demands of growth for this stage of life to enable the child to achieve himself, and to help him in the formation of a healthy personality, to form spiritual values and acquire sophisticated and civilized behaviors. Through

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theoretical and practical activities in religious education as behaviors, and for the child, p Li order and form human relations with the teacher and colleagues. The role of the interior designer comes to reinforce this positive relationship between the child and the surrounding environment, and begins his first steps by learning how to respect the surrounding environment and respect the civilizational and cultural values within his community.

Research problem:

Educational buildings before basic education remain an educational and educational responsibility in everyone's necks, including those who are determined and responsible, the isolation of life inside the educational buildings and its distance from the cultural and cultural domain of the child, which makes him live in a society alien to the surrounding environment, as well as the consumption of raw materials and natural resources, which causes a deficiency in energy consumption.

Sustainable Development: Sustainable Development

The concept of sustainable development begins with the conscious management of the available natural resources to provide for the needs of future generations, rehabilitating the degraded environment, trying to change the quality of economic growth, addressing problems of poverty and filling the basic human needs in a way that achieves a balance between economic growth and the requirements of environmental protection by developing production methods and using environmentally friendly technology. We give the example of achieving sustainable development through the design of educational buildings and kindergartens, which are also sustainable from the fact that the thermal insulation of the building is protected from cracks and its contribution to saving energy and preserving natural resources.

Green architecture: as an entry point for designing modern projects, strategies for designing, implementing and managing projects that depend on the principle of green or sustainable architecture, which is the latest architectural trends that are accepted by government and private agencies and society in general, because of the environmental, social and cultural awareness they represent. The call to adopt green architecture strategies is a call to deal with the environment in a better and complementary manner. Green architecture is architecture that is compatible with the surrounding environment, which integrates with all its determinants, closes its deficiencies, addresses its defects, or benefits from the phenomena of this ocean and its sources. There is an increasing interest in what is sometimes called green architecture and other times sustainable architecture or environmentally friendly or highly efficient architecture, which are all synonymous names that express the multiple aspects of that strategy. Green architecture is an entrance and a method for designing, selecting materials, construction

methods, and taking into account the natural and built environment and humanity surrounding the project.

Definition of green architecture: They are those buildings that are designed, implemented and managed in a manner that puts the environment in the first consideration, and those that have less negative impact on the environment, along with minimizing their construction and operation. The fully integrated building integration approach - which takes into account the life cycle at all levels - is a necessity of the contemporary definition of green buildings, and designing the building in a way that communicates with the external environment so as to help complete the process of ventilation and natural lighting, and provides an external view, the integrated design. For buildings, it can be viewed as an object consisting of systems interacting and interconnected with each other. We find that the benefits of integrated design of buildings complement their goals of preserving people's health, reducing waste, saving energy, and reducing operating costs. Green building policies, and imposed requirements, are the means that transform sustainable design from voluntary initiatives to enforceable public policies. These tools provide a way to design and construct new buildings to become part of solving environmental problems.

The reciprocal relationship between educational buildings before basic education and urbanization in sustainable development lies in the design of educational buildings before basic education in a manner that respects the environment, taking into account reducing energy and resource consumption, while minimizing the effects of construction and use on the environment while maximizing harmony with the environment. And innovating new methods for obtaining new and renewable energy, in addition to rationalizing water consumption, recycling solid waste, and paying attention to agriculture and afforestation work, which reduces carbon emissions and improves the quality of the environment in general, the internal environment and the air. Therefore, green architecture has become a highly efficient system compatible with its vital surroundings with minimal damage. Side within the pre-primary educational buildings in particular.

The role of sustainable development in designing pre-basic educational buildings:

Sustainable planning is not a complex planning design or requires high material and technical capabilities. Rather, it is a regular planning that provides a comfortable internal environment for the user of the place physically and aesthetically within the social criteria and environmental characteristics of the site, and sustainable planning guides the designer to prepare and manage the evaluation of the environment conducive to sustainable projects. This is done by performing the following steps:

1- Determining the purpose of the evaluation: The first step that must be taken is agreeing on the purpose of the evaluation. It has been designed to be used for various purposes. When selecting appropriate tools, the designer has to clearly understand the reason for the evaluation and the results expected from it, thus enabling the enabling environment for sustainable projects to be assessed.

2- Formulating an evaluation methodology: After determining the purpose of assessing the enabling environment for sustainable projects, the designer should address the method of implementing the evaluation, ie its methodology.

3- Organizing and managing the enabling environment assessment for sustainable projects: The implementation of the environmental assessment for sustainable projects requires careful organization. It is up to the EO to determine who will carry out the assessment and to ensure appropriate management of the evaluation processes. It is also important to determine the financial, technical and organizational resources that the evaluation will need and how to obtain them.

4- Results analysis: Finally, the method used by the employers' organization to analyze the results of its evaluation of the environment conducive to sustainable projects should be considered.

Environmental-friendly pre-education buildings design standards: By applying them, it is possible to reach environmentally friendly pre-education buildings that avoid the defects of the sick building, and these principles and standards revolve around the following points: -

- Architectural character compatible with the environment: One of the most important qualities that must be met in an environmentally friendly building is that its architectural character corresponds to the environment from a historical and social point of view, and even with the customs and traditions of the community that uses this building, whatever the function it performs, because the architectural character reflects the image of Human civilization in every time and place touches the personality of society and the equilibrium of the individual in it from the health and psychological point of view. The architectural character does not arise suddenly and does not come from a vacuum. Rather, it comes as a result of several stages of development that the art of architecture has gone through to respond to the requirements of the environment and the society in which this character arose. The factors that affect the architectural character can be summarized in two main groups, namely:

The first group: they are the factors of the natural environment that determine the properties of the place and their influence on it in a direct way over the successive ages, so it is a fixed effect in time and place on the architectural character, such as climatic and geographical factors and

local building materials.

The second group: the cultural factors that are the product of man's interaction with his natural environment. It includes the religious, social, political and economic factor, as well as the philosophical, scientific and artistic ideas. Looking at contemporary architecture, we find that the "international style of architecture" dictated by Western architects to the global community with the aim of unifying the architectural and planning thought throughout the world, we find that it has become dominant without taking into account the environmental, civilizational and cultural differences of each society. Hence, the importance of deepening the architectural heritage of each region appears. In order to take advantage of the conditions that created this heritage and then evaluate it in order to draw inspiration from what is compatible with it and is suitable for application in the environment and contemporary society, and from here the beginning is to create an architectural character for architecture and buildings in line with each environment in its natural and civilizational sides.

Environmentally friendly building materials: It is noticed that buildings in ancient civilizations used highly durable building materials available in the environment such as stone, mud, wood and straw, and clay and burnt bricks are among the most famous and oldest building materials used.

1- It should not be from a material that consumes high energy, whether in the stage of manufacture, installation or even maintenance.

2- It does not contribute to the increase in the internal pollution of buildings, that is, it is from a group of building materials (and finishes), which are called the correct building materials, which are often natural building materials. Attention should also be paid to excluding materials and finishes that have proven harmful impact on the individual's health or the environment, and trying to search for alternatives, and among these harmful materials and finishes are PVC and formaldehyde, which is used as an adhesive, and vinyl used in floors and (plasticizers) from which furniture, curtains, doors and shutters are made. And floors that emit gases that are harmful to health, and therefore many experts recommend the importance of using natural materials and paints that depend in their composition on natural oils such as linseed oil or cotton, while excluding modern chemical paints that emit volatile organic compounds that are harmful to health.

Energy design for educational buildings:

Schools in the United States spend \$ 7.8 billion on energy each year - more than the cost of computers and textbooks combined, according to a 2003 report from the National Center for Education Statistics. The US Department of Energy (DOE) estimates that these high-end

facilities could reduce bills by up to 25% if schools adopted high-performance design principles and techniques. Accordingly, hundreds of K-12 schools across the country committed to improving the learning and teaching environment in schools save money and energy and protect the environment. The Department of Energy and its public and private partners have developed the Energy Design Guidelines for High Performance Schools, intended for nine climate zones in states and territories of the United States. These design guidelines provide information for school decision-makers and design professionals about the advantages of energy efficiency and renewable energy design technologies. With features like natural daylight, efficient electric lights, water conservation and renewable energy use.

Sound design and avoiding noise: Sound like light has tangible effects on the psychological and physical health of a person, so acceptable or beautiful sounds have good psychological effects, and on the contrary, loud sounds or noise have harmful effects, and there are three main sources for the creation and presence of noise inside buildings: the first - noise This noise is carried by the air and enters the building through open windows and doors, or even from some cracks and narrow openings, and resulting from transportation and various cars or nearby workshops and factories, if any. As for the second source: - It is the result of any object falling to the ground or as a result of the vibrations of some electrical devices. As for the third source: - It results from the transmission of internal noise, whatever its cause, through the walls, floors and adjacent spaces. Therefore, the efficiency of the walls in preventing the transmission of sounds or noise depends on their mass. Thicker walls and heavy constructions are better in preventing the transmission of noise, and the effect of floors on the transmission of noise does not depend on their mass but on the degree of absorption of the surfaces of these floors, so it is preferable to use floors. Or sound absorbing finishes or coverings (such as carpets, for example), and the best defense against noise and its failure to reach inside the building is to increase the distance as far as possible between the noise source and the building to be protected, or by placing rooms that are functionally not affected by noise (such as service rooms) on the side of the nearby building From the source of the noise, which is often the street, these rooms protect the important rooms and spaces that are affected by the noise, but if this is not possible, some simple design principles can be taken into account to reduce the noise reaching the building, for example the planting of trees on the side of the noise source (such as the street, for example) in particular With large leaves, it can reduce the noise level by absorbing it, and planting plant belts next to the building with a distance of 6-15 m will have the best effect in reducing the noise coming to the building. .

Results and Recommendations:

- 1- Designing pre-basic educational buildings in accordance with the principles of sustainable design and the importance of preserving the civilizational and cultural heritage of the built-up area to increase the environmental and civilizational awareness and implant the meaning of belonging within them.
- 2- Sustainable design in educational buildings prior to basic education, which ensures ventilation and lighting, as natural as possible, and in the halls of education, not to place obstacles inside the halls, preferably suitable for movement and running.
- 3- Paying attention to the garden and indoor singing, and taking advantage of the starting surface to provide indoor spaces for covered play or outdoor playgrounds, and that the park contains climbing and jumping games and balls of different colors and sizes. The children's playgrounds should include an area covered with grass and the other with sand to reduce damage.
- 4- Providing places for movement and places for self-expression that help form the basis that will affect the future development of the child, as research indicates that children respond to colors in their environment as much as they respond to the shapes and organization around them. As the method of organizing the environment with colors helps to develop the cognitive map and make plans and predictions for their movements in pre-basic educational buildings, this affects the orientation, creative behavior and memory, which are all important factors in learning.
- 5- Reliance on afforestation to reduce temperatures and block sunlight from educational buildings prior to basic education, as well as being a good noise insulator. : Continuous ventilation must be provided for the educational rooms and activities, and this depends on the design so that the direction of the winds in the area can be determined and the windows fit with their direction, and rely on natural adaptation instead of artificial as possible.
- 6- Achieving the expected results in pre-primary education educational buildings as an environmentally friendly building that conserves energy consumption and the possibility of using renewable energy resources to obtain a zero-energy building, which may be a source of energy generation for the area in which it is located.
- 7 - Providing children with experiences of dealing with the child's knowledge, skills and emotions within the internal interests and internal duo through an agreement on the child with the surrounding environment.
- 8- Achieving the eight objectives of the pre-primary educational mechanism in line with material conditions and human potentials in an interactive and cooperative manner.

9- Opening the doors for cooperation between pre-primary educational buildings and the local community in order to achieve the principle of linking educational buildings with society

10- Developing children's capabilities and preparing them for school, so it was imperative that it be organized in a way that makes it a field rich with experiences, through which the child acquires and builds the basic foundations necessary to confront the stages of absolute life in harmony with his environment.

References:

- 1- Al-Husseini, Omar Muhammad scientific continuous .. sustainable planning and design of urban butterflies - Faculty of Engineering - Ain Shams University.
- 2- Badran, Shebel (2000). Recent Trends in Raising a Preschool Child: Renewed Educational Perspectives, The Egyptian Lebanese House, Beirut, p. 15.
- 3- http://emanrefat.blogspot.com.eg/2010/04/blog-post_29.html
- 4-: Tariq Bashir Hassan - Principles and Standards for Kindergarten Design in Sudan - College of Architecture and Planning, Sudan University of Science and Technology.
- 5- Abdullah; Samar Mohamed - The Role of Contemporary Architecture in Reducing Global Warming. Faculty of Engineering - Assiut University.
- 6- Abdul Mawjid; Rania Gamal El Din Ahmed - Applying the foundations and principles of green architecture as one of the practical solutions to address the concept of vertical architecture - Master of the Faculty of Engineering - Cairo University - 2010.
- 7- Mahjoub, Yasser - Green Architecture as an Entrance for Designing Housing Projects - Symposium on the Future of Construction in the State of Kuwait - Department of Architecture - College of Engineering and Petroleum - Kuwait University.
- 8- <https://www.slideshare.net/7abebb/ss-54812242>
- 9- International Telecommunication Union Secretariat of the Global Initiative for e-Sustainability - Using Information and Communication Technology to Address Climate Change - February 2011.
- 10- Salwa Yousef ABDEL-BARI, THE GOLDEN RATIO AND ITS APPLICATIONS IN THE DEVELOPMENT OF FUNDAMENTALS OF INTERIOR DESIGN CURRICULUM, International Journal of Education and Learning Research, Vol. 3, No. 1, 2020, pp. 1-7.

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