

Sustainable thinking, educational opportunities in interior architecture projects

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Abstract: The current ecological situation in the world has become a catastrophic problem, and sustainability can provide many opportunities to protect and save the world. The primary concern of mankind must be the rational use of natural resources in protecting the environment and for the benefit of future generations, one of the major challenges of our time. Therefore, an approached thinking of the existentialism of humanity to solve the objectives, can be intervened through institutional educational projects in various fields, including interior architecture, offering solutions for recycling and reuse of different materials, and technologies for transformation into objects of furniture, lighting fixtures, wall finishes, floors, etc. Thus, the method of sustainability is an example to follow, which offers many opportunities to protect and save the environment. The architecture of residential and non-residential interior space is the field of application through sustainable and effective design methods of recycling, reuse, reorganization, in a comfortable space. Thus, we get more spacious, brighter, healthier interiors through materials that regain a new utility. Sustainable theoretical and practical research models reflect results in the design of engineering products, sustainable design, which ensures an impact on future generations of specialists - architects, engineers, and interior designers, with a sustainable vision of the environment and the future of humanity.

Keywords: : interior architecture, sustainability, design, recycled materials

1. Today's reality

For centuries, the Earth has changed beyond recognition. The air has become poisoned by emissions. Even ecologically clean areas and regions are no longer the same as they were a few centuries ago. Impurities will be present almost everywhere. Today we are facing multiple ecological problems: environmental pollution, floods, and fires that devastate everything around us, global warming which leads to a global disaster. Thus, the destruction of nature as a result of climate change is the most pressing problem facing humanity. The problem affecting today's world, demonstrated by scientific research, is that humans are responsible for global climate change. Through a prompt approach and thinking of rational use of natural resources, stopping harmful emissions, reducing energy consumption, recycling, and reuse, etc., we can save the future of generations [1; 6].

2 Consciously approached thinking

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Therefore change starts with us! Why throw away and pollute nature if it is possible to reduce the impact, reuse and recycle - the result of sustainability! Sustainability is the ability to exist and develop without depleting natural resources for the future. And sustainable development is the impetus that meets the needs of the present without compromising the ability of future generations to meet their own needs. Earth's resources are finite and should therefore be used conservatively and carefully to ensure that they are sufficient for future generations without diminishing the quality of life today. A sustainable society must be socially responsible, focusing on environmental protection and dynamic balance in human and natural systems. Sustainability offers many opportunities to protect and save the world. [2].

2.1 Education and sustainable approach

SUSTAINABLE education through existentialist thinking and approach, healthy for a sustainable and bright future starts in college. The principles of the existentialism of contemporaneity and the environment, are manifested in the sense that it puts the destiny of humanity in the hands of itself. Starting from the famous observation of the French philosopher, Rene Descartes - "I think, so I exist" is a current issue, focused on a lived experience of thought, senses, actions in becoming a responsible human being for the environment. [3].

Table 1. Eco-design principles

	<p>Low impact materials: the use of non-toxic materials, durable or recycled products, which require little energy for processing;</p> <p>Energy efficiency: the use of manufacturing processes and the production of products that require less energy;</p>
Eco design principles	<p>Quality and durability: products that last longer and work better will need to be replaced less often, reducing the impact of replacements;</p>
	<p>Design for recycling: „ Products, processes and systems should be designed for performance in a "life beyond" commercial ";</p> <p>Renewability: materials should come from nearby renewable sources (local or bioregional), sustainably managed, which can be composted when their usefulness has been exhausted;</p>

Sustainable design also includes social considerations: occupational safety and health; utility; responsible social use; the origin of the materials; design according to human needs. Sustainable design is the philosophy of designing physical objects, the built environment, and services to respect the principles of social, economic, and ecological sustainability. Namely, through the interior architecture, we can intervene with the principles of sustainability, by designing spaces and using intelligent and economical lighting systems, with many windows to provide natural lighting during the day, and the use of materials and furniture by reuse.

Eco-innovation, creativity is any innovation that leads to significant progress and the goal of sustainable development. Ecodesign supports the need to incorporate environmental and sustainability criteria into the basic requirements of product design, such as cost, function, utility, aesthetics, reliability, safety, etc. (tab. 1) [4; 5].

Thus, together with the student-architects, year V from the Technical University of Moldova, Faculty of Urbanism and Architecture, Architecture department, within the course unit: Interior

space architecture, we both researched and approached the topic of ecodesign, through recycling and reuse, through creative thinking in the elaboration of objects for interior architecture. Event of the Institutional Project, highly publicized by the media (TV, press, radio, news portals on the Internet, etc.), presented in several Scientific-Practical Seminars (2019, first edition, 2021, second edition), which each this time gathers more and more public, interested in the issue of sustainability [8; 9].



Figure 1. Cionanu Jana, Jordan Ana-Lucia, st. gr. ARH-161, UTM, FUA, Architecture department. Living room table, made of recycled wood

Examples of sustainability are student works, transformable and functional furniture, lighting objects made from recycled materials: cardboard sheets and tubes, wood material (plywood, construction wood, old or degraded furniture), envelopes, old objects, metal, etc. . For example - the wood used for multiple purposes and shapes, forests, represent the lungs of the earth, affected today. The most important use in the world is fuel. Wood is also used as a building material in the architecture of wooden houses, bridge industry, railway sleepers, furniture, parquet, various interior design elements. But it is often the case of mass deforestation, and the impact is imminent on the environment: intensifying the processes of soil erosion; droughts are becoming more frequent; impoverishment of flora and fauna leading to global warming; intensification of landslides [5; 6; 7].



Figure 2. Malanici Maria, st. gr. ARH-162, UTM, FUA, Architecture department. Sustainable lighting fixture

To avoid harmful problems, it can present an approach by recycling and reusing garden crates and wooden pallets, to create a table for the living room, made of four elements with storage spaces that aesthetically complete the space in a harmony of chromatic contrast, work by the authors, students gr. ARH-161, Architecture department, UTM, FUA Cionanu Jana, Jordan

Ana-Lucia (fig. 1). A lamp that mimics the shape of the human body, made of solid wood, can be comfortable and can serve as a support for a book or phone, is the work of student gr. ARH-162, Malanici Maria (fig. 2). Thus, as the authors mention - art is contemplation, it is the pleasure of the mind that seeks in nature and describes the spirit with which Nature itself is animated ...



Figure 3. Jordan Ana-Lucia, st. gr. ARH-161, UTM, FUA, Architecture department. Project with sustainable furniture

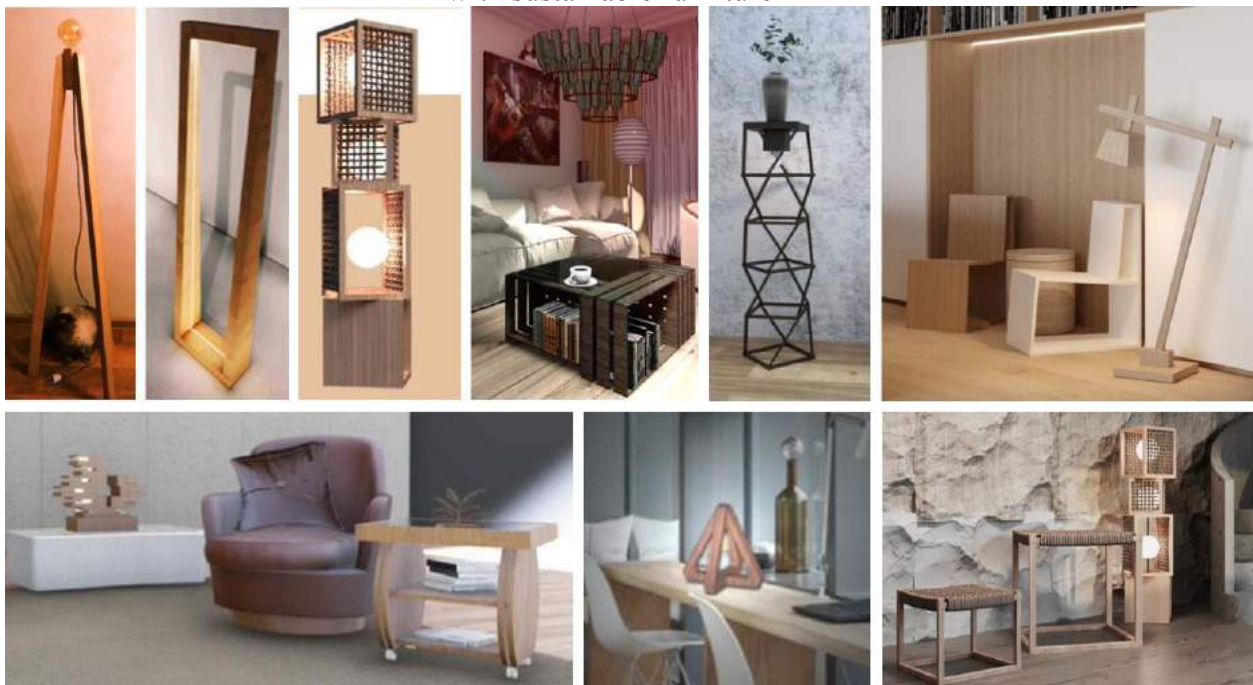


Figure 4. Furniture models, sustainable lighting objects, presented at the Scientific-Practical Seminar eco-design, developed by architecture students, DA, FUA, UTM

The final results of the project, models of utilitarian and functional objects, aesthetically defined by finishes, framed in residential and non-residential spaces developed within the

interdisciplinary project "Urban Metamorphosis of 31 AUGUST 1989, Chisinau" and kept in the EXPO hall of the FUA and the museum Department of Architecture (fig. 3, 4) [10].

Student satisfaction is culminated by the desire of the theme approached for the recycling and reuse of unnecessary objects and things, not to be thrown in nature. The educational message of the Project is addressed to the academic environment and society for recycling and reuse, each contributing through healthy thinking, behavior for a healthy environment of our planet Earth!

... What human needs is not only the persistent questioning of the final questions, but the sense of what is feasible, of what is possible, of what is right, here and now ...
/Hans-Georg Gadamer, Truth and method /

3. Conclusions

In conclusion, we mention that the architecture of the residential and non-residential interior space is the field through which we can manage and educate sustainability in the academic and social environment, through our own examples of recycling and reuse.

Following the elaboration of these projects, we notice that there are no non-recyclable materials. Various materials can be combined to obtain original and interesting objects for interior architecture. Such an approach can lead to both technological and economic progress. Through work and creation, we achieve pleasant goals, both in terms of aesthetics and quality

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