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RESEARCH ARTICLE

MODELING THE ARCHITECTURE OF THE INTERIOR SPACE WITH THE HELP OF DIGITAL TECHNOLOGIES

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Abstract

The article contains a theoretical and practical study from one's own experience, which reflects the importance of advanced digitaltechnologies implemented in education both in online format, practical from the pandemic period but also after by using technological innovations applied in study charts for the training of architect students. At the same time, the research methodology reflects the strategies and forms of exposing new information and the development of scientific-artistic thinking as well as the affective-emotional sphere within the theoretical and practical classes.The new information of lectures and seminars can be exposed more interestingly and accessible through text, multiple colorful and appealing images, video, musical background, etc. Students are challenged to respond with information that can be selected online immediately from digital sources or serve inspirational models for a future project. Both in the theoretical and practical course of transmission, the strengthening of information through the use of digital technologies, even in online format, certainly led to the development of the humanities to the training of future architects,specialists interior designers. So digital learning has come to play a crucial role in university education in the twenty-first century. In conclusion, we deduce that classical learning methods are substituted by digital ones as more advanced forms of development for students, ennobling them through digital tools and advanced technologies, they develop listeners' critical thinking skills, effective self-teaching learning skills.

Introduction:-

The XXI century, the era of contemporary and developed society, came with new changes of visions in all fields of activity, conditioned by the Covid-19 pandemic, through other forms of work, action and education. Thus, we have all gone through and are going through daily changes in didactic approach different from the traditional one - classical.

„All life is a school." / Jan Amos Komensky/

The new digital technologies have offered us wide and ample possibilities to transmit more immersive, varied and interesting information, but also difficulties in adapting, learning the new platforms for accessing. We have all lived

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this experience of remote teaching, online education in the pandemic period through the use of advanced digital technologies. And the role of our research focuses on the application of strategies and forms of exposing new information, which condition the development of scientific, aesthetic-artistic thinking and the affective-emotional sphere within theoretical and practical classes, both in online and physical format.

So, the new information transmitted through digital technologies and platforms is another framework of thought, which has conditioned our change of judgment of objective and critical knowledge, here quoting the Danish philosopher and writer Soren Kierkegaard, who said that: life is not a problem to be solved but a reality that must be experienced, and our research through learning-education with the help of digital tools has conditioned us to change our form of thinking and experimenting with the new (1).

Researcher Soren Kierkegaard, a fierce follower of existentialism and human behavior where, here digital options, today offer us this possibility of action, experience and practice and learning (2).

Since 2020, the pandemic situation has changed our classical teaching style in education by switching to the form of online teaching activity, has conditioned our learning and assimilation of digital innovations on the fly, exploring various correlation platforms with disciples.

Materials and Methods:-

Research methodology is a set of principles, methods, procedures and means with which the author operates in research, in order to obtain knowledge on the observed and studied reality.

The author resorts to the methodology of the investigation, a set of norms, rules, means, identified in the form of principles and methods of learning. Between them, there is a close interdependence and all of them are indispensable, each having its importance and its well-defined role in the learning-teaching activity in online format with the help of digital tools for research.

Discussions:-

Possibilities for new learning technologies:-

The form and possibilities of digital technologies influence the education of future architects, interior designers, therefore the quality, form and methods of transmitting information in guiding students' lectures and seminars can be exposed, transmitted more interestingly and accessible through text, multiple colorful and attractive images through video modeling, musical background, etc., through a variety for each topic.

Figure 1:- Product for redrawing an interior design through digital programs.

Thus, only a simple assistance at the lecture is elucidated through the influence on the audience-students, through an interactive activity through challenges to the search for quick answers with the help of technologies in obtaining information that can be selected online immediately from digital sources or serve inspiration models for the elaboration of a future project. Both in the theoretical and practical course the transmission, the strengthening of the

information obtained by using digital technologies, even in online format, certainly lead to the development of the humanities to the training of future specialists in architecture, interior design, visual arts, etc. Figure 1 (3).

Results:-

The importance of implementing new technologies in university education

Nowadays, learning through the use of digital tools, advanced digital technologies have come to play a crucial role in university education in the XXI century.

Gradually, the classical methods are replaced by the digital ones, more advanced forms of development for students, ennobling them through digital tools and high-performance technologies, which develop to the listeners critical thinking skills, self-didactic effective in learning. Thus, information technologies: computers, video, audio, closed circuit systems, electronic communication means, etc., offer students the possibility to quickly and efficiently access information, operating by collecting, storing, organizing, processing, presenting and transmitting information in electronic format without spatial or temporal limits, Table 1.

Therefore, obtaining identifiable results through the use of advanced technologies facilitates and requires the following: the correct, responsible and rapid use of modern technologies; the formation of a correct attitude in the field of scientific research; a high significant benefit in university education are advanced skills through the use of modern technologies, and the totality of digital opportunities develops critical thinking. The formation of professional skills with the digital ones of the future specialists in architecture, interior design, becomes an imminent one nowadays with the help of advanced technologies, Table 1 (4, 5).

Identifiable technologies and advances :
The correct, responsible and fast use of modern technologies;
The formation of an affective attitude in the process of scientific research;
Acquiring advanced skills in the use of technologies;
Forming critical thinking in the process of professional training.

Table 1:- Identifiable results in the use of advanced technologie.

The correctness of the implementation of new technologies in university education:-

The new opportunities offered by digital technologies are multiple but, it is imperative to warn critical situations, not to reach the extreme of isolation of students in their virtual world with technologies, and the need for continuous positive interactions with colleagues and teachers and the revolving of tasks in the team will remedy the situation.

Therefore, with the implementation of new technologies in university education we observe some advantages for students: unlimited access to information on different subjects; in one case situations with reduced time for quick access to information; increased possibilities of access and performed operations. All these correct implementations of digital technologies condition positive steps in the university educational process of training specialists in the field of architecture and interior design, etc.

As a consequence, the implementation of digital technologies in university education and incorrect use, in abuse and exes lead to disadvantages for students, ultimately through: isolation in the inner world, where the virtual space perceives itself as a "real" one with consequences at the psychic level; the individual no longer has the need for communication with his fellows; he, the individual becomes a computer addicted; therefore, health conditions occur; a perturbed time of the day; the individual has his virtual world and breaks relations with the collective (5).

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That is why the incorrect implementation of digital technologies in education of different levels, through the lack of information of students, motivates the appearance of harmful causes in education with the help of contemporary digital technologies, which must be permanently remedied, Table 2 (5, 6).

Advantages in the use of digital technologies				
Unlimited access to information on different areas of interest;	Reduced time for quick access and processing of information;	Increased possibilities of operations and exercises performed;	Critical development of students through analysis and inference;	The challenge and involvement towards scientific research;
Disadvantages in the use of digital technologies				
Isolation in the personal world;	Computer addiction;	Health conditions;	Breaking relations with the collective;	Irregular regimen of the day;

Table 2:- Advantages and disadvantages of using digital technologies.

The practice of applying digital technologies in education have been tested during the Covid-19 pandemic period of 2020, through total isolation, and the form of distance studies has imposed us on the more advanced application of digital technologies in the study process. Then we had to find educational platforms for conducting lectures and seminars, we had to explore advanced technologies in order to transmit to students information as useful as possible, interesting through various situations of problems to solve and openness to communication. It was an experience for all of us, both teachers and students. A traditional lesson in class comes with one on the glass, it takes direct eye contact from both sides, those words of support for a positive climate in a stellar time for all mankind. Initially, the methodology for the remote continuation of the educational process in quarantine conditions, allowed the use of all platforms and applications for remote communication (Viber, Messenger, e-mail, Facebook groups, Zoom, etc.), after which each institution managed the ICT means of organizing the study process (7).

Only by constructive communication on the topic of the lesson, in a short time, but with each student allowed the sincere opening of the inner world of each one both the importance of the individual in the common activity, through problem situations, solving in the collective by involving all the actors of the activity. It was harder at first, then things changed to new, more complex steps in the approach. Consequently, digital technologies, gadgets, educational platforms, programs and software in different fields have allowed us to climb a new stage in education, towards new forms of critical thinking, of scientific research, learning the opportunities of contemporary innovative university education on the fly (4).

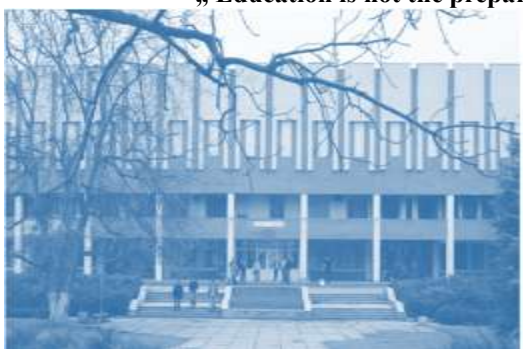
Learning and creativity of implementing new theology in university education for the students of architects from the Technical University of Moldova:-

Gadgets involve students in a creative process in learning, and for the execution of tasks and course projects they are more interested in actively learning, engaged and involved, motivated for new performances. For example, the fifth-year students of the Architecture Department, the Faculty of Urbanism and Architecture of the Technical University of Moldova at seminars carry out interior design projects for public and private spaces much more qualitatively than in the last years with the implementation of new digital technologies.

Architectural modeling of interior space volumes, elaboration of proposals, selection and completion with wall and floor finishes, textures of furniture, textiles, accessories, obtained by higher quality renderers. Therefore, the final

projects come with many solutions on large formats both printed and digital format with multiple detailed explanations, concept projects for existing buildings that require a change, a modernization.

„ Education is not the preparation for life, education is life itself." /John Dewey/



Motivation of the implementation of new technologies in existing architectural projects:-
The project – Reading room within the Faculty of Urbanism and ArchitectureProject
Motivating the students of the architects towards the advanced use of digital technologies of the programs for shaping the interior space was the challenge by organizing the competitions for the best project "Reading Room within the Faculty of Urbanism and Architecture", in 2019.

Therefore, the fifth-year students of architects were challenged to organize themselves in work skits, which in the vision of future architects, with a contemporary approach of location and functionality, to come up with creative proposals of areas with reading spaces, individual or team work, areas for conferences, workshops, relaxation areas, but also another location, more artistic of the library.

Thus, the project concepts for the reading room represented by the students through planes and multiple perspectives and 3D renderings of the interior space as realistic as possible was possible with the help of the software of the work programs in the field of architecture, by the representation of the materials and texture embossed with matte and glossy surfaces (8).

With the help of digitizing technologies especially for architects and interior designers, the modeling of the virtual space is a real, fast and qualitative possibility to convince the beneficiary for the realization of a future real project. It is precisely these opportunities applied in practice to program technologies that raise the contemporary university educational level to new levels of development (9).

As a result, students focus on the daily requirements in the field, on natural materials and easy to care for, but with character for space and contemporary style of sustainability. These examples of projects for the reading room come with white masonry spaces, with simple shaped tables with woody textures, metal shelves with books, laconic work furnitureunited on a single surface, with LED lighting pieces, gadgets, with structural walls for delimiting areas, with paintings of students, with accents of green moss panels and large windows with the opening of the landscape over the glass.

Finally, the architectural approach of the space, the diversity of the stylistic language, the freedom of color and the minimalism but the practicality of the finishing materials inspired to implement the best concept projects for a new multifunctional reading room for the botanical academic campus at UTM Figure 2,Figure 3(10, 11).

Figure 2:- Project concept for the modernization of the Library, FUA Reading Room, TUM.

Figure 3:- Project concept for the modernization of the Library, FUA Reading Room, TUM.

Project - Festive Hall, central block of the Technical University of Moldova

Another real project for modification was a challenge for architecture students, year V of 2020, 2022, initiated by the Rector of TUM, Ph.D., prof., Viorel Bostan, with proposals for new stylistic, functional and architectural approaches for the Hall Festive of the central block of the Technical University of Moldova in the vision of young architects different so far. The administrative block of the Technical University of Moldova being located in the historical center of Chisinau, both on the facade and inside the building respects a classic and renaissance eclectic style.

The plan of the rectangular interior with two entrances, one of which is not used, the public area is not completed with several passage galleries, the stage is too high, there is no natural and artificial lighting, there is a non-functional balcony due to lack of stairs access from the hall space, etc.

Therefore, all these moments influenced the multiple proposals for reorganizing the areas inside the hall, as well as access to the balcony behind the hall, the proposal through a staircase with an arm or two in sober baroque style with marble balustrade with direct access from the hall.

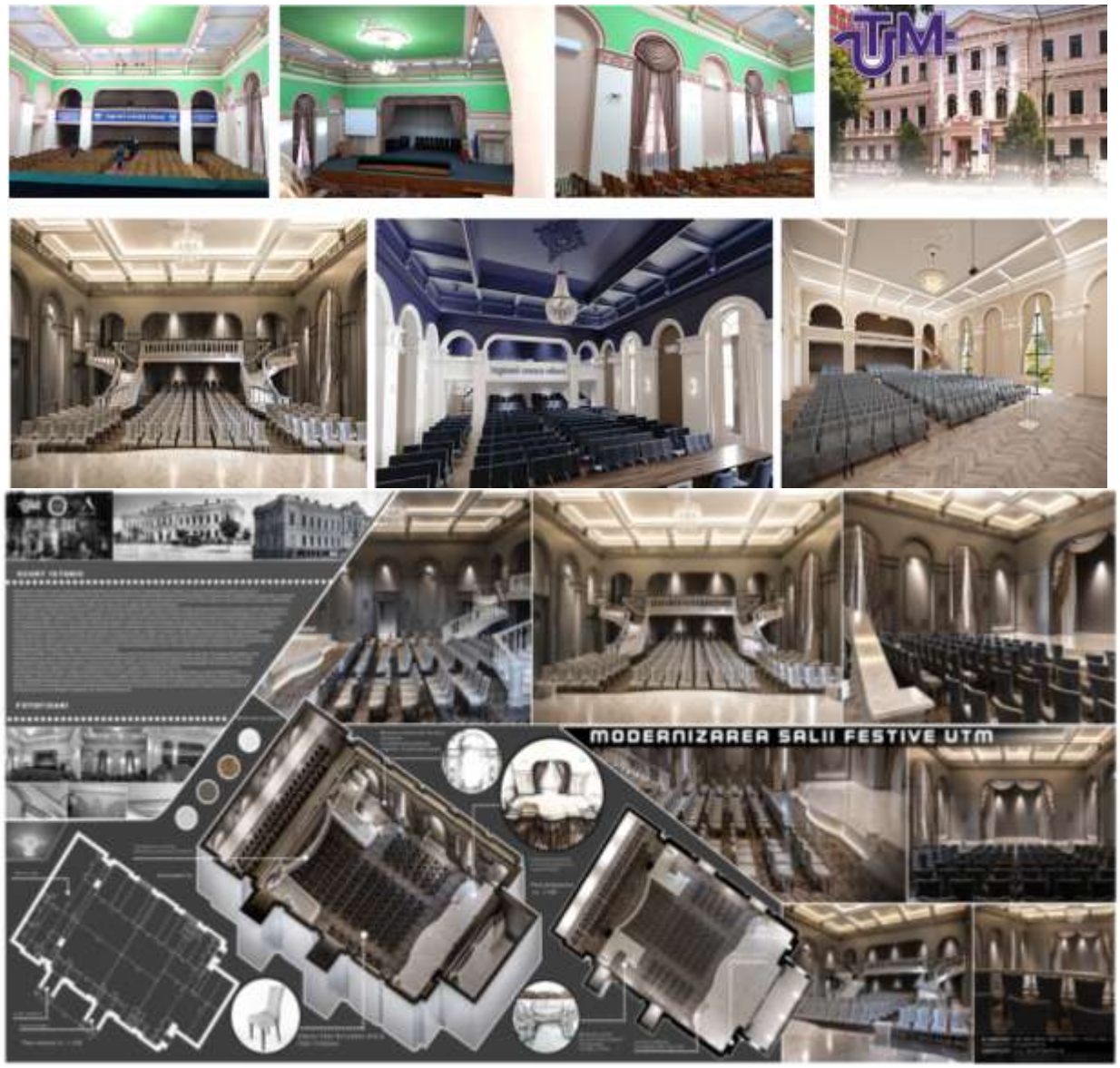


Figure 4:- Projects developed for the Festive Hall, TUM, central block.

Other proposals of the students came for the shape and the decrease of the height of the stage, the opening to the annexed areas for the actors, the functionality of the two doors at the entrance to the hall, etc. Both the distribution of the interior space, the lighting systems, the ventilation and heating systems have been modernized, the elements of the moldings have been preserved only through a better location, a quiet color range, furniture pieces with bulky upholstery have been selected and proposed, designed with a convertible table for a laptop, lighting fixtures stylistically harmonized with the interior and, the high-performance projector barely visible on the ceiling surface, Figure 4(11, 12).

In this case, by using digital technologies in the design of the interior space, this hall was designed after a contemporary vision with new organization, distribution of space, shading and capitalization of the balcony, wide stage and complementing the interior with comfortable furniture, bright colors and bright, interior that challenges you to visit and use it as an emblematic part of the higher education institution.

The architecture of the interior space of the festive hall today presents a history aesthetic in a contemporary and functional image for various festivities and important events for the Technical University of Moldova (TUM).

„Architecture is an art, an emotional phenomenon, outside of construction problems and beyond."

/Le Corbusier/

The architectural creativity, the emotion of the built space can easily be shaped by applying to all the components of a project by using the technologies of 3D design programs, so we go outside the problems and beyond, quoting the architect, engineer, plastic artist Le Corbusier (13).

If in the old days the concepts of projects were made by students entirely by hand on smaller boards, today the architect students elaborate the architectural projects through digital design programs with approach to the vast urban spaces, coming up with 2-3 proposals, with solutions of alasament in the area of the edifice as a form, structure and stylistic harmonious with the landscape of the projected green environment, access infrastructure, graphics and stylistics of built forms, chromatic range, textual information, etc.

The studies themselves, the format and learning activity and the volume of the course units studied in Architecture, FUA, UTM, are those applied in the realistic sciences: higher mathematics, construction physics, technical drawing, materials, technologies and doctrines in architecture, but architects are also educated in the spirit of fine arts, to know and analyze history and aesthetics, he, the future architect is a good designer, with a developed artistic spirit of balance, harmony of shapes, proportions and colors, necessary principles for a creator of artistic forms of contemporary architecture (14).

Conclusion:-

Last but not least, we mention that the research topic reflects the most useful and effective method in the development of humanities. Thus, the combination of learning methods, classical and digital technologies, such as communication, reading, and research lead to obtaining accessible information in both ways, conditioning a best end result.

If in the past, specialists in the field shared different opinions about digital innovations, today they all support and practice these technologies, even somewhere in higher education for a smaller number of senior teachers encounter obstacles in using operating platforms for teaching activities. online, but help, face them, and have success. The computer is a "thesaurus", a "wealth", a "treasure", but these digital technologies can be used only in the application process.

Therefore, the theme we researched about the importance in shaping the shape of interior architecture through the use of new technologies allows us unlimited scientific and artistic achievements both within the university and humanity over the centuries, of general-human values.

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