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Innovative Vectors of Architectural Education: Creativity Technique

Formulation of the Problem

In the context of renovation, national renaissance of the Ukrainian society, a strategic direction of development of the continuous architectural education is the formation of an integrated open system, universal and democratic at the root, being able to respond flexibly to changing external and internal factors, to transform and develop. The latest post-modern understanding of the pedagogical process focuses on innovation by introducing new teaching techniques that can change the stereotypes, renew traditional approaches to getting a professional occupation and provide a new quality of specialist training. Modern understanding of innovative education techniques puts emphasis on a professional component of the educational content, taking into account the nature of labor activity.

The logic of mastering the architectural profession shall develop not so much due to the complication of programs, but due to the «deepening of the system understanding of architecture, deployment of its composition content, and aesthetic principles of harmony and unity, visual balance of

forms, rhythmic constructions, and plastic qualities» [4,140]. Formation of creative individuality of a student-architecture in integrating scientific and artistic aspects, education of personal creativity, and ability to invent original solutions shall be recognized as the primary one. Introduction of innovative techniques of the educational architectural design prepares students for a productive professional activity, increases the motivation for learning, educates independence and the need for self-improvement, as well as develops creative thinking of students.

The basis of modern innovations in architectural education is the pedagogical inheritance of many schools in Europe, America– Bauhaus (Germany)[1], Russian artistic movements of the early twentieth century, and methods of the universities of Amsterdam, Rotterdam, and latest experience of the Ukrainian universities. Constant updating of information in the spheres of science, construction technologies, pedagogics and art makes the problem under consideration open to further development, finding ways to build new theoretical and practical training models.

Purpose of the Article

The purpose of the Article is to analyze the innovation potential of professional training techniques of architects according to the objectives of the graduates' creativity development.

Analysis of Latest Researches and Publications

In the context of the problem under consideration that the study of scientific and practical aspects takes a special importance:

- definition of “creativity” and its psychological models (G.Altshuller, J.Guilford, S.Mednick, R.Sternberg, E.Torrance), modern techniques of students' creativity development (R.Fisher, A.-K.Herbert, D.Trevor);
- theory and practice of innovative pedagogical techniques(B. Alberio, J-P. Béchard, B.Charlier & D.Peraya, F.Cros, A.Hannan, D. Hérbert, L.Kairisto-Mertanen, A.Nisimchuk, F.Stoller, A.Walder) within the framework of the synergetic development of the educational system;
- theory and methodology of architectural creativity(A.Gaudí, Le Corbusier, K.Tange, F.L.Wright), in particular, project methods potential (O.Akin, K.Aleksander, L.Archer, Z.Gideon, Ch.Jencks, J.Johns);
- historical inheritance of architectural education(W.Gropius J.Itten, W.Kandinsky), modern methodical search(S. Ashraf, P. Galloway, R. Lewis, M. Malecha,D. Melodynskyi, A.Pressman, V.Shymko, N.Wilkinson) and practical experience of the Ukrainian universities(O.

Bodnar, Y. Pundyk, S. Rybin, S. Shapoval).

Basic Material Exposition

Based on a systematic and structural methodology (L. Bertalanffy, É. Durkheim, E. Laszlo, J. Piaget, M. Weber, N. Wiener), synergetics theory (H. Haken, R. Graham), architectural education shall be considered as a complex system education, composed of a set of multiple subsystems that are united in a certain way with each other, form a relatively stable integrity, have a hierarchy of internal communications and relations with the outside world. Educational system is characterized by the existence of common (stable) and invariant characteristics—flexibility, dynamism, variability, adaptability, stability, hierarchy, and integrity.

Methodological installations of synergy fundamentally change classical ideas of cognitive process within a higher educational establishment, treating it as a system capable of self-correction and search for new alternative ways of development on the principles of self-organization, self-structuring, resonance control and multiple ways of the system evolution. In the professional training of architects the synergetic approach in conjunction with the principles of individual and oriented learning can provide the conditions for a full development of the personality, formation creative critical professional thinking.

A sign of a new concept of architectural design is a professional creation with the lack of professional counterparts, high aesthetic requirements for the result, possibility of continuous development of the idea that provides training of specialists ready to work productively in the new environment. It is also important to take into account long-term goals of subject oriented education in the implementation of the economic state strategy, resolution of the environmental, national, and cultural problems. The main contradiction of the system is that now the architectural practice is far ahead of the architectural education, although there is some interaction, but it has an unordered nature, which negatively affects the quality of graduates' preparation. The solution to this contradiction shall be the education professionalization under the concept of "architect's creative method", which becomes a central component of the content and techniques of professional training and further professional development of an architect [4; 5].

Modern social dynamics, dispersion changes in the architectural education actualize the need of a system consideration of problems and definition of the principles of transformation of traditional training model into an innovative one:

- establishment of a system of high-quality professional training;
- increase of the training professional orientation, using interdisciplinary and problem-oriented techniques;
- use of innovative and information technologies, as well as creative educational methods;
- formation of a corporate professional culture;
- involvement of social motivation, and creation of a competitive environment;
- integration of scientific, educational and innovative activity of teachers;
- expansion of the innovation infrastructure and information base.

In the process of searching for new ways of development there are two main paradigms: traditional scientific and natural vector aimed at fundamental training according to the requirements of the architectural production, and innovative humanities oriented vector self-development education system, aimed at training on the basis of the latest techniques of the student creative development[3]. The process of training of students-architectures reached bifurcation—the essence of the problem is that in choosing a model for further development of the system you should either develop the traditional historical line, although it mostly does not meet modern requirements for uniformity and universalization of approaches, or change the guidelines in favor of new and unusual ways, rejecting certain techniques non capable of working for decades.

However, you should ensure stability of the system. The signs of stability of an open system are its ability to return to its original state after a short-term external impact, and willingness to further changes. Positive sustainable development of architectural education is provided by a combination of external and internal resources. The external resources include: social and economic conditions; territorial coverage; costs for updating of material support, and educational management. Internal resources are as follows: preservation of the best traditions of architectural training; potential of creativity pedagogy; organizational and methodological integrity of education; aim to improve the quality of professional training and personal approach to each student.

Pedagogical innovations meet the requirements of time and overcome the inertia of the educational system, support new ideas, provide self-determination of a future architect, constant self-development, integration of art and design aspects of academic work. Pedagogical influence shall be aimed at education of student creativity, motivation, individual achievement, and independent search for original artistic and

architectural images.

We understand the creativity of a future architect as an ability for professional creative work and representation of its results with the help of specific graphical methods, condition of formation of the individual technique of creating architectural composition, willingness to make own decisions and to bear relevant responsibility, reasonable choice of necessary ways to perform production actions and estimated attitude to the results, as well as the ability to step back from a given algorithm.

Relying on modern scientific concepts, the pedagogy of creativity in the architectural sphere provides for creating a culture of student thinking: ability of system vision, understanding of dialectical development of problems, synthesis of the material and spiritual, rational and irrational, unity of contradiction of parts and the whole, integrated approach, emotional relationships, ability to think abstractly at the level of the noospheric approach, understanding of the nature and content of the architecture and potential of the architect's creative method [2]. It is important to raise the speed of thought-ability to generate the maximum number of ideas, flexibility – ability to multi-dimensional ideas, originality in the selection of non-standard solutions, accuracy – ability to complete the products of thinking.

The nature of the creative architectural activity in the synthesis of logic and imaginative components requires combining analysis, transformation and creative use of the acquired artistic knowledge during training, generating new ways of learning at the level of images and emotions. Training design provides primary experience of creative independent solution to professional tasks, ability to invent variant design models, make an original strategy and tactics of own actions. It is possible provided that the students master the advanced design methods -abstraction; conceptual; scenario modeling; variability of composite solutions; and stylization. In combination with traditional methods of learning they aim at inventing the original technique of creating an architectural composition, and, gradually, at the formation of personal creative method.

Pedagogy of creativity takes a strategy of problematic, active learning, selection of such techniques that are aimed not at providing the students with ready knowledge, their memorizing and reproduction, but organize the independent acquisition of knowledge, skills in the process of obtaining active scientific and cognitive, as well as practical activities. Basic techniques–forced activation of thinking, when a student has to be

active, regardless of the fact whether he/she wants it or not; increased motivation of own creative generation of solutions; dialog interaction of a teacher with students, and others. Let's place special emphasis on the group discussion of the problem (50% of digestion of knowledge), training by practice (70%), taking a role of a tutor (90%). It is illustrated by the following theses: a student forgets what he/she hears; a student remembers what he/she hears and sees; and what he/she hears, sees, ask questions and discusses—provides knowledge and skills; all what he teaches others—masters; all what the student operates—changes him/her.

Let's consider the combination of competent and activity approaches, based on a predictive analysis and identification of the knowledge and skills needed as a minimum for successful implementation of production functions, and as a maximum, for achieving creative extraordinary results to be the most effective one. Professional competence of an architect is an integrated, step wise formed system of knowledge, skills, personal qualities, and experience, general human and professional values that form the basis of its professional culture, professional and personal readiness for creative and effective solutions to problems of real architectural practice. Components of the system are the general competence which establish the modern requirements to the creative level of activity: social and cultural—ability to system understanding of social and professional problems, willingness to preserve cultural values, to bear responsibility for their preservation, understanding of social purpose of a specialist in the development of the society, culture and science; professional competence is a high motivation for improving professional skills, ability to use creatively the acquired knowledge in future work, ability to business communication in the scientific, social and production areas, ability to organize the work of the team, to adapt to the change in the profile of professional activities. Creative competence of an architect is outlined separately -constructive thinking, leadership skills and initiative; willingness to solve problem situations, ability to self-development, critical analysis of one's abilities; ability to use information and computer technologies in work and self-studying.

Innovative requirements for a graduate are reflected in the special competences: design and compositional one (ability to develop and manage the development of architectural projects for the creation and development of the environment, including the innovative, conceptual, specialized and interdisciplinary projects; to generate creative project ideas, to form and present a concept, a theoretical model, project proposals related to the

improvement of the environmental aesthetic and technological qualities of the environment); scientific and analytical(ability to make basic and applied research in architecture, to give grounds for new project ideas and strategies, to identify and to solve scientific problems according to the architectural specialization; to analyze ,critically evaluate architectural solutions, to implement and to evaluate interdisciplinary scientific research); communicative(ability to represent architectural plans and projects in professional and public communities in a creative and diverse way, and to communicate productively at different levels); organizational(ability to organize a project process, to coordinate the work of specialists; to develop a strategy of actions of the creative team, and to monitor the situation); education (ability to transfer architectural knowledge and experience, to carry out educational activities, to develop innovative methods of architectural training and education of creativity, willingness to improve a professional qualification, and to continue education).

According to these requirements, the educational process focuses on targeted education of creativity of a future architect. The first stage is a heuristic learning -teaching methods of problem and exploratory nature integrate various ways of stimulating creative actions in the emotional perception of art, motivation of imagination and fantasy; formation of skills of creative thinking, development of creative activity and strong-willed traits of a personality. Further development of creativity provides for the intellectual development of a personality by analytical methods of studying architecture- study of the dynamics of historical and cultural development, awareness and identification of composite regularities of the architectural form, its functions, aesthetics and logic, invention of own style of composite search and visualization techniques for the author's ideas. Training practice includes methods of combinatorial modeling, and different methods of organizing architectural for mind space.

Activity training develops special training and communication skills of future architects, skills of self-organization and design of own actions in the game, simulation, projective techniques, close to the real conditions of the design. For example, simulation of various problem situations that clearly demonstrates the diversity and social significance of a professional occupation, during the performance of a particular role (designer, educator, organizer, researcher, etc.) by students and rapid decision-making.

The methods of conceptual modeling are important at the final stage of professional architectural training. It develops integrity and synthetic

perception of reality, problem vision, and important creative skills - ability to make hypotheses, original ideas, identifying contradictions, and overcoming the inertia of thinking. In the course of solving problem learning tasks that are relevant to the real architectural practice, students embody a system of social, cultural, myth-poetic, aesthetic sense, personal spiritual and emotional images and values in the composite model, generate a concept idea of the future work, develop it consistently, and foresee the consequences of the concept implementation. This method creates a creative atmosphere, attracts students, and allows applying innovative forms of the educational process organization, in particular, participation in social and creative educational projects.

Syllabus targeting at the architectural activity, highly problematic of educational tasks, individualized choice of strategy of independent actions, structuring of information materials; efficiency of interactions "teacher-student", dynamic and multi-variant of the educational process - all these have a positive impact on the results.

Consistent use of students' creativity development methods provides innovative renovation of architectural education, a new quality level of training under the rapidly changing social, scientific and technical conditions, will promote a comprehensive readiness to successful creative self-realization of a graduate in all sectors of the real professional activities - educational, scientific work, and architectural design. The objective of the further study is a system development of didactic and methodological foundations of art education of future architects, grounding and practical implementation of creative techniques.

Conclusions

Architectural education functions as an integrated complex synergetic system with stable and invariant and qualities. According to promising social tendencies, the innovative development of the education system determines the priority of education of a graduate's creativity and motivation of self-development in accordance with the nature of the future professional life. Creativity of a future architect determines the ability of a professional creativity, willingness to make own decisions, to choose effective ways of taking productive actions, and to critically evaluate the results. According to the new requirements for the professional competence of a graduate, priority innovative directions of development of architectural education is competent and activity approaches, active problem-based learning, which positively influence the creative features of a student, and form an individual creative design method.

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Abstracts

ОЛЕНА КАЙДАНОВСЬКА. Інноваційні вектори архітектурної освіти: креативні техніки. У статті розглянуто ідеї модернізації синергетичної системи архітектурної освіти, обґрунтовано доцільність інновацій відповідно задачам виховання креативності студентів, проаналізовано сучасні педагогічні підходи до професіоналізації навчання з визначенням ключових компетентностей, надано рекомендації щодо відбору і застосування інноваційних розвивальних технологій фахової підготовки майбутніх архітекторів, спрямованих на творчий особистісний розвиток.

Ключові слова: інновації, архітектурна освіта, креативність, педагогічні методи, професійна компетентність.

OLENA KAJDANOWSKA. Innowacyjne wektory edukacji architektonicznej: techniki kreatywne. W artykule opisano idee modernizacji synergicznego systemu edukacji architektonicznej; uzasadniono potrzebę wprowadzenia innowacji zgodnie z zadaniami kształtowania kreatywności studentów; przeanalizowano nowoczesne metody dydaktyczne profesjonalizacji nauczania z uwzględnieniem kompetencji kluczowych oraz przedstawiono rekomendacje dotyczące

doboru i stosowania innowacyjnych technologii przygotowania profilowego przyszłych architektów zorientowanych na twórczy rozwój osobisty.

Słowa kluczowe: *innowacje, edukacja architektoniczna, kreatywność, metody nauczania, kompetencja zawodowa.*

ЕЛЕНА КАЙДАНОВСКАЯ. Инновационные векторы архитектурного образования: креативные техники. В статье рассмотрены идеи модернизации синергетичной системы архитектурного образования, обоснована целесообразность инноваций в соответствии с задачами воспитания креативности студентов, проанализированы современные педагогические подходы к профессионализации обучения с выделением ключевых компетенностей, поданы рекомендации по выбору и применению инновационных развивающих технологий профильной подготовки, направленных на творческое личностное развитие.

Ключевые слова: *инновации, архитектурное образование, креативность, педагогические методы, профессиональная компетенность.*

OLENA KAIDANOVSKA. Innovative vectors of architectural education: creativity technique. The Article deals with the idea of modernization of the synergetic system of architectural education, gives ground to expediency of innovation according to the tasks of educating students' creativity, analyzes modern pedagogical approaches to the professionalization of teaching with the definition of key competencies, gives recommendations for the selection and application of innovative developing techniques of professional training of future architects aimed at creative personal development.

Key words: *innovations, architectural education, creativity, pedagogical methods, and professional competence.*