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THEORETICAL MODEL OF INTENSIVE GRAPHICAL EDUCATION IN THE SYSTEM OF CONTINUOUS EDUCATION

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ABOUT ARTICLE

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Abstract: The article presents a detailed and comprehensive analysis of the state of graphic education of students of engineering and design specialties, as well as mechanisms for the formation of graphic knowledge and skills. The development of engineering and graphic science at present requires the widespread use of a new generation of technical means, devices and modern information technologies. Accordingly, this study examines in detail the theoretical models of intensive graphic education in the system of higher technical education. Intensive graphic education is carried out on the basis of the unity of the following methodological approaches to training: informational, integrative, optimization, activity, personal orientation. The author systematically analyzes the existing problems in the educational process, including the difficulties of applying theoretical knowledge by students in practice, insufficiently formed skills in working with software products, ineffective use of pedagogical methods in the learning process. To solve these problems, the author proposes the introduction of a system of leading ideas. In addition, the scientific and practical significance of the widespread use of interactive methods that contribute to the professional development of

students is emphasized. The importance of independent work and critical thinking skills such as graphic training, trainings and intensive practical exercises is justified. In addition, the article outlines specific criteria developed to evaluate the effectiveness of the proposed methods and approaches, demonstrating their potential to increase students' professional competencies, speed and quality of design. As a result, it is emphasized that this concept will significantly develop innovative, creative and analytical thinking among students, which, in turn, will expand the possibilities of training competitive engineering specialists in accordance with the requirements of the labor market.

Introduction

In the National program on a professional training (NPPT) Uzbekistan the decision of a wide complex of problems from which improvement of quality of preparation of experts is stipulated depends. Among them - introduction in an education system of Republic Uzbekistan progressive pedagogical technologies. About what in NPPT it is written down: « … to intensify training students with use new pedagogical and information technologies»[1].

Literature review

In the history of theory, practice in the CIS country, some scientists were engaged in improving the content and structure of graphic education. Of these, J.S. Blaus [2] and E.P. Bach [3] developed the content of higher graphic education and the methodology for teaching graphics. Uzbek graphic studies E. I. Ruziev [6] the development of higher pedagogical education in Uzbekistan, N. Zh. Yadgarov [7] developed the perfection of secondary graphic education in the context of the modern problem of the development of graphic education in Uzbekistan. M.Kh. Pirimzharov [8] developed the possibilities of independent education in improving the graphic training of the future architect in the higher education system. A.K. Khamrakulov [9] developed the introduction of computer technology in the system of higher graphic education.

The main results and findings

The intensification of graphical education in the modern{state-of-the-art} conditions is one of actual problems of preparation of the specialists in the system of continuous education. A Transitional character of model of graphical education acutely puts a problem of improvement of effectiveness of teaching and educational process. An intensification of this

process was is real possibly only with the help of usayol of new progressive pedagogical ideas, methods, means, technics {technical equipment} and technologies.

Which is the process of the intensification of education, {maintaining} the integra trends of knowledge of regularity of subject domains and associates among, satirizes development of approaches in the usage of potential of modern{state-of-the-art} graphical education for evolution of the person of an improvement the of level of his creativeness evolution of abilities of technical thinking, formation of skills tor working out the strategy of searching both educational, and practical problems. That it{he} allows to predict the results of implementation of the accepted solutions on the basis of modelling of {investigated} object, the phenomenon, intercommunications between them.

As a kernel of the concept of intensive graphical education (YOKE) i (serves) the system of leading ideas:

- Information, computerizations, technologization - introduction to dranhiks-educational process of computer production engineering of the instruction, new informational{information} and pedagogical production engineering;

- Integration-offering interactivity of the {content}, the unity of means, forms and methods of instruction;

- Differentiations-allowing to embrace cover the different parts of {investigated} objects;

- Optimization - achievement of optimum results of instruction;

- Continuum - forming integrity of attitude of students;

- Humanism - it is realized {implemented} by orientation of teaching and educational process on the dev-t of the person; -
Individualization - achievement of optimum results of instruction by determination of an individual regime of assimilation of a material, and also principles adequate to regularity of processes of a computerization.

Among regularity of process of a computerization of graphical education it is necessary to note{register}:

- Emersion appearance and usage the of process of computer means in graphical educations as result of socially-technical changes in a society, a science and {education;

-Theoretical judgment and practical implementation of educational techniques and production engineering of instruction the schedule according to application of modern{state-of-the-art} computer technics {technical equipment};

- Qualitative changes in graphical education under agency{effect} of computer means and production engineering of instruction.

In the last years of a computerization of instruction has got especially wide scope. It is connected first of all by originated need {requirement} for the specialists owning the computer letter, especially in the areas connected with accomplishment of graphic representations. Therefore, it is no wondered also appearance of such discipline, as engineering and computer the schedule is quite proved. The student since the first years of instruction gets acquainted with principles of reception of graphic representations on a computer. It {he} gains the general{common} representation about graphical editors, and also skills of work with them.

It is one part {side} of a question. Other part{side} reveals in how we can use computer production engineering in educational process for improvement of quality of teaching engineering schedules. It is necessary to observe {watch} all advantages of a computerization of educational process, and also to consider deficiencies, the negative moments and to reveal ways of their overcoming.

The question which will be observed {watched} in given paper is a direct {direct injection} computerization of educational process and use of its{her} opportunities at studying engineering schedules. Undoubtedly, use of a computer has a row{series} of advantages in comparison with traditional methods. Including an opportunity during holdings{bushings} to size up result of assimilation of knowledge of students, to vary ways of transfer{gear} of the information and the most important-allows to consider specific features-psychological of students so, optimum image to combine face-to-face work with individual. But use all these advantages can to turn to the opposite. That is the problem consists in having prepared enough teaching composition. Besides not always it is possible to gain hardware components of an appropriate level and an easy approach to them.

Considering specificity of a subject “Engineering the schedule”, it is possible to apply following forms of work with application of a computer: computer testing; training programs; elements of geometrical modeling; electronic manuals.

We had been developed computer tests on such sections of engineering the schedule, as dimensioning, aspects{views}, cuts{sections} and cross-sections. Each alternative of the test{dough} is issued in the form of WEB-pages, to get on which it is possible from the title page by means of a hyperlink.

Very important at preparation of engineering-design staff such scope of computer means, as geometrical modeling. Geometrical modeling is a process of creation of a geometrical model of a subject or installation for the solution of the graphical problems connected with its{his} manufacturing and functioning. It is complex{difficult} enough and lab our-intensive process, but elements of geometrical modeling it is possible and it is necessary to induct already

on initial curriculums, especially at preparation of design engineers. For this purpose, means machine or computer schedules as in professional work the good knowledge of a computer is necessary for the future designers are used.

In graphical editor AutoCAD there is an opportunity of solid-state modeling is a creation of the space, a stereoscopic picture of a subject, using such geometric objects as a cone, the cylinder, a prism, etc. thus the student designs the external form of a detail what-or a plane, and also aspects{views}, i.e., projections of this detail. Thus, it{he} can compare with a space image {stereoscopic picture} to flat projections, see their interconnection, that at the beginning instruction represents significant difficulty.

Being powerful iever managements of teaching and educational process, scientifically-methodical work of students and teachers, the modern{state-of-the-art} computer technics {technical equipment} has great value and in management of all activity HIGH SCHOOL attaching the future specialists to real operating conditions in modern{state-of-the-art} automated manufacture.

Summing up it is possible to tell, that it is far not the full list of possible use of computer production engineering at studying engineering schedules. Every year we see origination all of new software and didactic techniques. All of them bring huge positive results by way of improvement of quality of education.

It is found out, that application of computer production engineering at studying engineering schedules yields following results:

- increment of educational motivation of students and their creative activity:
- a reinforcement of a turn{back} coupling between students and the teacher;
- economy of auditory a time;
- Improvement of quality of knowledge of students.

The concept of intensive graphical education developed by us reveals following methodical rules{positions}:

1. Intensive graphical education it is carried out on the basis of unity of following methodological approaches to instruction: the informational {information}, integral, optimizational.

2.Intensive graphical education - process maintenance of sphere of graphical formation{education} with the theory and practice of development and use of modern{state-of-the-art} computer means and the production of engineering oriented on implementation of the purposes of instruction, education and evolution of students.

3.The Informational {Information} approach as means of introduction in modern{state-of-the-art} graphical-educational process of computer instruction is provided with implementation in practice of theoretical model the YOKE.

4. Structure the YOKE represents: the purposes of instruction graphics, the detail-graphic and informational{information}-computer block of the maintenance{contents} of instruction, process of instruction graphics, an organizational-methodical complex, subjects of educational activity, a new growth in properties of the person, as result of intensive graphical education.

5. Specificity the YOKE is caused by means of implementation of principles of information, a computerization, integration, technolization, differentiations, continuum, humanism and an individualization.

6. Efficiency of graphical preparation at instruction graphics is established{installed} by means of adequate criteria, parameters and the parameters defining{determining} completeness, system, directivity, integral character of knowledge and skills, experience of creative activity, formation of graphical crop by means of a complex technique of an estimation of results the YOKE. Development of the concept and the maintenance{contents} of instruction was spent in view of following didactic demands:

-Sequences of a statement (in the maintenance{contents} of instruction the principle of construction from simple{simples} to complex{difficult} is used, the sequence of a statement and interconnection of each theme is observed);

-Presentation (at studying installations various models are applied, graphical the image, etc.);

-Accessibility (the stated material is represented according to psychological habits of perception of students);

-Scientific character (forms of the organization of didactic process are directed on that holding{busyings} had search character).

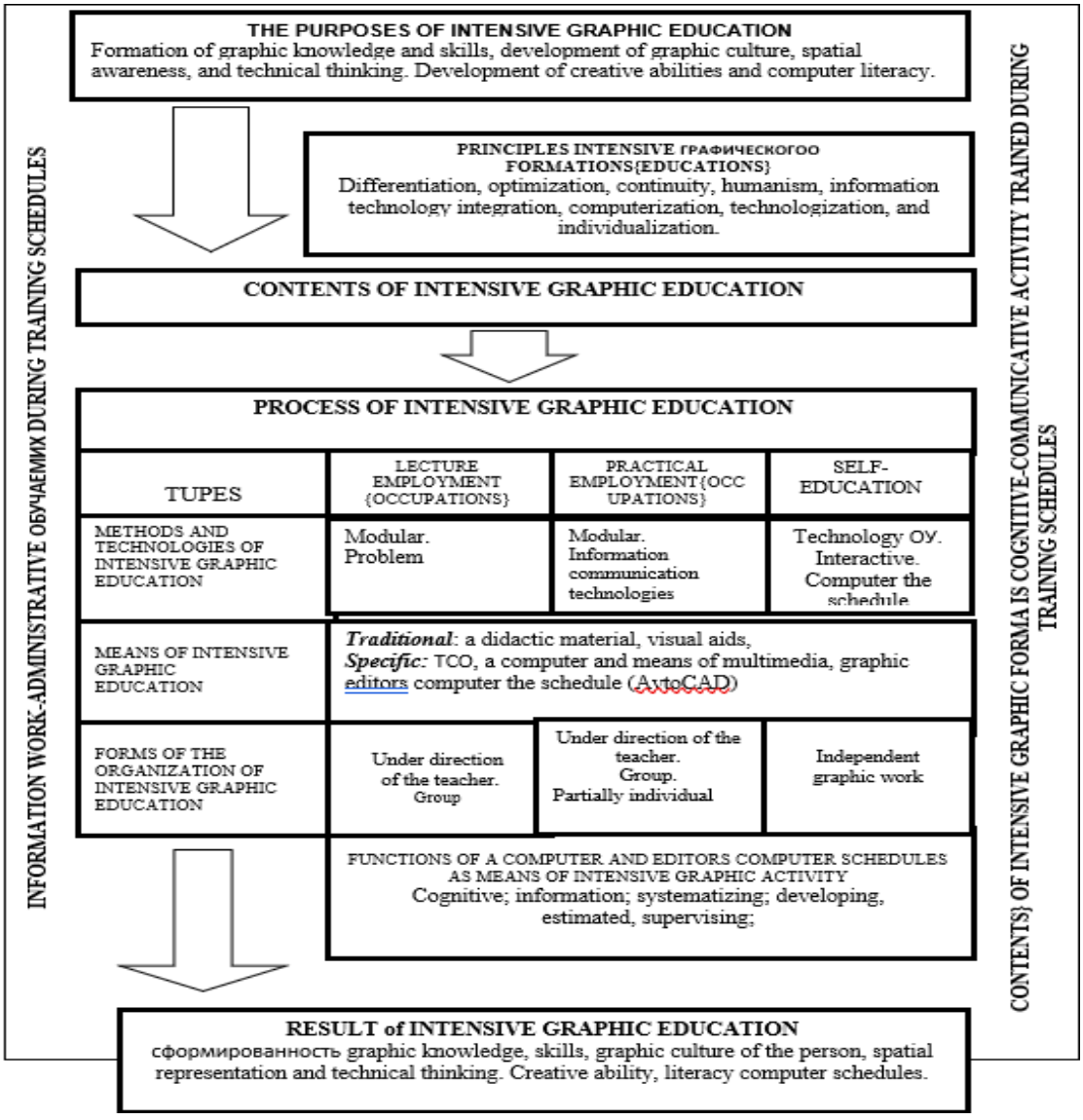
According to the concept the theoretical model the YOKE (Figure) is developed, the structure and which functioning is provided with integrity of target, substantial, organizational-methodical, remedial and is productive-estimated components. The theoretical model the YOKE should secure effective instruction to a subject with application of the personal computer.

In model the YOKE we gate out the specific purposes, the maintenance{contents}, process, an informational{information}-methodical complex, subjects and their activity, results.

The purpose of the YOKE is a formation of graphical knowledge, skills, graphical crop, evolution of the space notion and technical thinking. Creative abilities of the person, literacy computer schedules. In the maintenance{contents} of intensive graphical education it is possible to gate out two components: a detail-graphic component and the computer-informational component. The detail-graphic component of the maintenance{contents} the YOKE in HIGH SCHOOL is based on the traditional program in a subject and differs from it{her} presence compulsory intersubjective communications{connections} and character of activity of subjects.

The developed model creates an opportunity of evolution of knowledge, skills in educational process, an opportunity of martempering of qualities of knowledge, and also evolution of creative abilities.

Figure 1. Theoretical model of intensive graphic education



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