

## IMPORTANT FACTORS IN PREPARING STUDENTS FOR PROFESSIONAL ACTIVITIES BASED ON INTEGRATION OF NATURAL SCIENCES

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### ANNOTATION

*The article analyzes the important factors of preparing students for professional activity on the basis of the integration of graphic sciences and the results of research work carried out by several scientists in this field. On the basis of these analyzes, the integration of graphic disciplines was developed and a questionnaire on professional activities was conducted among students, and their results are also covered in the article. The teaching of graphic sciences, which is a key factor in the development of students in the field of graphic design, design and their integration, is based on clear evidence and conclusions and recommendations that in the future these personnel will play a key role in mastering the field and their professional activities.*

**Keywords:** *integration of graphic sciences, differentiation, specialist, pedagogical and psychological factors, questionnaire.*

Shaping students 'preparation for future careers is continuous and complex. Therefore, in its organization, special attention is paid to the study and consideration of factors influencing this process. A factor (Latin "factor" - to do, produce) means everything that affects this or that process. The influence of N.E.Kasatkina, A.N.Koksheneva considered the factors influencing the development of the student's personality and self-determination of young people.

Hence, R.A. Parfirieva states that it is carried out in the process of development of the student's personality and is influenced by the following factors: macro factors (society and the state); mesofactors (ethno-cultural conditions in which a person lives and develops); micro factors (family, child care and other socialization institutions).

N.E.Kasatkina, TM Churekova distinguish all the factors in the process of self-determination of young people: General (socio-economic living conditions of people, spiritual culture of society, regional (specific features of economic and demographic

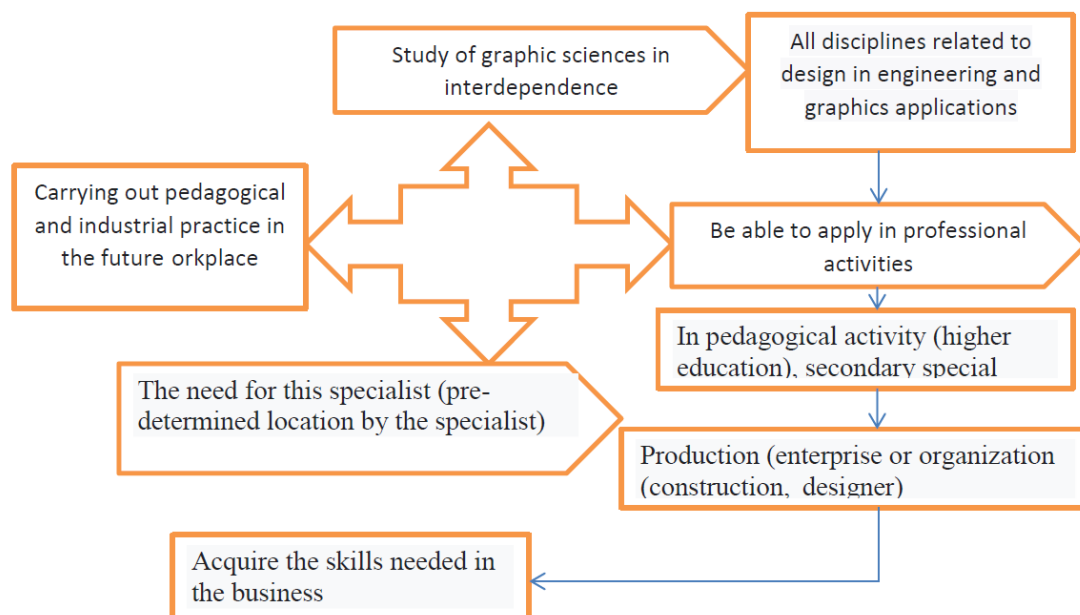
development of the region, career choice of young people and influencing career choice); Psychological factors are divided into three groups:

- mass media, etc.
- Factors arising from the age characteristics of young people;
- Factors influencing the formation of value orientations;
- Factors of personal nature (tendencies, abilities, interests, psychophysiological qualities, general level of education).

A.N.Leontiev considers it expedient to divide all factors into two large groups: purpose (factors that depend on the economic, political and cultural characteristics of society). Subjective (area of motivation and needs of the person, values, personal characteristics, abilities). Based on the above examples, it is possible to talk about the different approaches of the authors in grouping the factors influencing the process of personality development.

E.A.Koksheneva considered it expedient to distinguish three groups of factors, given the existence of classifications in the consideration of factors. This classification is not rigid and is based on rules about the ability to take these factors into account and manage in the context of the learning process. The classification he uses includes the following groups: socio-economic factors, psychological factors, organizational-pedagogical factors. The group of socio-economic factors influencing the formation of professional readiness of students includes: the state of the labor market in the region (employment opportunities); the prestige of education and profession in society and in a particular region; demand for specialists; the social status and level of education of the parents; the financial means of the family.

Integration of graphic sciences - the use of one in teaching the other, the application of their theoretical foundations in the practical process, based on the organic and theoretical connection of a number of graphic sciences, while organizing the student's professional activity in a clearly specialized direction [3]. Teaching graphic sciences in an interrelated way not only increases the effectiveness of the lesson, but also increases the interest of students in science, understanding the purpose and essence of science in a short time, mastering it and creative work in a specific field.



1-picture. The form of the necessary steps in the preparation of the future specialist for professional activity

1-picture above shows the necessary steps in the preparation of a future engineer for professional activity. This will allow students to master engineering in the first place and apply it in the next stage in the specialty. For example, students majoring in "Use of hydraulic structures and pumping stations" in the first and second years study the subjects "Engineering and Computer Graphics", "Computer Graphics". In subsequent years, ie in the third and fourth years, students will be able to apply their knowledge of drawing and engineering in the study of special disciplines, such as "Introduction to the science of hydraulic structures", "Theoretical Mechanics" and other disciplines.

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The processes of integration and differentiation are also inherent in education. These processes correspond to two tendencies of human cognition, on the one hand, the depiction of the whole world, and on the other hand, a deeper and more accurate study of the laws and characteristic features of various structures and systems. At the present stage, integration dominates stratification and is seen as a promising area for improving modern education.

The process of integration is seen as the interaction of the content of different disciplines in order to form a multifaceted complex system of scientific knowledge

among students. Today, integration processes in education prevail for a number of objective reasons. In the context of the development of the global information space, the integration of educational systems of different countries, the recognition of the importance of cooperation in the field of education is becoming a necessary condition for the development of education.

Studies have shown that the synchronization of system interactions is ensured due to the unity of the structures (goals) that make up the system and the teaching technologies at the university. Awareness of integration processes during training is only possible with advanced systematic thinking.

For an expert-engineer knowledge to be mobile, he must be able to process the accumulated knowledge and store it optimally, and these are often models, diagrams, graphs. He must learn to constantly replenish his knowledge and be able to apply it in his practice, viz. use knowledge engineering in their own knowledge.

Each professional must establish relationships between the subjects and objects of the business process, make and implement management decisions in their professional activities as a subject of the management system, develop their professional skills and reveal their creative potential through flexible use. training based on management systems technologies, their complementarity and consistency.

The group of psychological factors includes: motives for choosing a profession; striving for success in business; expediency of actions formed under the influence of a stable system of conscious value orientations; the emotions that come with shaping students 'readiness for future careers; will, as a result of which the student can acquire the knowledge, skills and abilities necessary for him in his future professional activity; the presence of personal qualities that will help you to carry out future professional activities.

The group of organizational and pedagogical factors is characterized by the real conditions in which the student finds himself in the educational organization. This group includes: organization of the learning process; level of training; the type of relationship between teacher and students.

In order to study the readiness of students for future careers, we interviewed 36 second-year students and 52 first-year students majoring in "Agricultural Tractor Driver". The analysis of the master's degree in "Engineering Graphics and Design Theory" and the bachelor's degree in "Alternative Energy Sources" showed that according to the Tashkent City Employment Center, as of April 1, 2020 for specialists in Engineering Graphics and Design Theory " There are more than 150 vacancies for "Engineer Designer".

However, there are problems with the training of competitive personnel. If we take the data for the Fergana region, the need for water management specialists is 202 people, for electricians – 148 jobs. that is. workers in these occupations in the labor market are not redundant.

This, we can conclude that there is a need for workers in these occupations. This is confirmed by the survey

- "How do you assess your prospects in the labor market"
- I am optimistic about the future - 34%
- I'm not sure about the next job - 11%
- I'm sure about the next job - 44%- I will continue to study - 15%.
- difficult financial situation - 19%

This, according to the results of the study, we received the following conclusions to shape the readiness of students for future careers at the Institute;

- the institute has created favorable conditions for students to study and learn new technologies;
- interaction between students and teachers;
- the period of study is inextricably linked with the future activities of students
- integration of science and industry is established;
- favorable conditions are created for students to engage in research work.
- graphic disciplines are carried out in depth at the institute, and most importantly, on the basis of their mutual integration, the acquisition of the necessary knowledge in the professional activity of the student is established.

In addition, more positive results can be achieved if the results of today's activities at the institute are focused on the further development of research results and their application in practice.

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