

## Building Design Competencies of Students in Technology Lessons

*Rakhmatov A. A.*

*Teacher at Shahrizabz State Pedagogical Institute*

*Mirzayeva G. M.*

*Independent Researches at Karshi State University*

**Abstract:** This article is devoted to the fact that in technology classes, students learn to design the process of living objects through the formation of design competencies, and are brought up as mature and competent individuals.

The reforms carried out in the field of education in the Republic of Uzbekistan are aimed at improving the personnel training system, improving the quality and efficiency of classes. Students studying in general secondary schools should have sufficient theoretical knowledge, practical skills and qualifications. For this reason, it is desirable for students to enrich their knowledge in school lessons. In the process of practical training in the science of technology, students are engaged in making things, develop planning and design skills, gain knowledge about predicting and forecasting the expected result based on basic information. This, in turn, produces deep-thinking, creative individuals and educates them in line with the demands of the times. In technology lessons, schoolchildren will have an opportunity to develop their design skills in collaborative activities and to rationally combine them in solving specific problems of the manufacturing process. The design method consists of several stages.

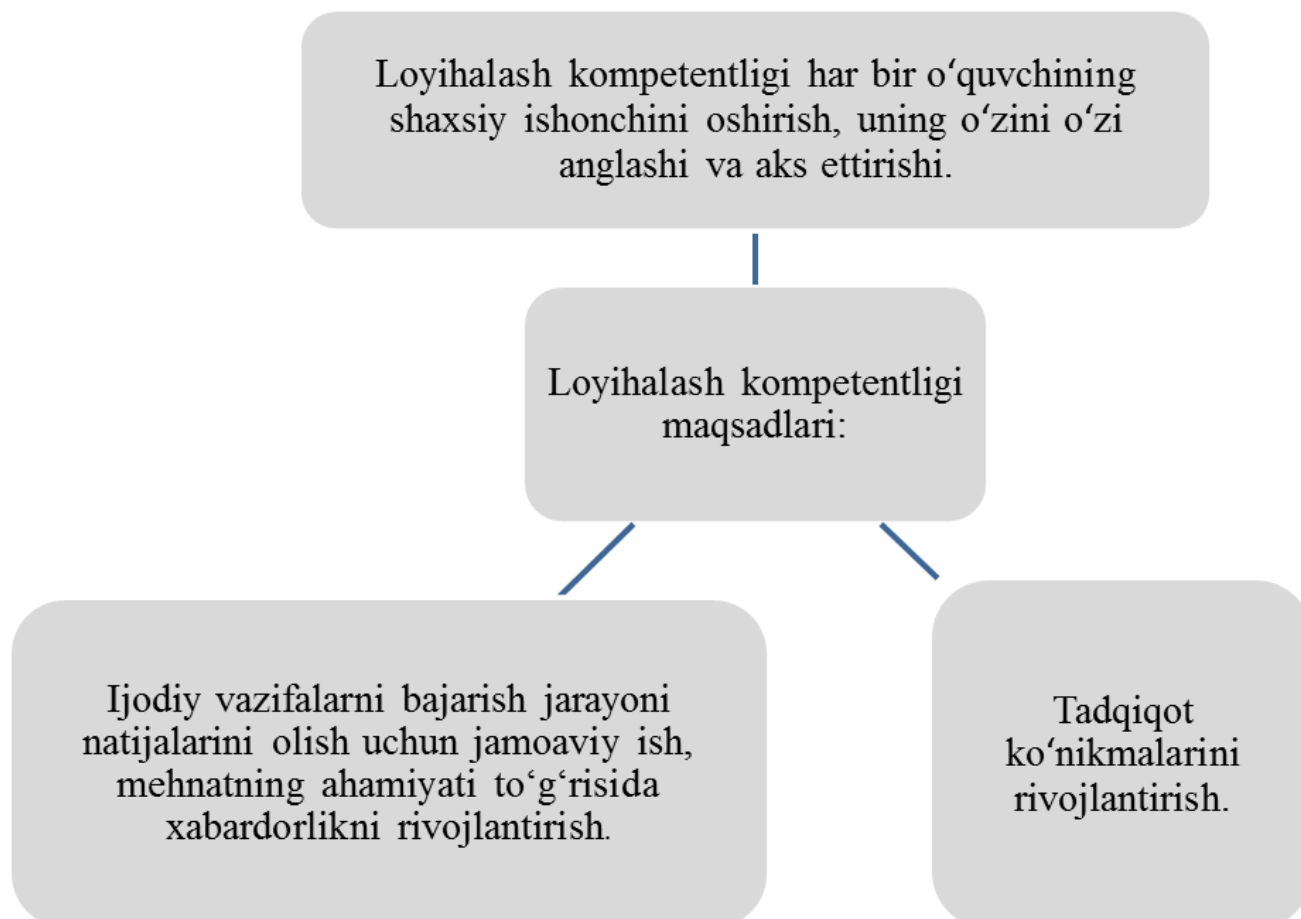
Design activity is an activity aimed at creating a certain unique personal result, with a defined start and end time, to achieve a pre-planned goal and an expected result.

We define the meaning of the word "project" as a process leading to the final goal. A project (lat. "projectus" - "promoted") is a product of action aimed at developing the content of pedagogical activity, with a guarantee of its results based on a specific plan and goal [2].

When the design method is used in technology classes, the following actions are performed:

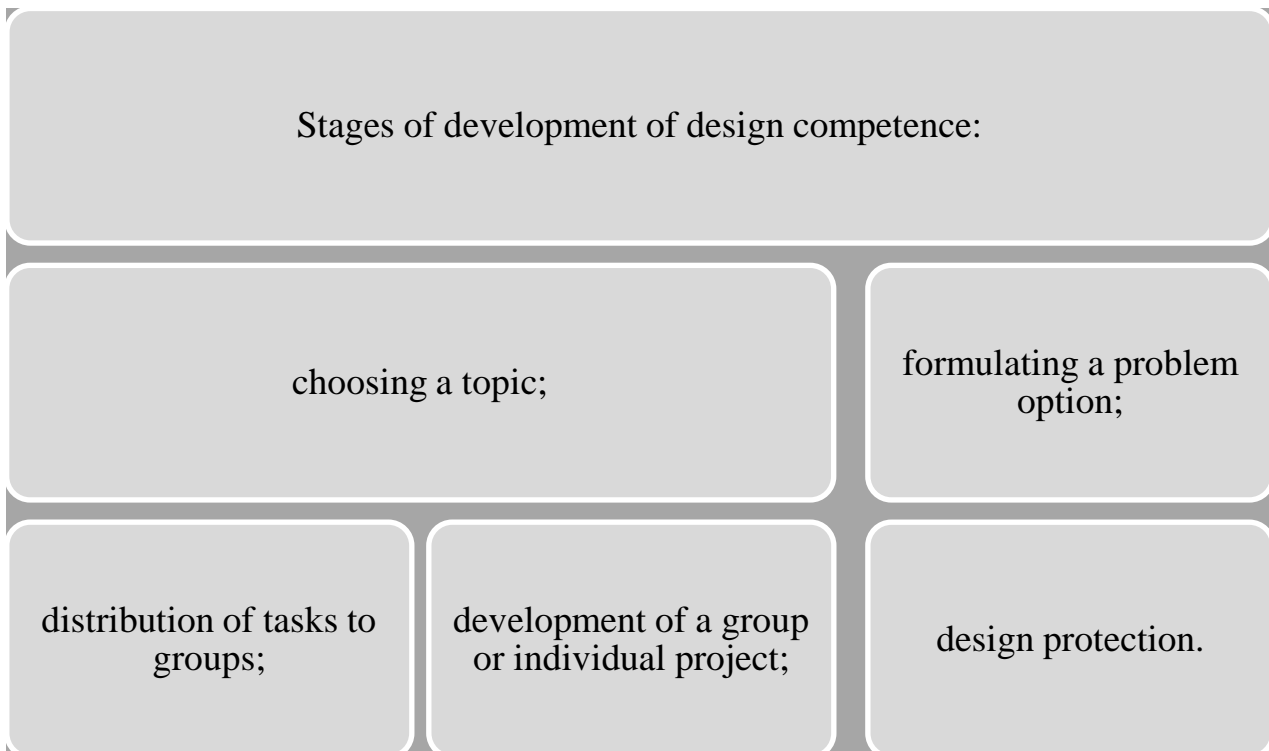
- 1) planning training: the student must clearly define the goal; describe the main steps to achieve the goal; focus throughout the work on achieving the goal;
- 2) development of critical thinking: analytical; logical; systematic;
- 3) development of creative thinking: spatial imagination; independent application of theoretical knowledge to practice; combinatorial skills; predictive skills.
- 4) the ability to work with information: choosing what is needed; analysis; systematization and generalization; identifying problems; make reasonable assumptions about their decisions; experiment; statistical data processing; generating ideas;
- 5) formation of communicative competences: teamwork; forming a culture of cooperation; the ability to adapt to reality;
- 6) the ability to prepare a written report: the student must make a plan to clearly present information, make comments;

- 7) forming a positive attitude to work: the student must be proactive and enthusiastic; should try to complete the work on time according to the established plan and work schedule (Fig. 1). Design work should always start with choosing a topic, its type, and determining the number of participants. In addition, the teacher should consider possible options for problems that are important for learning within the planned topic.



**1-rasm. Loyihalash kompetansiyalarini shakllantirishda maqsadlarni belgilash .**

Muammolarning o'zi o'quvchilar tomonidan o'qituvchining taqdimotidan kelib chiqadi. Vazifalarni guruhlarga taqsimlash, mumkin bo'lgan tadqiqot usullarini muhokama qilish, ma'lumot qidirish, ijodiy yechimlar (2-rasm). Loyihalash faoliyatining muximligi shundaki, birinchidan, undan texnologiya ta'lim tizimining barcha bosqichlarida keng foydalaniladi, ikkinchidan, loyihalash mantig'i va texnologiyasini bilish tashkiliy, taxliliy boshqarish vazifalarini samarali amalga oshirishga imkon beradi, uchinchidan, loyihaviy texnologiyalar o'qituvchining kasbiy kompetentligi, uning mahorati va raqobatbardoshligini ta'minlaydi [3].



**Figure 2. Stages of development of design competence.**

Choosing a design theme can be different in different situations. In some cases, this topic can be formed by specialists of educational institutions within the framework of approved programs. In the following, teachers should proactively promote the educational situation in their subject, taking into account the natural professional interests, wishes and abilities of students. In another, the design topic can be suggested by the students themselves, who, of course, focus on both creative and practical interests at the same time. When designing, students face specific challenges, but they are objective and overcoming them is one of the main pedagogical goals of the design method. Design is based on assimilation of new information, but this process is carried out in the field of uncertainty and it needs to be organized, modeled, because students are leading and defining current goals and objectives, looking for ways to solve them, when there are alternatives. they have a hard time choosing the most suitable one.

Difficulties in using the design method are used when any research, creative task appears in the educational process, which requires integrated knowledge from different fields, as well as the use of research methods.

The content of the design method is the basis of teaching, its meaning is to create conditions for independent mastering of educational materials by students during the implementation of projects.

Design includes the following main components and stages:

- 1) identification of needs: students independently or together with the teacher identify an actual problem that requires solving;
- 2) writing a brief statement of the problem: the purpose of the design is determined and written in a short form;

- 3) conducting research and analyzing their results: the needs of the intended person are studied for the product under development, analogs available on the market, production technologies in industry, a possible method of production in school conditions, the availability of materials and equipment ;
- 4) development of requirements for the designed product: a detailed list of criteria that must be met in order for the developed product to be of high quality is drawn up;
- 5) development of initial ideas: students develop ideas to solve the given problem, make drawings, sketches and react to them with their comments;
- 6) selection and development of the best idea: submitted ideas are evaluated against the criteria specified in the requirements, and the best one developed in detail is selected;
- 7) product planning and production: students plan the production process, acquire the necessary skills in working with materials and produce developed products;
- 8) evaluating the results of product inspection and design: students conduct tests, evaluate the product against the developed requirements.

The design method is always focused on the independent activities of students individually, in pairs, and in groups, which are carried out over a certain period of time. The teacher can suggest sources of information or simply direct students' thoughts in the right direction for independent research. As a result, students must solve the problem independently and together, sometimes apply the necessary knowledge from different fields, and achieve a real and accurate result. Design focuses on the acquisition of life skills that initiate personal growth and individual development, interpersonal communication and interaction, and self-determination.

In conclusion, it can be said that if we develop and enrich the design ability of students from school age, then in the future they will become mature specialists of their profession, take the right steps towards achieving their goals, apply theoretical knowledge in practice, forms the ability to select and use the necessary information in the right place, accurately present and interpret the information.

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