

# Project Thinking as the Basis of Design Creativity: Content and Features of Its Development among Bachelor-Designers

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## Abstract

In current conditions, without the ability to think outside the box, without the formed artistic-design competency that identifies the ability to create a design idea based on conceptual and creative approaches to solve the design problem, a specialist cannot be in demand, competitive in the professional field. The content of education in the field of professional training of designers should provide graduates with opportunities for freely promotion along with various professional ways (Koveshnikova & Koveshnikova, 2012). The urgent task of the modern professional training of designers in higher education has been and remains the development of creative project thinking of future specialists. It can be developed in various ways, one of which is the use in the training of bachelors-designers, the integration of photographics and academic disciplines, the aim of which is to teach students the basics of graphic design. The article reveals the essence of project thinking and the role of Photographics in developing project thinking among designers in the process of their art-project activities. Particular attention is focused on the specifics of project thinking as a priority during the training process in the field of design. Photographics is interpreted in this study as a modern form of visual art, capable of developing components of project thinking in integration with graphic design.

**Keywords:** project thinking, design education, bachelor-designers, graphic design, Photographics, case-technology method

## 1. Introduction

Today, the designer's workflow involves the problematization of the design situation, the updating of non-traditional aspects of the content of the design process. Without an artistic-design competency that identifies the ability to create a project idea (Kadyirov, 2020), based on a conceptual, creative approach to solving a design problem, a designer in the modern world cannot be in demand and competitive in his professional sphere (Vasileva & Troshkin, 2017).

According to scientists, the designer should be a specialist, developed diversified (Rozenon, 2006): he should have a special type of education that combines the artistic thinking inherent in representatives of spatial arts and the rational thinking inherent in specialists in engineering. For the engineer, the main point of the design process lies mainly in the invention of any working mechanism. The designer is, first of all, the inventor of new visually perceived forms, an artist. However, the designer in the process of implementing his design plan is not limited only by the development of the subject's form; he continually returns from the form of the subject to its function, "drawing impulses for his creative work from the field of the subject's formal qualities" (Koveshnikova & Koveshnikova, 2012).

Integration of types of activities forms the concept of "project thinking", the development of which becomes an urgent task of modern professional training of designers in higher education, since teaching students it is not only acquiring theoretical knowledge but also the development of the ability to think creatively and competently carry out professional activities (Akhmetshina & Kadyjrova, 2017; Bykova et al, 2019).

The main features of project thinking:

- focus on results: the project is not implemented for the sake of the process, but the main goal is achieving a specific result;
- freedom of choosing means: appears a choice of different ways to achieve the main goal, the use of different, not only traditional means;
- understanding that there are no restrictions of the project: any project can be started or be closed;
- creating conditions for students to independently learn educational materials in the process of project implementation;
- carrying out projects of a creative nature, students master the basics of design, technology, communication, and reflection, acquire new knowledge and skills, and learn how to put knowledge into practice (Lomov, 2010).

For the formation of project thinking, the student must develop the ability to identify the problem and formulate the task; ability to think figuratively; the ability to freely formulate thoughts and verbally express them; the skill to visually display a design idea (Grigoriev, 2007).

In our opinion, the study of A.D.Grigoriev on the formation of the design thinking of design students presents a complex of organizational and pedagogical conditions close to our research, focused on the effective development of project thinking. It is presented in the form of the following conditions:

- the use of educational and professional problem tasks aimed at practicing various operations of project thinking;
- ensuring the principle of continuity in the design activities of students;
- the creation of an artistic-creative environment based on the dialogical interaction of the subjects of the educational process.

Photographics, as an artistic mean of graphic design, has significant potential for the development of project thinking. At the university level, photographics plays an insignificant role – it is perceived only as an auxiliary tool. Accordingly, the issues of professional development of bachelor-designers by means of photographic are not well studied. Our study is devoted to improving the methodological system of teaching the basics of computer graphics with the integration of the photographic module as a possible effective means of developing project thinking of future designers.

Taking into account the analysis of the interpretation of the concept "project thinking" by researchers, we developed the author's definition of "project thinking in the field of photographics". In our opinion, this is a type of creative thinking based on a combination of engineering and artistic thinking, which manifests itself in an actively-creative, constructively-creative change of a fragment of reality in order to realize a creative idea by integrating the artistic means of photography and computer graphics.

## 2. Methods

During the process of experimental work, the following methods were identified: the case-technology method (mainly); immersion method; explanatory and illustrative methods; demonstration method; searching method; problematic method; research method; brainstorming; heuristic method; control-diagnostic method.

## 3. Results and Discussion

During the study, the following results were obtained:

1. The essential-substantive characteristic of the project thinking of bachelor-designers was revealed.
2. The role of photography in the development of project thinking of bachelor-designers was determined.
3. The solution of the problem of developing project thinking among bachelors-designers in integrated classes of computer graphics and photographics was substantiated.
4. The system of tasks and exercises was developed using case-technology that promotes the development of project thinking of bachelor-designers.
5. Methodological recommendations for the development of project thinking of bachelors-designers by means of photographics were developed, features of their application in higher education were identified.

The methodological recommendations formed the basis of the author's invitation, which is a set of tasks implemented in the training module "Photographics" in the discipline "Fundamentals of Design".

The complex of developed tasks has the following composition:

1. *Poster Design (knowledge control)*

Assignment: to design a poster on a social topic (student choice). Students work on tasks individually; there are no restrictions on the choice of material and visualization tools.

This task is necessary to assess the presence of components of project thinking in the art and design activities of students.

We have proposed the following criteria for assessing the level of project thinking among students: 1) cognitive criterion; 2) creative criterion; 3) activity criterion; 4) control and reflexive criterion.

The indicators of the 1st component are: the knowledge base and its application, the ability to work with information.

The 2nd component is represented by creative abilities: creativity, originality, liberality and laterality of thinking, imagery and symbolism, problematic.

The 3rd component is defined through computer skills, as well as planning and design.

The 4th component is determined by such indicators as: attitude to criticism, awareness of the effectiveness of the creative process and the level of independent work on project.

During the process of assessing the level of project thinking, we used such diagnostic techniques as: pedagogical observation, test, creative task.

2. *Case "Composition in Photography"*

Case Composition:

- the description of the problem situation;
- 5 questions of open and closed (single choice, conformity establishing) type, composed in aim to develop students' knowledge of the general laws of composition;
- task (solution to a problem situation): to identify compositional errors in the proposed frames.

The purpose of the case: to form students' knowledge about building compositions in photography.

3. *Practical photography exercises*, borrowed from the guidelines for photographics, developed under the guidance of M.E. Karagodina. The author's laboratory works have different nature: reproductive (students use detailed instructions), partially-searching (independent selection of material and methods), searching (students must solve a new problem, based on existing knowledge).

We have selected 10 out of 22 laboratory works. Moreover, we transformed and improved these exercises for our research; supplemented them with more relevant illustrative examples and authorial shots.

This type of task is aimed at the primary development of the components of project thinking.

The foundation for identifying the criteria for evaluating photographic works was the general criteria for evaluating competitive works, where the main indicators of professional photography are: compliance with given topic; artistry and originality; compositional integrity; technique and workmanship; informational content; general perception.

4. *Individual cases in the form of design projects*, subject of which was determined from the specifics of the analysis of the currently relevant services. The number of cases corresponds to the number of students in the experimental group. It should be noted that the designed tasks are completely copyrighted.

The contents of the case include:

- an annotation in the form of a possible real order for the visual design of the brand (the interests of the client are described and recommendations are given to prevent a large number of corrections);
- a set of branded products necessary for the "potential customer";
- the description of the visual presentation of the intermediate and final versions of the project.

Criteria-assessment system of the case: analysis of the design problem; creativity solutions; independence of decision making; accuracy of the choice of materials and means; novelty; compositional solution; metaphorical and

associative; technical performance; accuracy of the choice of variants; completeness of implementation of the design concept.

#### 5. *Poster design (knowledge slice)*

Assignment: to develop a poster design on a social theme, identical to the one that was chosen by students at the beginning of the experiment. Students work on tasks individually; there are no restrictions on the choice of material and visualization tools.

This task is necessary to assess the level of developed components of project thinking at the end of training and diagnosis of effectiveness of the applied teaching methods of the experimental group.

Diagnosis is carried out by analogy with the expert assessment used in the initial control of knowledge.

In order to verify the effectiveness and appraise the developed model, experimental work was conducted. The participants were first year students (54.03.01 "Design") from Institute of Philology and Intercultural Communication of Kazan Federal University. One of the selected groups became the control group (C.G. – 8 people), and the other one is experimental group (E.G. – 10 people). The respondents in the control group were trained according to the traditional model, and in the experimental group were applied the methodological recommendations for development of project thinking by means of photographics in the form of the "Photographics" module.

After the initial diagnosis, the idea was formed that the project thinking of both groups of students was not developed at a sufficient level. The design technology was chosen as the educational method since its potential is correlated with the possibilities of developing components of project thinking. We conducted an intermediate test of the experimental group after completing each task using the expert evaluation and pedagogical observation. After passing through all the stages, the final diagnosis was carried out, and the level of development of project thinking among design students was determined.

The experimental study took place in three stages: ascertaining, formative, and control. At the ascertaining stage of the experiment, the diagnosis of the level of development of project thinking was conducted among design students of both groups during the process of creating the poster design. Further, in the experimental group, the formative stage of the experimental work was carried out. Students in the control group continued to study in a traditional way. Then, at the control stage of the experiment, the level of development of project thinking was also measured among design students of both groups during the creation process.

After conducting the experiment, we studied that students from the experimental group have positive changes, which suggests that the developed methodological recommendations are working.

#### 4. Summary

In the study, we initially revealed the potential of photography, photographics, computer programs, and their correlation with the components of project thinking.

*Photography features:* fixing of illustrative material; participation in various forms of communication - from everyday information about current events to complex forms of artistic creation; documentary; complex visual effects created in the process of special shooting and processing of material; adaptation to different conditions of existence.

*Photographic features:* integration of drawing and photographic image; the usage in various types of design (textile, packaging design, product advertising, etc.); effective promotion of information to the viewer in comparison to drawing or photograph; the ability to transform the original photographic image.

*Possibilities of computer programs:* focus on solving real professional problems; competent presentation of the plan and implementation of results in the creative process; the increasing speed of information transfer; the formation of skills for converting a visual image into a verbal form; promotion of creative expression.

An analysis of the capabilities of three components (photography, photographics, and computer programs) allows to form the following set of key competencies that underlie the professional competencies of bachelor-designers:

- the ability to perceive and correctly identify the information transmitted using photography or synthesis of photographs with graphics (photographics);

- the ability to creatively process and modify photographic material and information veiled in photography and photographics;
- the ability to interpret certain information utilizing photography or synthesis of photographs with graphics (photographics);
- the knowledge of all necessary technological components of the processes of production, storage, and transformation of photographs;
- the developed aesthetic perception of the world, the formation of moral and ethical responsibility for the results of work (Koklyagin & Naumov, 2017), in other words, for the "social consequences of his actions" (Raven, 1984).

The development of technologies, the changing needs of society have become the basis for improving and transforming the disciplines taught at the university, mastering of which is necessary for students in the purpose of further professional activity. For future specialists in the field of design, one of these disciplines is the "Photographics" module.

It is important to understand what tasks the designer faces in order to use photographics in his work correctly. During the selection of solutions to the problem, it is necessary not only to choose a beautiful photo but also to choose the appropriate fonts, graphic materials (Cezzar, 2015), taking into account the characteristics of the target audience and its perception. Future designers are required to acquire knowledge, skills, and abilities to create photographic works in order to learn how to successfully complete any project, regardless of its complexity (Karagodina, 2015).

## 5. Conclusions

The study demonstrates the principle of project thinking and the role of Photographics in promoting project thinking among designers in their art-project activities. Furthermore, Special focus is devoted to the specifics of project thinking as a preference in the course of the training process in design.

The significance of photographics in integration with computer graphics in developing project thinking of bachelor-designers is beyond question. The main reason is developing logical, imaginative, abstract thinking and practical skills in working with computer programs to resolve real professionally-oriented issues. Moreover, students can obtain the ability to work with information, apply analysis and synthesis methods, teamwork skills, self-expression, and grow an aesthetic taste and productive manner.

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