

Creative Environment Formation in Design Professional Training

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ABSTRACT

The current interest to the issue of this work lies in the fact that a professional competence of a designer needs highly developed abilities to create new and different projects of high esthetic value in compliance with the current regulations. Image visualization abilities development needs special conditions encouraging personal creativity. The aim of the article is to define main components of a design teaching technology: creative conditions formation, including methods of active teaching (brainstorming, work in creative groups, critical practice work, constructive dialog, a method of design sketches or clausura projects, a complex of a practical creative tasks, an ability to comprehend and conduct an analysis of art and design objects. The main method in this research was a modelling method allowing to consider a creativity development problem as a directed and organized process of future designers' significant professional skills and features enhancing. This article contains consideration of creative components of a design education. These components are understood as main constituents of a successful education process which provide development of the following abilities and significant professional skills: ability to implement knowledge acquired during a constant self-development process and to carry out a flexible actions strategy; creative thinking, an ability abstract from stereotypes and consider a problem from different aspects. We have proved that such creative environment including motivation-supported, emotional, active, control and estimating components develop effective creative abilities, appropriate assessment of one's own or other's creative product. The results of the article are of practical importance in design education implementation, especially in composition studies, shape formation studies, professional training at design universities or colleges.

KEYWORDS

Active teaching methods, visualization culture, design education, creativity, creative environment, artistic creative abilities, realistic depiction abilities.

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Introduction

Urgency of the problem

Contemporary design education is aimed at training of specialists who are: capable of creating of esthetically and visually organized objects, creative and with a highly developed visualization culture. A personal visualization culture is expressed in a unique way of perception, organization and evaluation of visual information and various objects. A designer's professional visualization culture includes: a visual experience consisting of visual images and samples aesthetic values, art principles which characterize aims a specialist pursues according to professional requirements; professional practice regulations in accordance with the values of his or her visualization culture.

Mastering skills of a new form creation, plane images and images in three dimensions is conducted in a creative process which demands special environment to develop creative skills. Creativity is defined as a universal creative ability to learn (Guilford, 1967; Torrance, 1964); a level of a creativity gift characterized as a steady personal feature expressed in a need to act beyond standards (Bogoyavlenskaya, 2002). The contemporary professional designers' training presents a controversy between a demand for creative specialists with flexible thinking and implementation of conservative teaching technologies. A creative design education component demands new teaching technologies reasonable from a psychological and pedagogical point of view.

The methods based on a psychological and pedagogical material do not include strictly regulated rules and are aimed at productive creative conditions and a special atmosphere. Educational conditions are defined as a complex of social, cultural and other conditions a teaching process is conducted in; a complex of education technologies (Vishnyakova, 1999). Educational conditions are also defined as a system of influence and personal development conditions combined with its potential further development (Yasvin, 1997). In case of professional creative training we deal with a creative environment formation which includes integration of conditions and means for a creative personal self-development in a special group of people where members can conduct a constructive way of communication with each other (Zhelezovskaya, Abramova & Gukova, 2014).

The modern designing education in Russia is closely connected with academic traditions. These traditions were based on the adopted educational model, and now we think that practical designing work needs flexible teaching technologies developing an ability to think figuratively and not to imitate someone else's works. To achieve these goals, we have to form special creative educational environment (Purik & Shakirova, 2016).

Methodological framework

The present research is aimed at studies of a designer's creative abilities development, because such abilities make it possible to solve extraordinary professional tasks. The research is based on a cultural approach to a professional culture which includes an ability to comprehend and create in accordance with objective artistic and figurative requirements (Kagan, 1997). Only active methods of teaching working as reflection tools can train a specialist, prepare him for dealing with complex problem and for finding new

solutions. Such methods form creative environment on the basis of a common creative process, a productive way of both thinking and acting (Krayevsky & Khutorskoy, 2007). Finding new teaching technologies solutions in this sphere is purged by an increasing demand for more competent, mobile, flexible-thinking designers (Lidwell, Holden & Batler, 2012). The main tasks of this research were: to examine the principles of creative environment formation among student studying designing, to find ways to implement these principles. These problems are solved with the help of a modeled creativity development process carried out during composition studies. This model reveals main tasks, methods of active teaching, pedagogical conditions of a creative environment formation which were aimed at the most effective result. Modeling can help to achieve an integral comprehension of the studied processes and distinguish teaching process main components, logical chains of its organization to get the following results:

- a teaching process optimization;
- management of students' creative activity and results;
- diagnostics, forecasting, education quality enhancement.

The gained model was worked out and tested during the stating and formation stages of the pedagogical experiment.

Results

Our research showed that specially organized educational environment as a system which encourages a productive creative activity, models an emotional, cognitive, intellectual personal development is an effective factor enhancing students' creativity development. The main principles of creative environment formation are: security and comfort requirements, availability, each participant' involvement in a teaching process, a dialogue form of communication, a complex of functional, technological, artistic and esthetic components in a teaching process. However, during the research we noted a special role of an emotional component in studying of design basics. Tasks should be interesting, clear and easy-to-understand in order to encourage students for further work and not leave them frustrated. We organized our work so that a student liked his or her creation, so that a sketch or a practical task motivated for further achievements. In designing education, the problem of creativity development is solved through a method of one's own idea visualization and materialization with the help of simple and computer graphics combined with such artistic means as composition (balance, accentuation, rhythm, contrast), form, lines, tone, colour, handle, proportions, scale etc. Figurative thinking forms through a practical acquisition of a fine arts language, compliance to artistic rules.

A designer's professional competence forms as intellectual abilities development. An intellect development is characterized by such features: high efficiency (an ability to formulate potential solutions to a problem) and criticism (an ability to evaluate potential solutions and to choose the most appropriate one). A designer's professional activity is based on: a usage of project task solution methods introduced in a particular design sphere, methods of professional analysis situations, composing of a conceptual image with both practical and artistic and esthetic valuable features (Runge & Senkovsky, 2003). The quality of the result depends on one's creativity development level.

Creativity in the modern interpretation is a level of a gift to create, a general personal steady creative feature. Studies of creativity define personal traits connected with creative abilities. Such personal traits include a figurative thinking and artistic abilities. A figurative way of thinking is understood as a specific ability of a human conscience. It develops when we create and perceive objects of art, includes an intellectual part of a conscience and a personal emotional experience.

A figurative thinking develops only due to a creative experience gained in a practical implementation of art language. Our research showed that a development of a figurative thinking can be successful when a student acquired methods of idea visualization or concept materialization. For the purpose of an image thinking development there are a lot of disciplines such as drawing and painting (which helps to acquire an image creation basic knowledge), composition basic knowledge (propaedeutics) and formation which enhance the ability to one's own idea materialization. Students learn to make an idea according to a certain idea and express a particular emotional state and image characteristics. They have to find a solution to a problem through the most effective way of idea materialization with the help of artistic means. Artistic and creative abilities being a traditional base for an artistic education are characterized by a developed imagination, a good visual perception, appropriate skills in a visualization technique, a strong emotional response. Combination of these features leads to image creation. Artistic and creative abilities include a precise representation of visual features of an object which was once observed. This ability is formed on a basis of a good visual perception. In this case abilities to create images can be characterized as non-creative, reproductive ones. An image expressing no artistic and emotional components cannot be called an art object and is just a depiction (Kagan, 1997). Creating a piece of art or a an object in designing, demands, on one hand, an ability to create an image with the help of different materials and instruments, on the other hand – an ability to think, organize one's own reality, experience and transfer thoughts and emotions to an audience.

From our point of view, the term 'creativity' is not a synonym to the term 'artistic abilities'. Artistic and creative abilities help to create an image, express you own perception and evaluation of the reality with the help of arts. Creativity is a more general personal trait, an ability to create something new. This ability provides minimal efforts, flexibility, distinction, precision in finding a solution to a problem and an ability to transform results into a final needed product. Creativity depends on many personal traits, individual way of thinking, straining conditions. Personal traits forming creativity depend on teaching process peculiarities and on individual psychological features. According to Torrance's work (1964), the main components of creativity are:

- hypersensitiveness to problems, to a lack of knowledge or a controversy in any kind;

- problems identification, hypothesis suggestion, hypothesis check and change, presentation of results;

- quick, precise and flexible thinking (Torrance, 1964).

Taking into account the mention definition of 'creativity', teaching process management demands special creative environment and some formed creative activities. Formation of creative environment among students of the first year

during the studies on designing (composition basic knowledge, formation) was carried out with the help of:

- comfortable psychological conditions;
- clear presentation of the aim and the tasks;
- availability of a prepared working material (visual information, templates, presentation of methods and techniques used in the working process);

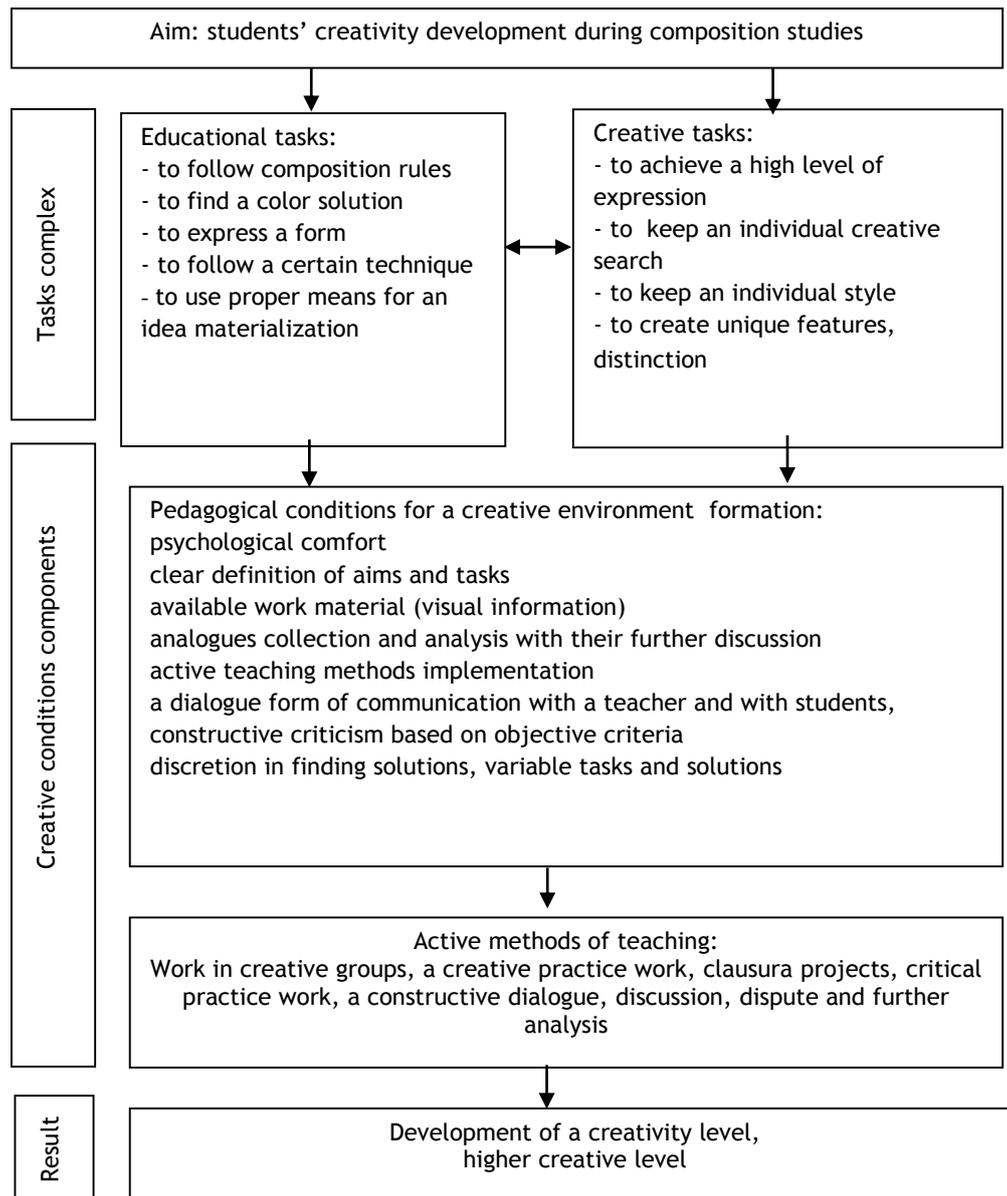


Figure 1. Educational model of composition basic knowledge and formation among students studying design

- examination and analysis of both pieces of art and design objects, analogues selection and their analysis with their further discussion;
- implementation of active teaching methods (work in creative groups, critical practice work, a constructive work in a dialogue form, method of design sketches or clausura projects);
- communication with a teacher and other students, constructive criticism based on objective criteria;
- no restriction in finding a solution to a problem as the tasks and solutions are variable.

We presented a complex of creative tasks aimed at finding a solution to artistic and figurative problems. Traditionally in design education we faced simple studying of techniques and rules. The new tasks were directed to self-development as students were given a chance to learn the materials concerning arts in practice, to experiment with them using extraordinary materials, techniques making up new working methods. The teaching process was organized as a creative training taking into account the importance of a psychological support and comfort. In the closing stage held at the end of the academic year we effectively implemented method of design sketches or clausura projects because we consider that basic knowledge of composition and formation are propaedeutic and prepare students for a project activity. Method of design sketches or clausura projects is a special type of training with some features of a projects sketch. It serves for creative thinking, student's composition abilities development enhancing their skills in ideas visualization in graphics (on the flat) and in a three dimensions' model. The main aim of clausura is to get an initial image of an object. A clausura projects method is the most effective one, because it stimulates an integral perception of an object in a project work.

The total number of participants in the experiment – 91 (44 – from the experimental group, 47 – from the control group). After the first year of education we analyzed all the students' works and assessed them according to a quality criterion. We took into consideration completeness of solutions (composition rules observance, colour solutions, form expression, following to a certain technique, usage of appropriate means to express the idea); creative tasks (expression level, individual creative search, individual style, unique features, distinction).

We assessed the students' works after the control task carried out at the beginning and at the end of the first year of education. The aim of the stating stage was to define an initial level of a designer's creativity in the first year during the studies of composition basic knowledge and formation. The control and the experimental groups of first year students from the designing department were formed to conduct the experiment. Studies in the control group were organized in a traditional way (44 students). 47 students from the experimental group studied according to our educational model. The aim of the formation stage was to assess the creativity level of the students in the final stage of the initial professional training – at the end of the first year of education at composition basic knowledge and formation studies. During the students' works analysis we found out that a creativity development process is run in three stages, or levels.

The first level includes reproductive activity. At this level a student is aimed at acquisition and reproduction of new knowledge and skills. The activity includes tasks to solve presented by a teacher. The main characterizing feature of this stage is a lack of a student's interest in getting more knowledge, a desire and skills to formulate one's own idea, select a material and means for idea materialization. A student's will in this stage is unstable; there is little motivation and a low emotional response. Works are similar to schemes with a plain composition, basic colours and with no object comprehension and processing. Students acquire basic knowledge of arts formulated in traditional algorithms and stereotypes. A student's activity involves learning, memorizing, perception, acquisition of basic skills necessary for work with art materials. A reproductive level of a creative development equals to a low professional development level when a student does not have the need to create. Students' works at this stage are characterized by the following features:

- a simple, ordinary idea;
- adherence to a sample;
- lack of basic composition knowledge;
- poor expressive means (lines, colour, stains);
- schematic drawings with no expressive means.

The second stage involves interpretation activity. At this stage students are eager to interpret an object and reveal its essence; they try to use their knowledge and skills in particular conditions. The main feature of this stage is a student's pursue to express an individual interpretation with the help of an image. Students use different types of visual information and search for new ways to solve a problem by themselves. At this stage artistic activity prevails; students need to materialize their own ideas. New methods of composition and colour harmony are defined; we also noted that students try to find their own ways of formation. Students at this stage use some techniques and are able to follow composition, colour rules, mind proportions and scale. Knowledge and skills are used by students in order to visualize their own ideas. However, their work contained some drawbacks: they did not know some techniques and their application; selected methods were not always appropriate for their idea materialization. Interpretation activity stage equals to a medium level of a student's creative development. Students' works at this stage are characterized by:

- appropriate usage of artistic means according to the idea;
- observance of the composition rules;
- individual methods implementation;
- lack of expression.

The third level is called a creative level, or a level of a high creative activity. It is characterized by a student's activity where he or she becomes a subject of the process. At this stage a student needs to act beyond the standards to find a solution. They show a great stable interest to work, will and persistence in achieving a goal. Students are eager to formulate their own ideas and ready for an image formulation and finding new solutions for their idea materialization. Their work is performed on a productive artistic level. Students formulate the aims and tasks themselves and find their own solutions. They use specially

selected composition rules and methods, and their colour solutions are characterized by an excellent combination of colours which reflect the idea. Students' works contain a lot of expression. At this creative level, students are aimed at: individual acquisition of new knowledge and skills, finding unique extraordinary methods for a particular problem solution. This creative level shows that students are ready for creating something new because they deny stereotypes. This creative level is equal to a high level of a student creative development. Students' works are characterized by the following features:

- free usage of artistic means;
- creation of a new unique image, eagerness for an individual search;
- a high level of expression;
- acts beyond the standards.

A student develops according to these stages individually, and this process depends on the level of image visualization and artistic abilities and an initial artistic training. During our research we found a scientific experimental proof to the statement that artistic abilities and image visualization abilities are not synonyms. Students with a pre-university artistic training who have skills in full object visualization do not always manage to solve creative tasks as good as other students do; they sometimes create works according to all the rules but without any expression and are often not ready to formulate their own ideas.

Table 1. Levels of a designer's creativity development

Parameters	Levels of artistic development		
	Reproductive activity (low)	Interpretation activity (medium)	Creative (high)
Criteria and features of a creative development	almost no interest in a creative activity; adherence to a sample; lack of composition basic knowledge; poor expressive means; schematic drawings with no expressive means.	unstable interest in a creative activity; appropriate usage of artistic means according to the idea; observance of the composition rules; individual methods implementation; lack of expression.	a great directed interest in a creative activity, free usage of artistic means; creation of a new unique image, eagerness for an individual search; a high level of expression; acts beyond the given task.

The experiment analysis showed that the majority of the students in the control group are at the medium level (59, 0 %), only gifted students can reach the high level (20, 5 %), 20% of the students showed low level results. In the experimental group the majority of students are at the high level of artistic development (51, 1 %), 40, 4 % of the students show medium level results, and 8, 5 % of them are at the low level. It should be noted that we noticed a positive dynamic in both groups (the control and experimental ones), but the results in the experimental group are quite higher. Therefore, we consider the new implemented methods to be very effective.

Table 2. Dynamics of the students' creativity development

Levels	Stating experiment		Formation experiment	
	CG%	EG%	CG%	EG%
High	5,9	17	20,5	51,1
Medium	7,7	48,9	59,0	40,4
Low	6,4	34,1	20,5	8,5

Discussions

The successful results of our work are partly explained by the fact that our experiments were carried out among students of the first year of education, and new methods were implemented in the studies which are basic for a designer training. We suppose that the results could not be so obvious if we conducted this experimental work among students of further years of education offering them tasks which demand more efforts (for example, project work on objects of diverse complexity, tasks in painting or graphics). This aspect needs further research and clarification. During the experimental work we faced with a problem that many students showed stable low results, even though we created special conditions for creativity development. There are 20% of students who seem to have difficulties in finding a solution to a problem; they would rather follow a ready sample and use them whenever possible. These students tend to think according to stereotypes and have a little artistic experience, a superficial visual perception, a low motivation for a creative activity. To solve the following problems, we have to work out a special set of methods which could change students' attitude to activities, form a stable interest and a motivation.

Conclusion

The results of the experiments showed that if a teaching process is organized on the basis of creative conditions encouraging personal development through a comfort and security rules observance, availability, each student's activity, a dialogue as a form of cooperation, with combined technological and artistic means with no direct influence on a person, then we can enhance effectiveness of a teaching process.

As a result, our experimental work allowed us to conclude that creative environment develop students' creative abilities enhancing quality of their art works, knowledge and expression, mastering their artistic skills. The analysis of the creativity development among the students of the experimental group shows that the average result parameter of the final stage in the experimental group is higher than the average parameter results at the same stage in the control group. Comparison of the increasing dynamics of the experimental group students with the respective parameters in the other group proves the effectiveness of our creativity development model for a designer's training at universities.

Though we achieved the main goal – students' artistic abilities development, we also can point out the following additional results:

increasing motivation to creative work, interest to visual art and design;

an ability to understand the art language, development of art appreciation through a practical work;

technological and drawing approach is replaced by an expressive approach based on a personal need to express emotions, thoughts, feelings;

an ability to cooperate with other people, tolerance to their predilections;

an ability to make an independent decision to solve problems of different complexity.

As the experiment showed, psychological comfort is one of the main conditions for a successful creative work. Psychological comfort characterized by mutual trust, absence of one's fear, respect to each other and benevolence create special conditions which enable each student's potential. Psychological support for students was expressed in constructive criticism – statements concerning drawbacks in each student's work, breach of professional rules and regulations according to the objective criteria. These criteria define a complex of studying and creative tasks characterizing quality of works (composition, form, proportion, tone, colour, texture etc.). However, traditional methods also play a significant role for training in design, but they are less effective.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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