



Artículo de investigación

## Development of creative activity of students- designers method of metaphorical associative cards (Mac)

El desarrollo de la actividad creativa de los diseñadores de la industria de las matemáticas  
asociadas (Mac)

Desenvolvimento de atividade criativa de alunos-designers método de cartões associativos  
metafóricos (Mac)

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### Abstract

The article presents the results of a study of the development of creative activity of students-designers in the artistic and project activities using the method of metaphorical associative cards.

Creative activity is considered as a personal feature (set of properties and qualities of a person), its orientation and readiness for the implementation of artistic and project activities. The development of creative activity is conditioned by the necessity of forming the individual's need for creative activity, which will become the student's personal quality.

To diagnose the development of creative activity, we offered a method of metaphorical associative cards.

The works of artists, natural phenomena, and textures are offered as the metaphorical cards. Based on the selected cards, the students make the training tasks.

### Resumen

El artículo presenta los resultados de un estudio sobre el desarrollo de la actividad activa de los diseñadores de la industria en las actividades de diseño y de diseño con el método de las asociaciones de gráficos.

La actividad cultural se considera como una característica personal y una orientación para la implementación de las actividades y las actividades de diseño. El desarrollo de la actividad económica está condicionado por la necesidad de formar a los individuos necesarios para la actividad activa, que convertirá a la calidad de la calidad personal.

Para diagnosticar el desarrollo de la actividad activa, hemos planteado un método de metáforas asociadas.

Las obras de los artistas, natural phenomena, y las texturas se presentan las cartas metaphorical.

As a result of a comparative analysis of the diagnosis of the zero and control stages of the creative works of the experimental group, we obtained quantitative and qualitative data that comprehensively characterize the level of development of creative activity of students in accordance with the criteria we have singled out. The reliability of the evaluation of obtained results was determined with the help of mathematical and static processing of the obtained data.

To determine the effectiveness of this method, we used the questionnaires made by such authors as M. I. Rozhkova and L.V. Mishchenko, comparative analysis and observation methods. The criteria were determined as the need for mastering and acquiring new knowledge; the conceptual design - the use of expressive means in the composition solution.

**Key words:** creative activity, artistic and project activity, metaphorical associative cards, methods, evaluation criteria.

Basado en las cartas seleccionadas, los estudiantes realizan las tareas de formación.

Las que resultan de un análisis comparativo de los diagnósticos de las etapas del ensayo y de las etapas del desarrollo de las generaciones de trabajo del grupo experimental, obtenidos cuantitativa y cualitativa, que coinciden con el nivel del desarrollo del crecimiento de la actividad activa de los estudiantes de acuerdo con el criterio sencillo. La confiabilidad de la evaluación de resultados obtenidos se determinó con la ayuda de método matemático y de procesamiento de datos obtenidos.

Para determinar la eficacia de este método, utilizamos los cuestionarios hechos por los autores de las M. I. Rozhkova y L.V. Mishchenko, comparativa de análisis y métodos de observación. Los criterios fueron determinados a los requeridos para el mastering y acquiring new knowledge; el diseño conceptual - el uso de la expresión expresiva en la solución de solución.

**Palabras clave:** actividad activa, artística y de actividad, metaphorical asociativas, métodos, criterios de evaluación.

## Resumo

O artigo apresenta os resultados de um estudo sobre o desenvolvimento da atividade criativa de estudantes-designers nas atividades artísticas e de projeto, utilizando o método de cartões associativos metafóricos.

A atividade criativa é considerada como uma característica pessoal (conjunto de propriedades e qualidades de uma pessoa), sua orientação e prontidão para a implementação de atividades artísticas e de projeto. O desenvolvimento da atividade criativa é condicionado pela necessidade de formar a necessidade individual de atividade criativa, que se tornará a qualidade pessoal do aluno.

Para diagnosticar o desenvolvimento da atividade criativa, oferecemos um método de cartões associativos metafóricos.

As obras de artistas, fenômenos naturais e texturas são oferecidas como cartões metafóricos. Com base nos cartões selecionados, os alunos realizam as tarefas de treinamento.

Como resultado de uma análise comparativa do diagnóstico do zero e estágios de controle dos trabalhos criativos do grupo experimental, foram obtidos dados quantitativos e qualitativos que exaustivamente caracterizar o nível de desenvolvimento da atividade criativa dos alunos de acordo com os critérios Nós temos destacado. A confiabilidade da avaliação dos resultados obtidos foi determinada com o auxílio do processamento matemático e estático dos dados obtidos.

Para determinar a eficácia deste método, usamos os questionários feitos por autores como M. I. Rozhkova e L.V. Mishchenko, análise comparativa e métodos de observação. Os critérios foram determinados como a necessidade de dominar e adquirir novos conhecimentos; O design conceitual - o uso de meios expressivos na solução de composição.





**Palavras-chave:** atividade criativa, atividade artística e de projeto, cartões associativos metafóricos, métodos, critérios de avaliação.

## Introduction

The modern educational process should prepare a person for active adoption of changes, for the formation of the need for creative approach in the professional activity. The important indicators of the quality of specialists' training in design: competitiveness, professional knowledge.

The functioning of universities and teachers in the field of design is aimed at using the modern educational methods in training future professionals able to successfully solve the creative tasks.

It is especially relevant for the formation of the foundations of professional competences of a designer to apply these methods in the artistic and project activities that would contribute to the development of creative activity of students with an aim of educating a personality of the future designer who will have a creative approach to his/her professional activity.

The creative activity of a student in "design" specialty is manifested in the intensive educational and artistic and project activities.

Creativity is the transformation of external environment and himself/herself, the development of essential forces of a human, the highest and the most complex form of activity, involving the mobilization of all his/her basic mental processes, knowledge and skills, as well as the uniqueness of a result, generating something qualitatively new, which distinguishes the non-standard nature, originality and socio-historical uniqueness (Ermolaeva-Tomina, 2003).

According the domestic and foreign scientists, the acceptance of non-ordinary solutions different from others is the phenomenon of human creativity. R. Mooney distinguishes several ways to creativity: the atmosphere in which it occurs; product (Mooney, 1963); process; personality. K.V. Taylor distinguishes the following groups of creativity definition: the emphasis is on creating a new integrity; the "end product" or "innovative product", the creation of something new; "aesthetic" or "expressive", emphasis on self-expression; interaction between "I", "It" and "Super-I" - "psychoanalytic" or "dynamic" thinking (Taylor, 1959).

E.P. Torrance emphasizes the novelty of creativity, the idea of creating something new in almost all definitions in his works. L.L. Thurston notes that the idea for the creator himself should be new and it does not matter whether the society recognizes it (Thurstone, 1952).

R.S. Kracchfield and R.K. Wilson contrast creativity with conformity, introduce originality, a new look at the problem. According to E.K. Starkweather, a creative person is free both from conformism and non-conformism.

According to T. Ribo, the ability to think by analogy is important. D.P. Guilford says about mental abilities that provide creative achievement that creative thinking includes the awakening of unusual information (divergent products) (Guilford, 1967).

In turn, in the artistic and project activity, the result of creative process is the creation of projects that are distinguished by their uniqueness, novelty, aesthetics.

The analysis of the scientific literature in the field of national pedagogy, psychology, cultural studies, sociology, philosophy and other sciences testifies to the constant attention of scientists to the problem of the development of creative activity, which is considered as activity and interaction. A.I. Krupnov emphasizes that activity can act both in the form of its external manifestations and in the form of internal processes (Krupnov, 1984).

We consider the structure of creative activity through the system of the following components: motivational (regulated by a system of dominant motives expressing a conscious attitude to the goal of the

value of artistic and project activity), cognitive (regulated by a system of dominant motives expressing a conscious attitude to the goal of the value of this activity, awakens creative interest in the subject designed), reflective (the thinking mechanisms of the students in the creative implementation of the projects), behavioral (an effective aspect of creative activity aimed at self-expression of the students) (Iskra, 2015).

The analysis of the studies on the problem of creative activity allows drawing the following conclusions. Many authors, for example, V.P. Stokov, V.V. Shtepenko and M.A. Danilov, understand the creative activity as a willingness to be engaged in the artistic and project, creative activity, while others, for example, L.N. Shulpina, G.A. Korovkina, T.M. Smirnova, - in the focus on creative classes. B.Kh. Pikalov, E.N. Yakovleva consider it as a property of personality. According to G.I. Shchukin, E.V. Rogaleva, I.P. Gladilina, L.N. Shulpina, it is the quality of personality.

The organizational form of life based on the integration of needs, abilities, personal relationships to life and the requirements for him/her on the part of society and circumstances is an activity.

The definition of "creative activity" as a personal feature (set of properties and qualities of a person), its orientation and readiness (internal and external) for the implementation of artistic and project activities is close to us.

Another important condition is the instrumental basis of activity, that is, the vision of a person of the implementation of a particular activity to which the creative activity is directed - the system of knowledge, skills, and abilities acquired by the student as a result of his/her activities.

These important components are the basis of activity, while knowledge performs a function of not just the available accumulated information, but a kind of a reference point of activity.

After analyzing the aspects of creative activity, we conclude that one of its main links is the need of the individual to master and acquire new knowledge. In turn, it is important that the creative activity turn into a student's personal quality.

The motivations arise and the manifestation of creative activity increases as a result of correct organization of the artistic and project activity.

It is important for us that the activity does not have a situational nature, but turns into the personal quality of the student-designer.

## METHODS

The experimental work was carried out on the basis of the Institute of Philology and Intercultural Communication L. Tolstoy of the KFU, which was attended by the students studying in "Design" training field.

The evaluation of the level of development of creative activity of students-future designers in the artistic and project activities was carried out by us at the beginning and at the end of the experiment based on the following criteria developed by us:

1. emotional attitude to the process of performing creative work, showing interest, the need for mastering and acquiring new knowledge (to determine this indicator, we have used a modified questionnaire by L.V. Mishchenko, which allows scaling and quantitatively reflecting the degree of satisfaction of students-designers with the educational process);
2. focus on creativity (to determine this indicator was used the questionnaire "Focus on Creativity" by M. I. Rozhkov);
3. originality of conceptual design (idea, image);
4. compositional expressiveness (integrity, balance and subordination).

We used the metaphorical associative cards (hereinafter - the MAC) for revealing the level of development of creative activity for future designers in the artistic and project activities.





The works of artists, natural phenomena, and textures may be used as the metaphorical cards.

We invited students to choose three metaphorical cards, including: a card of the material texture, a card of a natural phenomenon and a card with a geometric figure.

One of the cards is aimed at solving the problems of the image design of the future object, the second one - at the form, the third one - at the material. Thus, through creative imagination, the student should create the image of the object designed based on his/her emotional associations.

The students intuitively chose the cards, then they created the original projects using the metaphorical associative cards due to their own creative associations, finding memorable, diverse and interesting ideas. The sketching process made using the MAC method was as follows: the emergence of an impulse that initiates creative activity; the birth of an artistic image and its metamorphosis under the influence of psychological catalysts (associations, metaphors); manifestation of the existing association of the artistic image by the professional means.

The following principles relate to the conceptual bases of the MAC training: productivity (the main direction of training is the student's personal educational growth, which is created from his/her internal manifestations in learning (skills, abilities, ways of activity...) and external (sketch, project); situational learning, when the classes stipulate self-determination of the students and heuristic search for their solutions, and the teacher accompanies the student in his/her educational movement; reflection, when the learning process includes a continuous awareness by the student and the teacher of their own activities: its analysis and assimilation, methods of obtaining results, building the subsequent activities on this basis; choice, without which it is impossible to develop the creative activity of a student-designer in the artistic and project activities.

There is a large number of methods that to some extent refer to certain associative images, subject, abstract, psychological, and surreal.

The creative process of students is characterized by an individual vision of a certain image. The path of creating a creative product shows a personal attitude toward the object, phenomenon or space. This process is associated with the associative thinking, which helps to create unique design products that are popular with the consumers who intuitively perceive an object created by the designer through the prism of his/her vision.

The peculiarity of associations in the artistic and project activity is the ability to distinguish common signs of things without logical analysis and therefore can be considered as a source of ideas and inspiration. To this end, we chose this method.

The associative ways arise not from the facts of consciousness, but cause them. The sequence of changing the associated ideations has an objective nature. There are two kinds of associations: ideations and movements, that is, sensor and motor. The ideations arise through the synthesis of consciousness, but there are purely physiological, between the usual movements, and their coordination (Lukyanova, 2018). The physiologist I.P. Pavlov believed that the basis of all kinds of associations was the temporal neural connection and the association was easily inhibited and extinguished, if there were no corresponding biological and social supports of conditioned reflex connections. If a person needs to remember something specific, he/she ideates the image and the object pops up in the memory.

A representative of the Kazan Linguistic School N.V. Krushevsky explored the problem of the word and described the mastery of the language vocabulary through the associative links of the given word (Krushevsky, 2011).

In spite of the fact that the stereotyped associations are more often encountered, a certain object can cause personal, not standard associations in creative people that will be absolutely different from others. It depends on the way people think and their imagination.

The professions associated with the creative activity are managed by the associations. A creative person can create his/her own non-stereotypical associations, finding memorable, diverse and interesting ideas. He/she may erase or correct them. By managing such associations, a person can create a product of his/her creative activity.

The artistic and design activity of the student-designer consists of complex emotional-figurative reactions, therefore the association plays an especially important role. When it is necessary to "include" the creative imagination, then the designer turns to different ideas about the surrounding reality, so the stylistic basis and the image of the object designed arise.

There are the following associations:

1. tactile (textured) associations - are associated with the sensations, generating images at the time of touching any surface. The feeling of the material texture, the quality of its processing is important for designers in their professional work, as they are connected with the personal experience of communication between a person and surrounding objects and materials.
2. flavoring associations - the most complex and unstable, the main thing - the emotional response of a person to a color composition in general.

By adjacency of association, when we ideate one image in the mind, another one is called due to their temporal or spatial coincidence, for example: summer - flowers, September - school, winter - frost - snow, etc. But sometimes there is no regular connection between the ideations, and the association arises because once it has occurred a random similarity in the object perception.

The associations can be very diverse in their similarity, we cannot exactly determine when the images have coincided in our minds, we could perceive them by their sign, form, color, perception or function. For example, sun - gold, lemon - acid, this list can be continued ... They are not always significant, but lead to rather unusual associations. They are also divided by contrast, that is, by the opposite signs, typical for people with the non-standard thinking. For example, winter - summer, cleanliness - dirtiness, health - disease. Aggressive, cruel images are associated with prickly textures, and soft, rough - with peace and quiet.

The associations can be divided into three stages: lively contemplation; creative thinking; transition from figurative action to specific. The following stages of this sequence: activity of receptors that give sensations; filtering the material perception; emergence of imagery and ideas; thinking processes, as a phase of analysis and synthesis of information; verbal specification of information; development of motives reflecting on the thinking operation; result.

For the first time, these cards were created at the end of the nineteenth century by the professor of art criticism Eli Roman with an aim of making art closer, more understandable and more accessible to people. Later, the idea of associative cards moved to psychology. "O-cards" were published in Canada in 1981. This set of metaphorical cards consisted of two decks. They contained images that appealed to feelings and intuitions, and words that referred only to consciousness (Gorobchenko & Evmenchik, 2018).

The artistic and design activity of design students in solving the problems of a creative nature consists of two stages: the first includes the justification of the student-designer tasks and the principle or ways to solve them; the second - the scheme or idea analysis. At this stage, it is important to prevent the emergence of a cognitive-psychological "barrier" associated with the inertia.

The designer, using any reality image, can change and transform it. The subject, abstract, psychological, unreal, bionic natural forms, phenomena, and various textures can push to the conceptual idea of the future project.

The students-designers can create unique projects using MAC due to their own creative associations, finding memorable, diverse and interesting ideas.

The creative process made using the MAC is as follows:

- I. the emergence of an impulse that initiates creative activity;





2. the birth of the artistic image and its metamorphosis under the influence of psychological catalysts (associations, metaphors);
3. manifestation of the existing association of the artistic image by professional means (Gorobchenko & Evmenchik, 2018).

Thus, the MAC method expands the possibilities of the student-designer and promotes the development of creative activity in the studied process.

When considering the various associations in detail, it is important not to miss that the reaction can be positive, negative or indifferent, but it should be consciously built by the designer depending on the purpose and the task.

## RESULTS AND DISCUSSION

The statistical processing of the results was carried out using the SPSS Statistics software; the arithmetic mean (M) and Student t-test was determined for each of the parameters.

The process of ascertaining experiment has shown that the dynamics of the development of creative activity is approximately the same in groups, the approbation of the MAC method for the purpose of developing this quality in the student-designers has revealed its effectiveness.

At the final stage of the experimental work, it was carried out a repeated diagnosis of creative activity, which manifested itself: in the emotional attitude to the process of performing a creative work, the individual's need for mastering and acquiring new knowledge; attention concentration in the classroom; focus on creativity; originality of conceptual design and compositional expressiveness.

## SUMMARY

As a result of the generalization of the work results of two subgroups, we obtained quantitative and qualitative data that comprehensively characterized the level of creative activity of students according to the criteria we singled out. The number of students with an average level changed from 40% to 60% in the experimental group and remained at the same level for the students of the control group. At the same time, the number of students who showed a high level in the experimental group increased from 10% to 45%.

It is important to note that the positive dynamic of the creative activity of experimental group, where the MAC method has been applied, is more significant.

## CONCLUSIONS

The analysis made helped us to determine that the creative activity was the main and decisive factor in the artistic and project activity.

In the course of experimental work with the students-designers, we used a method that promoted the development of creative activity, and singled out the evaluation criteria. As a result of the generalization of the work results of control and experimental groups, we obtained quantitative and qualitative data that comprehensively characterized their level. The number of students with a low level has decreased, while the number of students with a high level has increased. The results of experimental work indicate the fact that the implementation of the method of metaphorical associative cards gives a high reliable effectiveness in the acquisition of professional knowledge, contribute to the development of creative activity of students able to successfully solve the professional problems.

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