Creative thinking development value in the bachelor-designers training

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Abstract. The relationship of learning and development in a creative environment, the process of formation of creative subjectivity are considered in the article. The creativity development, the creative type creative activity methodological conditions, the creative type artistic activity principles, the reality sensory-perceptual reflection in the creative development thinking context are analyzed.

Introduction
Outstanding Russian scientists - V.I. Vernadsky, D.I. Mendeleev, V.V. Dokuchaev and others studied the new development paradigm, where reason, culture and spirituality will be the primary reference points. The connection of a human with the world takes place at the common areas level: the biosphere - the life sphere (V.I. Vernadsky), the noosphere - the mind sphere, the pneumatic sphere - the spirit sphere (P.Florensky). From the anthropocentrism standpoint, the primary source of all changes is an individual, the changes in the individual correspond to the entire universe changes. The goal of the newest civilization level with respect to the mentality of the Russian people is to recreate and increase the spiritual and moral values of the society, reflected in the mind sphere (noosphere) formation. The methods of knowledge and transformation of the world, information and telecommunication technologies, goal-setting, planning, and reflection implementation in the educational process will enable the students to master the productive activities ways. [13] V.I. Andreev believes that the great teacher’s mission is to open the way to the noosphere - the sphere of a man’s spiritual, moral and creative self-development [1]. In Russian psychology, the creativity problem was considered by D. B. Epiphany, Ch.K. Borisov, A.V. Brushlinsky, M.S. Kagan, V.A. Kan-Kalik, A.G. Kovalev, A.N. Luk, A.M. Matyushkin, Ya.A. Ponomarev, I.E. Strelkov, R.E. Tafel and others. The theoretical basis of creativity can be traced in the works of many foreign authors (E. de Bono, G. Yu. Eysenck, F. Barron, D. Wexler, M. Wertheimer, J. Gilford, A. Osborn, X-Gruber, R. Crachfield, A Maslow, S. Mednick, R. Stenberg, R. E. Tafel, E. Torrance, M. Wallach, J. Heslrud, E. Shechtel, and others. The demand for a creative, competitive personality, on which the Russia’s future hopes, is growing. Current trends in vocational education are focused on the individual stimulating self-realization in creative aspect. Educating creative-minded professionals with high creative potential and a decent professional level is a top priority for higher education. Despite numerous theoretical and experimental studies, the creative thinking formation problem requires further study, since the well-known concepts do not have an unequivocal answer to the questions about the nature, the creativity development factors, there is no single view of phenomenology, or a creative personality qualities classification. Training and development are interrelated with creativity: the one who creates something new develops, which is
possible only in free choice conditions. The inner freedom attainment is one of the conditions for creative development, each member of society must be fully formed and the problem of becoming and improving a sense of personal and social responsibility becomes one of the leading points. The polycreative creative component implementation in the multicultural development project involves immersing it in a diverse cultural space in tandem with modern high technologies. And it is precisely creativity as a mobile speed component that acts as a necessary component of a culture and as a condition for its comprehension. The art versatility and the its multidimensionality influence on the personality, the integrative ability to penetrate into all spheres of activity makes it possible to consider it as a “poly-artistic environment”, with the help of which the students are introduced into the creative space. The formation of a student’s value system is possible only with the participation of such a mechanism as experience, living, by which there is a personal meaning awareness and the need for creative processing of incoming information. There is a genetic relationship between vision, voice, hearing, touch, smell, and movement in human physiology. This feature must be taken into account when creating the creative thinking development trajectory. The psychodiagnostics and correction principles, the education training principle and development lie in the developing creative thinking pedagogical process foundations. High technologies report a high level and interpersonal relations in the emerging new pedagogical environment, above all the elite-aesthetic, multicultural, humane. “The aesthetic environment as the most universal kind of cultural space, harmonizing all aspects and forms of human existence, is a multidimensional and extremely complex scientific concept”, L.Pechko notes. [9]

The pedagogical process positive atmosphere highest level is achieved in terms of enriching its spatial and material environment and the time spent in them when making significant aesthetic and artistic objects and developing components, when included in the “physical environment” of education, as well as in its content, methods, forms of organization and construction. The creative thinking development in a psychologically favorable environment is preceded by the creative event emergence which is determined by three distinctive features that characterize the creative style of activity: the conditions of its occurrence and sustainability. The aesthetic and pedagogical environment must be a kind of “cradle”, beneficial for the creativity development. The teacher with his personal characteristics, aesthetic feeling, knowledge, assessment figuratively, actively influences positive emotions, cognitive motives and interests, students’ imagination. By activating the figurative and aesthetic perception, assessment, emotions, attitudes, the teacher “embeds” them into an environment of aesthetic communication in which the creativity development arises.

Aesthetic and pedagogical environment as a condition for the creative thinking development.

The elite-aesthetic and creative environment (EACE) is a pedagogical condition, which is considered as an activity space created in an educational institution, the main value of which is the creativity development, affecting the interaction nature between the teacher and the student, and the system of social, cultural, material conditions, necessary for self-realization, the creative subjectivity formation. In our opinion, the components of the above-mentioned environment are the design-visual artistic activities of bachelor-designers, characterized by variability, a situation of choice and success, focused on creating an individual and collective development trajectory; values system; social, cultural and material conditions.

1. The first component (EACE) is the educational process, characterized by variability, a situation of choice and success. Pedagogical support enables the learner to make his choice at the level that best meets his creative needs, interests, and abilities.

2. The second component (EACE) is the interaction character between the teacher and the student. The values underlying this environment are focused on the development of creativity, cognition and harmonious social interaction with the surrounding space.

3. The third component (EACE) is the situation of experience-activity, psychological compensation by emotions for the consciousness restructuring, ready for extraordinary perception and attitude to the outside world, which simultaneously ensures the development of communicative, emotional and motivational spheres. The psycho-correctional effect forms a relatively autonomous stream of subject
activity, the provoked emotional activity is aimed at developing creative thinking. The result of the interaction formed (EACE) and students as subjects of this environment is the formation of an individual creative activity style, based on the integral individuality. [7] The creative activity style involves the implementation of an individual creative route in coordinating actions to achieve the solution of the tasks set. (EACE) is considered by us as a necessary condition for the creativity development. Creativity is considered by us as formed creative thinking in conjunction with creative activity.

The creative type artistic activity principles are as follows:

1. A productive orientation on the creation by students of a creative product in various types and genres of art, their use of modern materials and new technologies. The creative type artistic activity basis is the intended educational product to be created by the students. If it is initially clear what kind, in what form, and for how long, students will create a new result for them, then this anticipated result is the goal that determines the specificity and meaning of the whole educational process.

2. The creative thinking formation personalized nature. The creative classes creative organization is a style (creative - style) with the creative activity exclusive products creation, a master class with a presentation of new techniques and developments based on individual characteristics, level of preparedness and motivation of subjects’ creativity.

3. The creative activity individual self-sustained and accompanied forms optimal combination principle. For each student, an appropriate relationship is established between the artistic and educational academic and impromptu - creative activities supported by the teacher.

4. A priority of activity content over information, practical over theoretical. A significant amount, openness and accessibility of information is provided by the teacher in stages in the activity process; they do not require the student to fully assimilate and reproduce it. The emphasis is shifted to the student’s very activity, to the technology with which he creates the planned educational products.

5. The creative type artistic activity openness is ensured by the opportunity to become its subject at any stage of creative interaction and cooperation. Frontal and dyadic interaction in the subsystems: teacher-student, teacher-student-student, different levels of creative development of students and various personal resources open up new channels of interpersonal interaction, form the creative type universal skills.

6. Integration of artistic, educational, creative, communicative, labor, educational, organizing forms in the creative type artistic activities. The more extensive is the interrelation of these forms of activity in the designers’ training, the more complex are the students’ educational increments.

7. The creative type artistic activity algorithmizing ensures its feasibility and the student’s expected creative product appearance. The activities psycho-favorable situation subjects pedagogical support organization system, the community problems solution, the development of skills and abilities, objective assessment tools.

8. The following principle establishes the relationship between the student’s external educational product and its internal personal increment. The external educational results control system, created by the students, allows for the continuous diagnosis of their personal educational increment. Performance evaluation occurs by comparing at least two educational students’ products, performed by them, for example, at the beginning and at the end of a certain period of study. Quantitative and qualitative diagnostics of the differences between the two external results allows to establish each participant’s personal educational increment degree in training. Accompaniment of artistic and creative activities implies the need to diagnose changes in students’ creative products.

9. The creative type creative activity heuristic component is realized on the classes’ interactivity principle basis. The creative qualities manifestation is universal, i.e. creativity is considered as a universal, integrative ability to be creative, students acquire knowledge and skills independently, the teacher accompanies their educational creative activity, helps to solve the set creative tasks using the activating creative thinking methods. Students are invited to perform a reflexive analysis of their successes and problems, set and rank personal goals, outline ways to achieve them, identify difficulties and ways to overcome them, critically evaluate their own and others’ results. Reflection as a way for
the students to receive an internal educational product is carried out at all the creative type creative-creative activity stages. Creative orientation presupposes that, first of all, the process of activity itself, its character, individual trajectory of mastering the artistic activity algorithm, the degree of difference between the results shown from the standard and publicly available are evaluated.

In this way, all the subject cognitive activity is sublimated into the creativity formation, based on the integral formation of the personality; in the unity of the irrational-emotional and rational-intellectual beginning in learning. Understanding the possibilities and the forming creative thinking ways in the artistic and cognitive activity leads to the need to substantiate it in relation to the educational process through the cognitive and artistic and creative students’ activity.

The creative thinking developing process.
The process of developing creative thinking by the external world images is closely dependent on the sensory system state. Sensory-perceptual reflection of reality is the basis for the development of creativity, emphasizes the dual nature of its essence including perception, memory, imagination, thinking, fantasy, intellectual activity, creative well-being, as well as behavioral forms of manifestation: curiosity and determination, propensity to take risks and to research different possibilities, tolerance for uncertainty, propensity to visualize and create mental images, interest in the new and unusual, independence, intuitive result, improvised solutions. Decentration as an intellectual phenomenon can be achieved by mastering a number of operations and abilities: the operation of rotating a figure in space; the operation of own mental rotation in space; the operation of changing the observation position; ability to differentiate the self-esteem. The ability to evaluate and discuss own creative product develops “self-vision”, an attempt to look at yourself with the eyes of another. High self-esteem acts as a protective mechanism of the individual, aimed at strengthening its self-worth and the possibility of being accepted. The defense mechanism, which performs the protective compensating task blocks the self-reflection and self-identification process, on which the individuation process is based, which is necessary for the creative thinking formation. In this case, it is recommended to expand the living spaces boundaries in the aligned thematic chain, illustrating the possibility of being in different areas, the formation of a voluminous and multifunctional vision of self-importance in a recreated image. Creating an image, simple surrounding world objects images transform in a collapsed form by a semantic meaning, a thought form into a category of symbols and are revealed as a mental image at the moment of “insight” imprinted in a creative product. To create a special product requires six components: intellectual abilities, knowledge, thinking styles, personal characteristics, motivation and environment. The creativity process can be carried out in the presence of such intellectual abilities as synthetic ability to see problems in a new light and avoid the usual way of thinking, analytical ability to evaluate the ideas value, practical ability to convince others of the ideas value. Among innovative technologies for the creative thinking formation, in our opinion, the Altschuller technology takes the leading place. It is the theory of solving inventive problems (TSIP). The following are among the basic TSIP ideas: theory — a catalyst for creative problem solution; knowledge is a decision tool, the creative intuition basis; everyone is endowed with creative abilities (everyone can invent); creativity, like any activity, can be learned. A special place in teaching is occupied by the course Creative Imagination Development (CID), designed to overcome the thinking stereotypes, develop the ability to work with non-trivial ideas. The levels of creative thinking and its products are: Level 1: expressive creativity; Level 2: productive creativity; Level 3: inventive creativity; Level 4: innovative creativity; Level 5: generating (scientific) creativity.

The brainstorming techniques use to invigorate creative thinking:
- Thinking overcoming stereotypes method (well-known heuristic methods (control questions method, focal objects method, TSIP, etc.). - Generation and analysis processes separation method (brainstorming method of A. Osborn) - “Method of empathy.” Empathy - getting used, presenting oneself in the place of another - “The method of direct analogy” - “The method of symbolic analogy” (A. Osborn)
The brainstorming use in the educational process allows to solve the following tasks: the students’ creativity stimulation; the theoretical knowledge connection with practice; the formation of an ability to focus attention and mental effort on the solution of the actual problem; learning to work in a team, showing tolerance to someone else’s point of view. In modern culture, creative thinking is a universally recognized value. Its formation and development are one of the often-proclaimed tasks of modern education in different countries.

The artistic type creative activity pedagogical support model:
installation for scanning an object of creative activity → creative message of a moderator to the subjects of creative activity → creation of a thought form, verbalization, → creation of a mental image → materialization in the creative activity product
1. perception and scanning; 2. sending the moderator; 3. comprehension and imagination; 4. verbalization; 5. visualization; 6. materialization.

The emotional and motivational sphere becomes more active, the motive for their own statements appears: the images appeared in their own conclusions acquire a thought for verbalization; → materialization in the subjects of creative activity → creation of a thought form, verbalization, → creation of a mental image → materialization in the creative activity product
1. perception and scanning; 2. sending the moderator; 3. comprehension and imagination; 4. verbalization; 5. visualization; 6. materialization.

The emotional and motivational sphere becomes more active, the motive for their own statements appears: the images appeared in their own conclusions acquire a thought form. Verbal generalization of one’s own experiences leads to the full-fledged images emergence and operating with them in the thinking plan can be improved with the help of a teacher. Formed images become dynamic, finally solidify in the formed mental image.

Summary
We believe that the creative activity subject creative thinking formation is possible if:
1. A new creative product, on the basis of which its communicative activity takes place - participation in exhibitions and competitions; representation of creative work on the views, competitions, projects of the department, university, etc. is created.
2. The communicative creative educational activities with other subjects of creative activity are conducted, a system of interaction with them is built.
3. The personal goal-setting, correlates his planning with the goals and objectives of other subjects of creative activity, analyzes his creative results are conducted, and the further progress in the artistic and educational creative space is corrected.
4. The new universal skills and personal qualities as a result of creative activity and transforms already existing ones, with the latter being brought to a qualitatively new level are acquired.
5. The creative activity experience, in which the subject is given the opportunity to experience empathy and co-creation, which are often almost inseparable, but represent opposite dynamic formations is received.

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