



El impacto de las artes visuales en el desarrollo de habilidades creativas de estudiantes que cursan carreras no artísticas

The impact of visual arts on the development of creative abilities by students pursuing non-art majors

Nadezhda V. Syrova^{1a}, Evgeniya K. Zimina², Nina S. Petrova³, Marina A. Abdullina⁴,
Natalia V. Bystrova⁵, Marina A. Zamuraeva⁶

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia¹²³⁴⁵
Nizhny Novgorod State University of Architecture and Civil Engineering, Nizhny Novgorod,
Russia⁶

 ORCID: <https://orcid.org/0000-0003-4957-5350>¹
 ORCID: <https://orcid.org/0000-0002-7117-2964>²
 ORCID: <https://orcid.org/0000-0001-8875-367X>³
 ORCID: <https://orcid.org/0000-0001-8681-0271>⁴
 ORCID: <https://orcid.org/0000-0002-4310-6142>⁵
 ORCID: <https://orcid.org/0000-0002-7905-6802>⁶

Recibido: 16 de diciembre de 2020

Aceptado: 05 de agosto de 2021

Abstract

This paper is an attempt to provide theoretical justification of the role of visual arts in developing creative abilities of students obtaining their professional degree at high school regardless of the pursued majors. For accomplishing the research objectives, we used the methods of analysis, interpretation, comparison, systematization and consolidation of psychological and pedagogical literature on the research problem. The paper presents an analysis of the term “creative abilities of a person” and how creativity affects the professional competences. We underline the importance of bringing out creativity throughout the lifetime as an essential element of existence, and conclude on high significance of visual arts both for personal self-guided development of students and for their future success in profession. The problem of stimulating creative behavior is extremely important for the modern system of education. Integration in the system of education of the techniques for boosting creativity, for modeling creative behaviors, for learning technologies of creative activity facilitates expression of such personal qualities as openness to new experiences, sensitivity to problems, flexibility of thinking, and a strong need for creativity in any field of activity.

Keywords: visual arts, creative abilities, creative personality, professional activity, non-art majors.

^aCorrespondencia a la autora
E-mail: nv_syrova@mail.ru

Resumen

Este estudio es un intento de proporcionar una justificación teórica del papel de las artes visuales en el desarrollo de las habilidades creativas de los estudiantes que obtienen su título profesional en la escuela secundaria, independientemente de las especialidades que persiguen. Para el cumplimiento de los objetivos de la investigación se utilizaron los métodos de análisis, interpretación, comparación, sistematización y consolidación de la literatura psicológica y pedagógica sobre el problema de investigación. El artículo presenta un análisis del término "habilidades creativas de una persona" y cómo la creatividad afecta las competencias profesionales. Subrayamos la importancia de hacer aflorar la creatividad a lo largo de la vida como un elemento esencial de la existencia, y concluimos sobre la alta importancia de las artes visuales tanto para el desarrollo personal autodirigido de los estudiantes como para su futuro éxito en la profesión. El problema de estimular el comportamiento creativo es extremadamente importante para el sistema educativo moderno. La integración en el sistema de educación de las técnicas para impulsar la creatividad, para modelar comportamientos creativos, para aprender tecnologías de actividad creativa facilita la expresión de cualidades personales como la apertura a nuevas experiencias, la sensibilidad a los problemas, la flexibilidad de pensamiento y una fuerte necesidad de creatividad. en cualquier campo de actividad.

Palabras clave: Artes visuales, habilidades creativas, personalidad creativa, actividad profesional, carreras no artísticas

Introduction

Today, in the pursuit of harmonious development and education of a human it is impossible to leave aside such an important field as arts. Speaking about the characteristic properties of arts, their unique quality of aesthetic depiction of different events, facts and phenomena from the surrounding world, in contrast to their scientific presentation mainly consisting of premises and rationale, is definitely worth mentioning (Ingold, 2018; Berčić, 2021). Arts being of an artistic nature and having humanitarian features, become the means of education which guiding idea strongly resonates with the creative nature of a man. The purpose of such education is to embrace the creative nature of a man.

Nowadays, creative development has become one of the most significant challenges. Having taken its place among the most critical challenges of the century, it has captured the minds of many Russian and foreign psychologists committed to define the very essence of creativity, a phenomenon that keeps eluding precise scientific experiments (Sternberg, 2018; Grigorenko, 2019). No wonder, as the vastness of creativity cannot fit into a narrow real-life situation, which is always bound by the limits of purpose and predetermined activity patterns.

The interest to exploration of psychological aspects of creativity (especially in the field of science) has grown substantially in the middle of the last century under the influence of the scientific and technological revolution. It gave a spur to the development of new methods for nurturing creative traits of personality (Pavlova, 2018; Pan & Yu, 2018). The heightened attention was given to imagination, flexibility of mind, divergent thinking, as well as intrinsic motivation

for creativity. In the 21st century, the scientists working on artificial intelligence, by transferring formalized mental operations to the machines stirred up the unfading interest in the creative expressions and creative abilities of a human that cannot be formalized. The challenge of embracing, fostering and sustaining creative potential of a person throughout the lifetime appears to be the biggest. In this case, Jung and Neumann (1996) assert that a creative man is a riddle that we may try to answer in various ways, but always in vain.

Literature review

Creativity in philosophical terms was examined by Berdyaev (2019) who believed that creativity is the only kind of activity that makes a human as human; Altshuller (2004) proposed a theory of creative personality development, asserting that there is a need for universal education, still having place for mastery in a certain field; Yakovleva (1997) sees creativity as a person's expression of individuality; Bogoyavlenskaya (2002) offered a view on the creativity as an act of going beyond the limits of a given problem; Ilyin (2008) explores multifacetedness of creativity and creative personality; Leontyev (2007) regarded personality as a subject of creative activity; Guth (2007) writes that creativity is a productive thinking activity yielding a non-trivial result; Luk (1978) examines the relationship between scientific and artistic creativity; Ermolaeva-Tomina (2005) revealed the connection between spontaneous creative initiative and resistance to an imposed activity style; the Russian psychologists and educators Vygotsky (1987), Zankov (1999), Kuznetsova (1988) in their studies deal with the problems of unleashing creative abilities from an early age; the problems and methods of developing the creative abilities of students are addressed in the works of Kagakina et al. (2018), Kasatkina et al. (2015), Marchenko (2011), Zimina et al., (2020), Petrova et al. (2020), Scherbakova et al. (2020), Medvedeva et al. (2020), and others, the need for creativity in professional activity was discussed by Shadrikov (2010) and others. The analysis of the above references suggests that despite many years and diversity of research efforts on creativity, the methods and techniques for developing creative abilities of students pursuing non-arts majors require further investigation.

Methodology

The purpose of this paper is to analyze the psychological and pedagogical literature where creativity is seen as one of the central aspects of human's life and to attempt to provide a theoretical justification for the role of visual arts in the professional development of students pursuing non-arts majors at high school. The research objectives are to:

1) Analyze the psychological and pedagogical literature dealing with the problem of creativity development and reveal the signs of a creative person.

2) Assess the importance of unleashing the creativity in a person of any age and propose the techniques for revealing creative abilities of students regardless of their field of study.

The research design contained four stages:

Stage 1 - setting (defining research theme, purpose, object, subject, objectives and methods);

Stage 2 - theoretical (literature review on the studied phenomena);

Stage 3 - analytical (analysis and comparison of research data);

Stage 4- final (substantiation of conclusions and recommendations).

The research materials consisted of the publications of various authors dealing with the problems of creativity development as a psychological and pedagogical problem, and a methodological framework of the research was founded on the works of Bolshakov (2008) and Ilyin (2008), which give precedence to the system approach and the methodological principles of objectivity, scientificity, analysis of essence, and review the models of creative personality and the modern concepts of creativity. This research is mainly of qualitative character as it focuses on obtaining detailed information about the research subject based on interpretation and explanation of its properties. The methods of analysis, interpretation, correlation, systematization and generalization were used to accomplish the pursued objectives.

Results

Based on the analysis of the scientific literature we identified the signs of a creative person and stressed the importance of stimulating creativity at any age regardless of a chosen profession. Relying on the experience of leading domestic and foreign scientists, it becomes possible to identify the signs of creativity, describing it as an activity aimed at producing something original, unique, new, which carries high historical and social significance. This is a process that should be present in the life of a person throughout their lifetime. Much is being said in today's educational space about a new paradigm – the lifelong learning, and it should be supplemented with the lifelong creativity.

Not without reason many philosophers view human creativity as a type of activity defining the very essence of a man, putting him above the infinite diversity of the physical world, which leads him to understanding of his higher purpose. As Berdyaev (2019) asserts, if everything in existence was uncreated, eternally given, then the very idea of creativity could not have been conceived in the world. The very idea of creativity makes sense only because there exists a Creator who performed an original act of creation through which the unprecedented became existent, not

derived from anything previously in existence, not neglecting or diminishing the absolute power of the Creator. As concerns the topic of creativity in any field of life, it is important to identify the signs of a creative person. Undoubtedly, a creative person should have creative abilities, which can be nominally divided into several categories: giftedness, special giftedness, talent, genius (Kuznetsova, 1988).

An important feature of creative giftedness and talent is sometimes its hidden nature, and before developing the ability, a person needs to discover it in himself. It should be noted that the definition of “ability” itself has a very wide-ranging application. As we understand it, abilities mean individual-psychological features that distinguish people from one another, however these are not all individual features, but only those related to the outstanding achievements in a certain activity. Unfortunately, in everyday practice the concepts of “abilities” and “skills” are often confused, which leads to erroneous conclusions, especially in the pedagogical practice. In this case, Luk (1978), a scientist-philosopher, distinguished the most significant creative abilities (see Table 1).

Table 1
Most significant creative abilities

No	Creative abilities
1.	Creative imagination
2.	Ability to see the general before the particular
3.	Ability to apply previously acquired skills in new conditions
4.	Flexibility of thinking
5.	Ability to visual perception of the general tendency or regularity in the development of a holistic object
6.	Ability to fit the newly perceived information into a pre-existing body of knowledge in unexpected ways
7.	Ability to choose between the alternatives
8.	Ability to generate ideas

Source: compiled by the authors using scientific work of Luk (1978).

These are the features, which according to the authors of this paper are inherent in a creative person, opening a different perspective on both complex and simple things. Genuinely creative people are always distinguished by a higher level of originality in solving the task at hand and by a flexible mind.

Russian pedagogics has a rich heritage of the works of Vygotsky (1987), who asserted that the experience gained in childhood is a springboard for the development of creative abilities and productive activity. This implies that teachers and parents should in every possible way from the earliest years encourage a child to cognize the surrounding world, and also create an enabling

environment for children to obtain good knowledge and skills, and to develop creative abilities. Vygotsky (1987) was the one who described creative processes on the basis of a child's play in which creative activity is directly linked to the gained experiences and impressions of which a new reality is woven consistent with the child's own desires and needs. Therefore, a conclusion can be made that creative activity is directly related to the game of imagination and visual thinking which is an innate capacity from birth.

As schoolchildren grow older, they often experience a slowdown in the development of their creative abilities, which, in turn, can lead to degradation and, eventually, to the loss of these abilities. This problem was studied by the Russian scientists Nikitin and Nikitina (1992), who named this phenomenon the NUVERS (an abbreviation translated from Russian as "the irreversible fading of capacity for effective development of abilities"). His works provide the convincing evidence that creative abilities do not derive from the innate potential of a person only and that their further development or fading has direct links to the surrounding environment, which may be enabling or suppressing.

With the life experience, the adolescents' critical thinking skills are sharpened, they become aware of the public taboos with regard to certain topics. They begin to adjust their own thinking and behavior to the generally accepted norms. As a result, a personality is shaped fitting well into the generally accepted framework of rules, but having lost its creativity, with its "divine" spark extinguished, and then after joining the higher education institutions, and successfully acquiring professional competences, people often neglect the need to develop their creative abilities, thinking that creativity is only characteristic of the people of art. The development of logical thinking is considered a top priority.

However, according to Lotman (1992), obtaining of information is not limited to rational cognition, the comprehension of reality in large part occurs through images and symbols helping to reveal systemic relationships of cognitive-modeling aspect. Without use of the sensory organs, knowledge about the surrounding world and reality builds up very slowly, bears the brunt of abstract verbal-logical formalism and is hardly applied in practice.

A major role in the formation of all types of creative thinking, both in arts and natural sciences, belongs to strong skills of visualization of the setting of mentally solved problems and visual combinatorics. An important cause of the overall low performance of many students is their lack of spatial abilities, which is an indication of poor imaginative thinking. Nowadays, there exist plenty of methods proposed for developing creative abilities. Bagdasarova (2005) notes the role of folklore in reinvigorating the creative component of thinking. Rozhdestvenskaya (2004) tested the method of improvisation in performances on stage.

From our standpoint, one of the promising ways forward with practical solution of this problem is integration in the learning process of any forms of visual art-making. The visual arts play a huge role in facilitating the development of creativity, because the creative process in a classroom, whether it is clay-modelling, painting or drawing, first of all, boosts the visual thinking. While, it is the developed visual thinking that is the main distinguishing feature of a creative person.

Discussion

The academician Zankov (1999) believed that creativity should be given not the least role in the school curriculum, asserting the necessity to have such disciplines on it as music, literary reading, visual arts for developing creative abilities. The general training programs for non-arts majors in vocational education institutions do not include visual arts. As it was noted by Evladova and Nikolaeva (1996) as well as Skachkov (1996), one of the priority tasks of additional education is an increase in the directions of creative actions aimed at the formation of creative activity.

However, visual arts may be introduced in the form of elective or extra-curricular classes. In the field of supplementary education, an important distinguishing feature may be highlighted, which is that the main priority is given not to the end result, but to the process itself, an act of creating something original and new. Dudareva (2016) notes that success in activity is a powerful inspirational charge for students, especially when it is witnessed by public, which makes the undertaken activity even more captivating and encourage students to go ahead with more complex activity and to progress forward.

By engaging in visual art-making, a student revisits the attributes and qualities of objects and acquires new skills and abilities. Undoubtedly, students do not become true artists in classes dedicated to unlocking their creative potential, because true excellence of an artist implies a great knowledge of the artistic craft. Still such classes have a visible impact, as students gain experience related to creative expression, which in the future will certainly prove to be useful in any activity.

Didactic materials and curricula should be oriented toward the positive development of students' visual thinking, while taking into account individual preferences of each student. A teacher should take note of individual creative proclivities already present in each student, serving as a means of self-expression, and apply various pedagogical techniques and methods for their further development (Ilaltdinova & Oladyshkina, 2020).

The visual arts classes foster the visual figurative and visual active thinking, associated with the development of such abilities as analysis, synthesis, comparison, generalization, essential for any professional activity. When creating a drawing, students learn to distinguish the external properties of objects, to notice their secondary characteristics and to concentrate their attention on

what's the main. Creation of an image requires holistic vision of an individual object or setting as a whole. Work on the drawing and accurate aesthetic depiction bring into play the analytical and inference skills which in turn spur the development of thinking, speech, memory, concentration, and vocabulary. For this, for success in non-creative disciplines, the visual imagery and spatial abilities of students have an essential role to play. Skills in volumetric construction and graphic skills, which are at the core of all visual art-making activities, make it easier to study disciplines directly related to technological learning and engineering creativity.

The process of mastering the surrounding natural and objective reality is a combination of cognition and experience, emotional, sensory and rational thinking (Zhdanova, 2007). Every single human by its nature is a creator, and this innate creativity should be embraced. A teacher, a mentor should keep in mind that it is important to develop creative abilities in harmony with the student's inner world. The arts help to understand the inner world of a person by reflecting the inner workings of an infinitely intricate external world.

Development of creative abilities of students quite often has a direct relation to qualitatively new products of creativity which may be of interest for psychologists and educators dealing with the inner world of personality. The products of creativity are wide-ranging in diversity and scale. It is not right to approach such products only as something tangible, in fact at times creative search can lead students to incredible conclusions, spark new ideas, insights, thoughts, decisions which can subsequently be translated into action. In this case, Yarkova et al. (2020) also emphasizes that if developing creative abilities, the student will be ready for innovation that is a basis for innovative activity which is inseparable from creativity.

The twenty-first century has marked a new stage in human development, creating the facilitating environment for the research on creative abilities, when a person, taking advantage of the opportunities of new era, becomes capable of a self-guided search for answers to the questions related to the development of their creative potential. It is important to recognize that modern psychology and pedagogy, despite the priority given to the creativity research efforts, still do not have comprehensive information about the nature of human creativity, and therefore, tirelessly push forward and look for new solutions to the emerging issues of concern.

Limitations of the study

The declared theme of this research work imposes subject-semantic limitations, expressed in the choice of the aim, research objectives, and the use of certain research methods and thematic diversity of the analyzed scientific sources. When studying the issue of fine arts' influence on the development of person's creativity, we also considered the necessity of this process for each person and the possibility of organizing art classes in any university in the form of additional education.

Conclusion

Creativity is the highest human activity requiring strong erudition, preparation, and in many cases strong determination. Creative potential is locked in every single representative of the humankind, so we can make an indisputable assertion that the development of the global society hinges on the effective unlocking of each person's creative abilities.

In sum, this research revealed the impact of visual arts on the development of creative abilities of students pursuing non-arts majors, and led us to the following conclusion: in the modern psycho-pedagogical science the flexibility of thinking, as a distinguishing quality of a creative person, may be interpreted as a potential inherent in human capabilities, which helps a person to break the mold and take non-standard approaches to problems at hand, which is the ultimate goal of developing the innate creativity of students, regardless of their choice of profession. The introduction of visual arts in the higher education institutions in the form of elective or extra-curricular classes will be a meaningful contribution to this.

References

- Altshuller, G. S. (2005). *Creativity as an exact science*. Petrozavodsk: Skandinavia. <https://www.altshuller.ru/bibliography1/contents1.asp>
- Bagdasarova, N. A. (2002). Emotional response in the context of different cultures. *Human*, 4, 105-111. https://mgimo.ru/upload/iblock/13b/13b7b6b2f14ecd2e01fc9d3_a56b7bbf3.pdf
- Berčić, B. (2021). Art and the impossible. *Croatian Journal of Philosophy*, 21 (61), 155-177. doi: 10.52685/cjp.21.1.9
- Berdyayev, N. A. (2019). *The meaning of creativity. Experience of justification of a man*. Moscow: Publishing House Uright. <https://urait.ru/book/smysl-tvorchestva-opyt-opravdaniya-cheloveka-441579>
- Bogoyavlenskaya, D. B. (2002). *Psychology of creative abilities*. Moscow: Academy. <https://search.rsl.ru/ru/record/01004483193>
- Bolshakov, A. V. (2008). Modern concepts of creativity. *Bulletin of TSU*, 1 (57), 235-239. <https://cyberleninka.ru/article/n/sovremennye-kontseptsii-tvorchestva-1>
- Dudareva, Yu. B. (2016). Development of creative thinking in the system of supplementary education for children and adults. *The Young Scientist*, 6, 767-771. <https://moluch.ru/archive/110/26813/>
- Ermolaeva-Tomina, L. B. (2005). *Psychology of artistic creativity: Textbook for universities*. Moscow: Academic Project: Culture. <https://search.rsl.ru/ru/record/01006807466>
- Evladova, E. B., & Nikolaeva, L. A. (1996). *Development of additional education in educational institutions*. M.: VLADOS. <https://search.rsl.ru/ru/record/01000968157>
- Grigorenko, E. L. (2019). Creativity: a challenge for contemporary education. *Comparative Education*, 55 (1), 116-132. doi: 10.1080/03050068.2018.1541665

- Guth, R. O. (2007). On creativity in science and technology. *Issues of psychology*, 4, 130-139. <https://www.elibrary.ru/item.asp?id=18845464>
- Ialtdinova, E. Y., & Oladyshkina, A. A. (2020). "This is the best teacher in the whole world!": the influence of a school teacher on the professional self-determination of future teachers. *Vestnik of Minin University*, 8 (3). doi: 10.26795/2307-1281-2020-8-3-3
- Ilyin, E. P. (2008). *Psychology of artistic talent, creativity, giftedness*. SPb.: Piter. <https://www.ibooks.ru/bookshelf/344620/reading>
- Ingold, T. (2018). From science to art and back again: the pendulum of an anthropologist. *Interdisciplinary Science Reviews*, 43 (3-4), 213-227. doi: 10.1080/03080188.2018.1524234
- Jung, K., & Neumann, E. (1996). *Psychoanalysis and art*. Moscow: Refl-book, Wackler. https://platon.net/load/knigi_po_filosofii/psikhologija/jung_k_g_nojmann_eh_psikhoanaliz_i_iskusstvo/22-1-0-2393
- Kagakina, E. A., Kagan, E. S., Sakharchuk, N. Y., & Timoshenkova, O. S. (2018). The readiness of students for creative activity: Theoretical justification and experimental study. *Professional education in Russia and abroad*, 4 (32), 118-122. <https://cyberleninka.ru/article/n/gotovnost-obuchayuschih-sya-k-tvorcheskoy-deyatelnosti-teoreticheskoe-obosnovanie-i-eksperimentalnoe-izuchenie/viewer>
- Kasatkina, N. E., Lesnikova, S. L., Rudneva, E. L., & Timoshenkova, O. S. (2015). Preparation of university students to take a creative approach in future professional activities. *Bulletin of Kemerovo State University*, 1(61), 110-114. <https://cyberleninka.ru/article/n/podgotovka-studentov-vuza-k-realizatsii-tvorcheskogo-podhoda-v-buduschey-professionalnoy-deyatelnosti/viewer>
- Kuznetsova, L. V. (1988). *Harmonious development of the personality of a junior schoolchild*. Moscow: Prosvetshenie. <https://search.rsl.ru/ru/record/01001429253>
- Leontyev, A. N. (2007). *Activity. Consciousness. Personality*. Moscow. <http://www.psy.msu.ru/people/leontiev/dsl/index.html>
- Lotman, Yu. M. (1992). *Symbol in the system of culture. In Selected articles in three volumes. Volume I. Articles on semiotics and cultural typology*. Tallin: Aleksandra. <http://www.philology.ru/literature1/lotman-92e.htm>
- Luk, A. N. (1978). *Psychology of Creativity*. Moscow: Nauka. <http://lib.mgppu.ru/opacunicode/app/webroot/index.php?url=/notices/index/IdNotice:12692/Source:default>
- Marchenko, I. V. (2011). The development of creative abilities of students. *Proceedings of BSTU*, 8, 36-37. <https://cyberleninka.ru/article/n/razvitiye-tvorcheskih-sposobnostey-studentov-1>
- Medvedeva, T. Y., Sizova, O. A., Syrova, N. V., Depsames, L. P., Yakovleva, S. I., & Ulyanova, R. A. (2020). Competence-based professional development of students in the space of professional education institution. *Ad Alta – Journal of Interdisciplinary Research*, 10 (1), 31-34. <http://www.magnanimitas.cz/ADALTA/100111/PDF/100111.pdf>
- Nikitin, B. P., & Nikitina, L. A. (1992). *Our lessons*. SPb.: Lenizdat. <https://search.rsl.ru/ru/record/01001649364>

- Pan, X., Yu, H. (2018). Different Effects of Cognitive Shifting and Intelligence on Creativity. *Journal of Creative Behavior*, 52 (3), 212-225. doi: 10.1002/jocb.144
- Pavlova, E. M. (2018). Model of connections between self-esteem of creativity and intelligence, tolerance of uncertainty and creativity. *Psychology, Journal of the Higher School of Economics*, 15 (1), 69-78. doi: 10.17323/1813-8918-2018-1-69-78
- Petrova, N. S., Syrova, N. V., Zimina, E. K., Abdullina, M. A., Krashennnikova, E. S., & Depsames, L. P. (2020). Training creative personnel as part of the arts education development in modern days. *Ad Alta – Journal of Interdisciplinary Research*, 10 (2), 70-73. <http://www.magnanimitas.cz/ADALTA/100214/PDF/100214.pdf>
- Rozhdestvenskaya, N. V. (2004). The development of creativity by means of art therapy and improvisation methods. In *The Ananiev Readings, 2004: Proceedings of the Research & Practice Conference*. SPb. <https://search.rsl.ru/ru/record/01002717961>
- Shadrikov, V. D. (2010). *Professional abilities*. Moscow: University book. <https://search.rsl.ru/ru/record/01006536391>
- Sherbakova, E. E., Lvova, M. V., Zimina, E. K., Aboimova, I. S., Kulagina, A. A. (2020). Expansion of Personal Development Space of a Student in the Sphere of Design. *Lecture Notes in Networks and Systems*, 91, 142-148. https://link.springer.com/chapter/10.1007/978-3-030-32015-7_17
- Skachkov, A. V. (1996). Additional education as a social and pedagogical problem: *Thesis Abstract*. <https://search.rsl.ru/ru/record/01000020845>
- Sternberg, R. J. (2018). A triangular theory of creativity. *Psychology of Aesthetics, Creativity, and the Arts*, 12 (1), 50-67. doi: 10.1037/aca0000095
- Vygotsky, L. S. (1987). *Psychology of art*. Moscow: Iskusstvo. http://elib.gnpbu.ru/text/vygotsky_psihologiya-iskusstva_1987/
- Yakovleva, E. L. (1997). *Psychology of the development of the person's creative potential*. Moscow: Moscow Psychology and Sociology Institute. <http://lib.mgppu.ru/opacunicode/app/webroot/index.php?url=/notices/index/IdNotice:15491/Source:default>
- Yarkova, D. D., Mukhina, T. G., Malinin, V. A., & Sorokoumova, S. N. (2020). Development of the teacher's creative potential in the conditions of the federal innovation platform "Pedagogical Leadership". *Vestnik of Minin University*, 8 (2). DOI: 10.26795/2307-1281-2020-8-2-14
- Zankov, L. V. (1999). *Selected pedagogical works*. Moscow: House of Pedagogics. <https://search.rsl.ru/ru/record/01000628387>
- Zhdanova, S. N. (2007). *Socio-pedagogical theory of aesthetic mastering of the world by the students in the system of additional education for children*. [Doctorate thesis]. <https://search.rsl.ru/ru/record/01003318592>
- Zimina, E. K., Syrova, N. V., Petrova, N. S., Abdullina, M. A., Shapoval, A. V., & Trzhetsciak, I. (2020). Research work on design projects for activating cognition in students. *Ad Alta – Journal of Interdisciplinary Research*, 10 (2), 66-69. <http://www.magnanimitas.cz/ADALTA/100214/PDF/100214.pdf>