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ТЕОРИЯ И МЕТОДИКА ОБУЧЕНИЯ И ВОСПИТАНИЯ
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The Influence of Art Activities on the Creativity of Junior Schoolchildren

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Abstract

Introduction. There is a consensus among practitioners teaching art to children that the very process of art education develops children's creativity. However, in scientific psychology, there is no consensus on the advantages of children being involved in art, as evaluated by the generally accepted criteria for measuring creativity. The purpose of the study is to identify differences in creativity indicators in children involved and not involved in art, as well as the characteristics of creativity in different types of art.
Materials and Methods. Our purpose was to clarify in which types of art study the indicators of creativity are higher. The Torrance Test of Creative Thinking was used to assess creativity. The sample comprised 312 children with an average age of 9.4 years. Participants were divided into three subgroups: children engaged in music, drawing, or dance; and children not engaged in any art forms. The study was conducted at supplementary education institutions and secondary schools focusing on children with at least two years of experience in their chosen art form to ensure developed skills.
Results. Results showed that children participating in art programs displayed significantly higher levels of creativity, particularly in terms of detail, originality, and abstract thinking, compared to children without such involvement. However, the scores for originality and fluency were lower for the children involved in the arts. There were differences in the intensity of creativity indicators between the different types of art. Children engaged in art showed higher scores on the creativity scales associated with non-verbal intelligence. Those not involved in art were more creative in expressing ideas - verbal intelligence.
Discussion and Conclusion. The results obtained by the authors contribute to the development of problems of creativity of children involved in art. The findings of this article are of practical importance for teachers of music and art schools, psychologists and teachers in the field of educational psychology and art.

Keywords: children's creative abilities, children's mental development, creativity indicators, artistic activities, elementary school student

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Влияние занятий искусством на креативность младших школьников

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Аннотация

Введение. Среди специалистов, обучающих детей искусству, существует консенсус о развитии творческих способностей путем художественного образования. Однако в научной психологии нет единого мнения о пользе занятий детей искусством, оцениваемой по общепринятым критериям измерения творческих способностей. Цель исследования – выявить различия в показателях креативности детей, занимающихся и не занимающихся искусством, а также особенности проявления креативности при занятиях разными видами искусства.

Материалы и методы. Инструментом исследования является тест Э. Торренса для изучения креативности. В выборку вошли 312 детей, средний возраст которых 9,4 года. Участники поделены на три подгруппы: дети, занимающиеся музыкой, рисованием или танцами; отдельно выделена контрольная группа – дети, не вовлеченные в искусство. Исследование проводилось на базе учреждений дополнительного образования и в общеобразовательной школе. Продолжительность вовлеченности детей занятиями музыкой, хореографией и изобразительным искусством определялась периодом более двух лет, что обеспечило сформированность у них специальных музыкальных, художественных и хореографических компетенций.

Результаты исследования. Была выявлена более высокая креативность детей, занимающихся искусством, по уровню разработанности, устойчивости к замкнутости, абстрактности, но у них отмечаются низкие показатели оригинальности и беглости речи. Между разными видами искусства наблюдаются различия в показателях интенсивности креативности. Дети, не вовлеченные в искусство, более креативны в выражении идей – вербальном интеллекте.

Обсуждение и заключение. Материалы статьи вносят вклад в изучение проблематики творчества детей, занимающихся искусством. Итоги данного исследования носят прикладное значение для педагогов музыкальных и художественных школ, психологов и преподавателей в области педагогической психологии и искусства.

Ключевые слова: творческие способности детей, психическое развитие детей, показатели креативности, художественная деятельность, младший школьник

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Introduction

It is believed that art promotes creativity in children. However, this opinion is still debatable due to a number of unclarified issues concerning developing creative abilities through art. To begin with, there is no consensus as for the nature of creativity among educators, music, art, and choreography teachers. The complex meaning of the word creativity is studied in our review paper [1]. In addition, art classes are based on developing certain skills through multiple repetitions. This is apparently not the best option for cultivating flexibility and uniqueness which are crucial for creativity. Furthermore, modern art programs applied around the world do not make prioritize creativity development. Frequently, art classes intend to develop certain skills through reproducing the pre-set samples. Given all the mentioned challenges in promoting creativity through art, it is possible that when learning the symbol system in drawing art,

comprehending music patterns, performing dance movements, a child develops precursors of creativity. This finding is of practical value because parents need to be convinced that taking their children to art classes will increase their creativity.

The methodological approach of the research is associated with the L.S. Vygotsky's cultural-historical theory. The core concept of this theory is that mental evolution is determined by external environment, education being the first and foremost influence. In the psychology of art, the essential resource for promoting creativity is its key unit – the image[1].

The influence of art on the mental development of children has been studied from various perspectives in Russian psychology throughout the 20th century. These traditions originate from the ideas of L.S. Vygotsky, B.M. Teplov, and A.V. Bakushinsky[2]. For instance, Vygotsky's concept that the learning environment and content determine the development of higher mental functions forms the theoretical basis for the problem of studying the influence of art on creativity. A methodology for researching children involved in art relies on the thesis of B.M. Teplov that the content of art works are emotions, feelings and moods, implying that the influence of art should be sought in the field of emotional experiences. However, despite the obvious influence of art on creativity, this aspect was not studied in detail. At the same time, the Soviet school of psychology and pedagogy created an evidence base for the effective influence of music on cognitive processes. The history of this topic is described in more detail in our article "Formation History of the Subject of the Influence of Art on the Mental Development of Children in Russian Psychology" [2]. All in all, the results of the study provide an answer to the controversial question about the effectiveness of music, dance and drawing in the development of children's creativity.

The purpose of this study was to determine the extent to which creativity in children involved in the arts and those not involved in the arts has its own characteristics, and whether there are differences in fluency, originality, and other markers of creativity in children playing musical instruments, drawing, and dancing.

The similarity of approaches to assessing predictors of creativity development in education in general and in arts education gives rise to the hypothesis that creativity in children engaged in various arts is higher than in other children. At the same time, we refined our hypothesis by assuming that different types of art-music, drawing, or dance-would have differences in the intensity of the indicators that determine creativity.

Literature Review

There are works that identify predictors of creativity development. In the common notion, art classes – music, drawing, and choreography – are considered an obvious area for creativity development. There are those who believe creativity and art are synonymous [3].

It turns out that a child who is engaged in music, drawing, or other types of art already possesses creativity. However, some authors are skeptical about this identification. Researchers of creativity in music, for example, point out that the concept of "musical creativity" makes it difficult to understand creativity in art, since playing music does not necessarily involve creativity. We consider the call to abandon the use of such terms as "dance creativity" or "artistic creativity", as focusing the attention of researchers on creativity as a universal ability to create a unique original product in any field [4].

However, there have been no studies showing the features of creativity in children who play musical instruments, draw, or dance, in which one could see objective criteria for high levels of creativity. With a certain degree of pessimism, E. Huovinen writes about this based on the results of a study of art students in terms of their understanding of the construct of creativity [5]. The author points out that students, who are future art teachers, do not have clear criteria for understanding creativity,

[1] Vygotsky L.S. [Psychology of Art]. Moscow: Iskusstvo; 1968. (In Russ.)

[2] Ibid; Teplov B.M. [Psychology of Musical Abilities]. Moscow: Publ. APN RSFSR; 1947. (In Russ.); Bakushinsky A.V. [Artistic Education. Research Experience on the Material of Spatial Arts]. Moscow: Novaya Moskva; 1925. (In Russ.)

and it is the teachers who subsequently have to develop creativity in their students.

In compiling a theoretical review of the issues of creativity in children involved in the arts, we found that the study of creativity in childhood and the study of the influence of art education on the mental development of children have been treated as autonomous spheres in child psychology. It seems to have been taken for granted that art education promotes creativity.

However, this proposition requires clarification and empirical support. There are a number of scientific approaches to the study of the influence of art on children's creativity. Adhering to the first approach [6; 7], scientists have demonstrated in their studies the presence of music's influence on creativity development. At the same time, there are a number of similar studies[3], which didn't research markers of creativity, but the student's ability for musical improvisation, which was treated as creativity.

In other studies, creativity has been examined as a product of education [7–9]. In this vein, there have been several disparate approaches to defining the essence of creativity: 1) creativity has been studied in the context of educational technologies as fundamental constructs of the 21st century [7]; 2) creativity as a competence formed in the framework of training [8]; 3) creativity as a new product of education [9]. There are special programs in which elements of art classes are introduced into regular classes, with the aim of developing the students' creative potential (Creative Partnerships Lithuania; Creative Partnerships; Creative Partnerships Prague).

According to modern researches [10; 11], creativity is a rather vague concept with varying interpretations. The excessive use of the word in everyday life, art, philosophy and science has eroded its meaning. From this point of view, two predominant conceptions of creativity stand out. According to the first concept, creativity can only be something associated with a newly created product that is valuable to society. The other concept understands creativity as the creation of something original by an individual for himself. This approach to creativity has more to do with imagination, imaginative thinking and originality. The second concept, which regards creativity as a new product for the individual, is closely aligned with the objectives of school education.

It can be assumed that creativity in music education is an umbrella term that includes composition and improvisation, although the term can be applied to listening (i.e., creative listening), performance (i.e., creative performance), and almost to all music teaching activities. From multiple sources, four distinct themes were identified that that address creativity in relation to music education: the characteristics of a creative person, the facilitating environment for creativity, the creative process, and the assessment of creative products[4].

Recently researches [10; 11] has explored the opinions of secondary school teachers on creativity and the teaching of compositional skills. A survey of teachers and a qualitative analysis of their responses revealed that music drives creativity through analysis and evaluation, adoption and evolution of musical ideas, reflection, and spontaneity. Creativity can benefit from such activities as improvisation, composition and training composing skills that can be incorporated in school curriculum. Exposure to different genres, styles, and traditions can also help foster creativity.

The results of these studies suggest that music teachers 'views on the concept of creativity are very important because these ideas can influence their teaching methods and how they evaluate activities designed to stimulate students' musical creativity[5].

At the same time, according to research [10], self-reflection is a key factor contributing to the development of music teacher's creative potential. The researcher has proposed a reflective tool called "Rivers of Musical Experience" to assess creativity

[3] Campbell P.S. Learning to Improvise Music, Improvising to Learn Music. In: Solis G., Nettl B. (eds) Musical Improvisation: Art, Education and Society. Urbana: University of Illinois Press; 2009. p. 119–142.

[4] Odena O. Creativity in the Secondary Music Classroom. In: McPherson G., Welch G. (eds) Oxford Handbook of Music Education. Oxford: Oxford University Press; 2012. p. 512–528. https://doi.org/10.1093/oxfordhb/9780199730810.013.0031

[5] Odena O. Musical Creativity Revisited: Educational Foundations, Practices and Research. London: Routledge; 2018. https://doi.org/10.4324/9781315464619

in music education. This tool can help us to represent, construct, and reconstruct major milestones or significant points in our creative accomplishments as we learn music in our childhood, at a conservatoire and in our professional career as musicians or music teachers.

"Rivers of Musical Experience" is a good tool for any music teacher to analyze and reflect on their career journey. The author finds it interesting to study a positive learning environment where both teachers and students can go outside the box and take a risk to achieve a creative outcome.

According to Burnard and Odena, teachers should come up with new instruction practices that encourage creativity and initiative. They believe that the ambiguity of the term "creativity" poses a difficulty for teachers. It is hard for teachers to develop a creative environment in the classroom because they get overwhelmed by a constant barrage of reports, targets and tests from their superiors. Teachers simply don't have the time to think about tools to promote creativity.

By reflecting on their personal experiences, teachers will be able to value and encourage creativity, originality, independence, risk-taking, the ability to redefine problems, and curiosity. These practicing researchers will appreciate complexity, artistry, and open-mindedness. It is important to note that forging creativity involves a particular style of thinking that includes visualization, imagination, experimentation, metaphorical thinking, reflection, analysis, synthesis and evaluation. Teacher researchers need to be motivated and goal-oriented [10].

Clint Randles examines creativity in the context of serious problems in contemporary music education in North America. The author points out a contradiction: on the one hand, almost all music education programs focus on classical and jazz music. On the other hand, classical and jazz music accounts for only 1.4 per cent of music sales worldwide. This contradiction indicates that music schools are teaching what the public does not care about. According to Randles, there is another contradiction that points to a conflict in music education. The average adolescent listens to music for approximately 4.5 hours per day, but secondary school music participation is at 10 percent nationally.

These contradictions show that music education programs are disconnected from children's real interest, motivation and creative impulses. In order to clarify the situation and outline ways of transforming music education, the author refers to Monomyth strategy. This conceptualization of the problem of music education helps to think collectively about how to make music education a source of creative development and part of a socio-cultural environment that is not disconnected from the overall cultural dynamic.

There is a clear need for a major transformation of music education. Innovation requires divergent thinking, so the transition to this new music education should be initiated by a group of like-minded people. Their goal, according to Randles, is to rescue music education from its present compromised condition.

Author believes, that the problem with fostering creativity in music schools stems from the fact that the system excludes guitar, drum kit, mandolin, and banjo players (among many others), turntablists, DJs, producers, and creators of new media – many of whom are phenomenal musicians, with a heart for teaching, who might reach more of the masses in unprecedented ways if they could become part of the music education system.

Only classical and jazz musicians are generally allowed to teach. Alternative ideas are not embedded in the music school curriculum. In today's world, music-making is so diverse that the music offered in schools must also be varied and interesting. Author believes that creativity should be seen as a socio-cultural phenomenon, not isolated from society [11].

Researchers [12; 13] conducted a four-year longitudinal study to identify the resource of music education partnerships. The authors express dissatisfaction with the state of music education in England and the need for a non-hegemonic alternative to music education that can drive creativity in music school students. The authors point out that previous longitudinal projects, which have resulted in a partnership between teachers and students have been successful, as adopting reflection and breaking from reductionist way of thinking became teachers' principles of work. In such

partnerships, the child and the musician formed a team, fighting against what they perceived to be the oppression of creativity. The partnership-based model is hard to measure on a priori calculations. However, it is a model that yields good results in terms of both children's and teachers' creativity and is therefore worthy of support [12].

Creativity in music is difficult to assess. A special study of composition and its evaluation was carried out from the position of defining musical composition as a source of stimulating creativity [13]. They conducted a survey among secondary school music teachers about the organization and evaluation of composition. The researchers were interested in what the teachers were doing in this respect. Teachers felt that there was a need for new tools to evaluate composing and that the amount of time devoted to composing in music education programs should be increased [13].

In their works [12; 13], they suggest that educators need to make an effort to develop methods of fostering creativity in music education in order to engage children in learning music. A teacher who is able to analyze his or her own experience and break away from established patterns can create a supportive educational environment in which instruction fosters creativity.

The impact of arts education on creativity is under-researched; one study on creativity claims that this area has received the least attention. Among the few studies on this topic, a study comparing the creativity of music students and non-musicians stands out[6]. It turned out that the musicians scored higher on a number of indicators of the Guilford test, but not on all scales. Kalmar conducted a longitudinal study of the influence of music classes on creativity[7]. One of the conclusions he drew was that the creativity development depended on how the lessons themselves were organized and whether the teacher set out to develop creativity. One of the studies showed that posing problems demanding creative solutions in music classes were a necessary condition for creativity development in children [6].

Creativity as the ability to create a new original product cannot be reduced to a process of thinking. However, a creative product is some kind of intellectual solution, a combination of the information available in memory. There are a number of theories of creativity, each of which solves the problems they pose[8]. After analyzing studies of art classes' influence on certain cognitive processes, we can conclude that such classes will have an impact on creativity in childhood. However, we cannot accept this hypothesis as an axiom.

There are studies in the scientific literature that show that the development of creativity is due to the influence of educational conditions [14]. Music, drawing and choreography classes are a continuous learning process, a special educational environment that can influence the development of creativity. They have shown the importance of the content of children's activities for the development of creativity. The use of play as a planned activity with a story and roles influences the development of creativity. Many play situations used in art classes can also be a source of creativity development. C.K. Fehr and S.W. Russ studied play, divergent thinking and creativity [14]. The researchers identified two processes in play that are thought to be related to creativity: cognitive and affective. In addition, the inclusion of affect in fantasy expands the search for ideas, images, and memories that are important for creativity[9].

Studies in recent years have shown that creativity has statistically significant correlations with symbolization [15; 16].

[6] Simpson D.J. The Effect of Selected Musical Studies on Growth in General Creative Potential. Los Angeles: University of Southern California; 2011.

[7] Kalmar M., Balasko G. Musical-Mother-Tongue and Creativity in Preschool Children's Melody Improvisations. In: Bulletin of the Council for Research in Music Education. 1987. p. 77–86. Available at: https://www.jstor.org/stable/40318066 (accessed 15.07.2024).

[8] Kaufman J.C., Glăveanu V.P. A Review of Creativity Theories: What Questions Are We Trying to Answer? In: Kaufman J.C., Sternberg R.J. (eds) The Cambridge Handbook of Creativity. Cambridge: Cambridge University Press; 2019. p. 27–43. https://doi.org/10.1017/9781316979839.004

[9] Fein G.G. Pretend Play: Creativity and Consciousness. In: Gorlitz D., Wohlwill J.F. (eds) Curiosity, Imagination, and Play: On the Development of Spontaneous Cognitive Motivational Processes. New Jersey: Lawrence Erlbaum Associates; 1987. p. 281–304.

This means that there is a positive relationship between the ability of children to use images in a given situation and creativity. This suggests that drawing lessons can be an important condition for creativity development [15].

We found studies in which musical activities were associated with cognitive control, as noted above. Austrian scientists [16] from the University of Graz, studied the predictors of creative thinking while studying the relationship between intelligence, creativity, and cognitive control. Since executive functions are involved in both processes, scientists see intelligence and creativity as interrelated constructs.

The research problem is determined by the contradiction between the generally accepted stereotypical assessment of art classes as a predictor of creativity development and the lack of empirical data confirming the differences in specific indicators of creativity in children who do and do not practice art. At the same time, the differences in creativity development in different art disciplines remain unclear.

Materials and Methods

Participants. The sample consisted of 312 normally developing children, including 72 participants involved in music for more than two years. Music classes involved playing musical instruments, learning solfeggio, and vocalizing. 59 participants in the study had been engaged in drawing for more than two years; the children had mastered the techniques of drawing, graphic literacy, knowledge of composition, space and forms, perspective, and the color spectrum. 42 participants in the study had been choreographing folk dances for more than two years. In choreography classes, children had mastered the skills of performance of various step combinations, dance movements in an ensemble, musical and rhythmic feeling, flexibility, and plasticity in the expressive performance of movements.

In addition, there were 139 participants in the study who were not involved in art. These did not attend arts, sports, or other extracurricular activities.

The average age of the children was 9 years, 4 months (SD = 0.8). Parents gave their informed written consent for the participation of their children in the study. The children gave their verbal consent before testing. The study took place in a friendly atmosphere. Since the children were interested in completing the tasks on the creativity test, they had a positive attitude toward participation in the study. The participants of our study are mainly children from two-parent families belonging to the category of socially prosperous families, which is confirmed by the active involvement of the parents in additional education of their children. Our study was carried out in two cities of the Bashkortostan, namely Oktyabrsk and Birsk. The former city is classified as a large city with a population of more than one hundred thousand, while the latter is a small city with a population of less than fifty thousand.

Procedure. The study was conducted at specialized schools, where children study music, drawing, and choreography after their regular school hours three times a week. The school administration received a letter which provided comprehensive information about the project. The study was conducted by psychologists with bachelor's and master's degrees in psychology, with specialties in developmental psychology. The studies with the non-arts children were conducted in regular schools with the informed consent of parents and administrators.

Tools. To measure creativity and the factors determining it, the Torrance adaptation test of E. Tunik[10] was employed. The test allowed us to determine five well-known creativity scales: originality, fluency, elaboration, resistance to closure, and abstractness of naming. The study was conducted under standard conditions at the same time of day (from 15.00 to 16.00) during the period from March to May 2022.

Ethical Approval. The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Ethics Committee of the Russian Psychological Society (protocol code 2021/31, 20 June 2021).

[10] Tunik E.E. [Psychodiagnostics of Creative Thinking. Creative Tests]. St. Petersburg: "Didaktika Plyus" Publishing House; 2004. (In Russ.) Available at: https://www.phantastike.com/psychodiagnostic_systems/creative_tests/html/ (accessed 15.07.2024).

Results

Based on the obtained data on creativity indicators, we carried out calculations and analysis in different combinations of the main subgroups of the 312 participants. The first calculations were related to comparing the two major samples – the children engaged and not engaged in art. The results were consistent with the study's hypothesis that the creativity of children who pursue art is different from those who do not pursue art (Table 1).

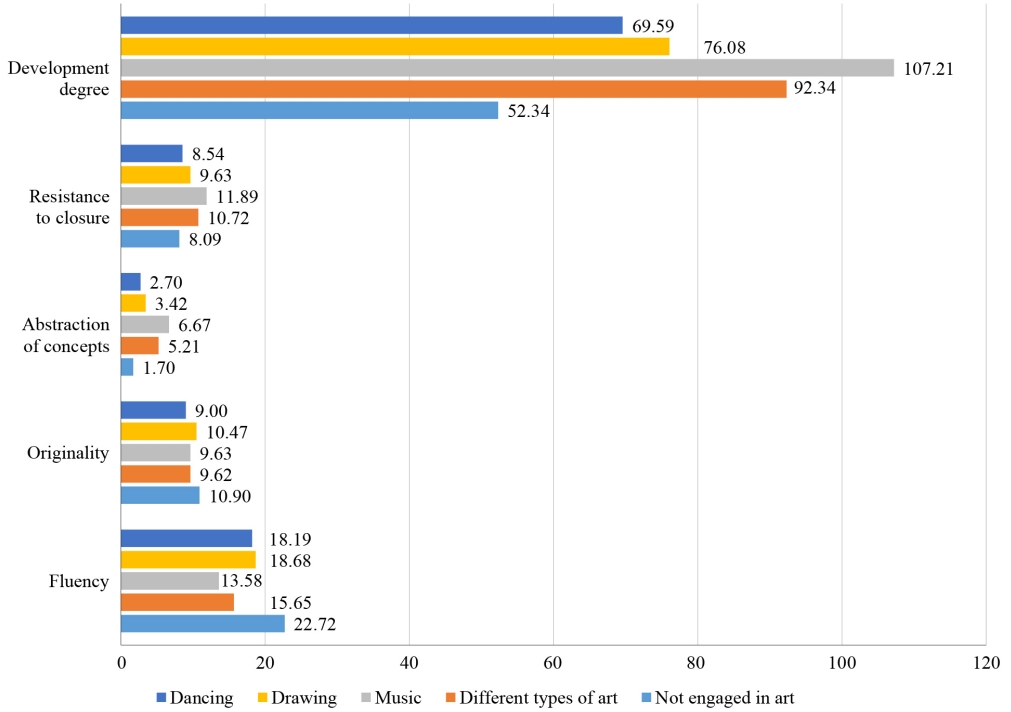
The study showed that children who were engaged in art had higher results on the development degree, resistance to closure, and abstraction of concepts than the children who were not engaged in art. However, on the originality and fluency scales, the values were higher in the children who were not engaged in art. To clarify the data, we examined the differences in indicators depending on the type of art in which children were involved (Figure).

Differences in the Creativity of Children Engaged in Music and Children Not Engaged in the Arts. The children who were engaged in music significantly outperformed their peers who were not engaged in art on the development scale, which may be due to the specifics of the competencies that are formed in a child when learning to play a musical instrument (Table 2).

T a b l e 1. **Comparative analysis of the level of creativity factors expression among children engaged in various types of arts and those not engaged in art** (T-tests)

Variable	Mean 1	Mean 2	t-value	Df	*p*	Valid N 1	Valid N 2
Fluency	22.7168	15.6533	8.46205	310	0.000000	113	199
Originality	10.9027	9.6181	2.62098	310	0.009200	113	199
Abstractness of naming	1.6991	5.2060	−7.44136	310	0.000000	113	199
Resistance to closure	8.0885	10.7236	−5.21307	310	0.000000	113	199
Development degree	52.3363	92.3417	−9.48189	310	0.000000	113	199

Notes: group 1 – not engaged in art; group 2 – engaged in various types of arts; Valid N 1 – number of children from 1 group; Valid N 2 – number of children from 1 group.
Source: Hereinafter in this article all tables were drawn up by the authors.



F i g u r e. General comparative analysis of the creativity factors expression degree among students engaged in various types of arts and those not involved in arts

Source: Compiled by the authors.

Differences in the Creativity of Children Engaged in Dancing and in Children Who Were Not Engaged in the Arts. The differences in the scale of creativity were less pronounced among children who danced than among children who were musicians. For example, for the abstraction of naming and the closure resistance, statistically significant differences were not found (Table 3).

Differences in the Creativity of Children Engaged in Drawing and Those Not Engaged in the Arts. An examination of the differences between the children who were engaged in drawing and those who did not engage in any art showed that there was no difference between the two sub-samples on the scale of originality. For the remaining scales, the differences were statistically significant (Table 4).

The results of the study of differences on the scales of originality and fluency of children engaged in art and not engaged in art were paradoxical. Children who were not engaged in art, better solved the problems demanding originality and fluency on the E. Torrance test. These results require special discussion.

Discussion and Conclusion

The purpose of this study was to identify the particular characteristic of creativity among children engaged in different types of art. In particular, we considered three sub-samples. We proceeded from the assumption that art classes would increase the level of children's creativity, so the indicators of fluency, originality, development degree, abstractness of naming, and resistance to closure would be higher than those of children not engaged in art classes.

Table 2. **Comparative analysis of the level of creativity factors expression in children engaged in music and those not engaged in art** (T-tests)

Variable	Mean 1	Mean 2	t-value	df	*p*
Fluency	22.7168	13.5833	9.8568	195	0.000000
Originality	10.9027	9.6310	2.0826	195	0.038596
Abstractness of naming	1.6991	6.6667	−10.7765	195	0.000000
Resistance to closure	8.0885	11.8929	−6.5546	195	0.000000
Development degree	52.3363	107.2143	−12.4451	195	0.000000

Notes: sample of 2022; grouping: classes by subgroups; group 1 – not engaged in music class; group 2 – engaged in music class;

Table 3. **Comparative analysis of the level of creative factors expression in dance and non-art children** (T-tests)

Variable	Mean 1	Mean 4	t-value	Df	*p*	Valid N 1	Valid N 4
Fluency	22.7168	18.1892	3.49360	148	0.000629	113	37
Originality	10.9027	9.0000	2.16031	148	0.032359	113	37
Abstractness of naming	1.6991	2.7027	−1.91119	148	0.057913	113	37
Resistance to closure	8.0885	8.5405	−0.64372	148	0.520751	113	37
Development degree	52.3363	69.5946	−3.19331	148	0.001719	113	37

Notes: grouping: classes by subgroups; group 1 – not engaged in dancing; group 4 – engaged in dancing; Valid N 1 – number of children from 1 group; Valid N 4 – number of children from 4 group.

Table 4. **Comparative analysis of the level of creative factors expression in children who are engaged in drawing and those not performed the arts** (T-tests)

Variable	Mean 1	Mean 3	t-value	Df	*p*	Valid N 1	Valid N 3
Fluency	22.7168	18.6833	3.74884	171	0.000243	113	60
Originality	10.9027	10.4667	0.62909	171	0.530129	113	60
Abstractness of naming	1.6991	3.4167	−3.67432	171	0.000319	113	60
Resistance to closure	8.0885	9.6333	−2.43697	171	0.015836	113	60
Development degree	52.3363	76.0833	−4.91142	171	0.000002	113	60

Notes: grouping: classes by subgroups; group 1 – not engaged in drawing; group 3 – engaged in drawing; Valid N 1 – number of children from 1 group; Valid N 3 – number of children from 3 group.

It was interesting for the study to clarify the features of creativity indicators in the different sub-samples. A number of creativity indicators – development degree, resistance to closure, and abstractness of naming – showed up at a much higher level among those who were engaged in different types of art. The abstractness of naming may be due to the fact that phonological awareness, vocabulary, and speech develop in music classes [17], promote literacy[11].

The scales of abstraction of naming and development degree were due to the fact that children engaged in art had higher IQ scores compared to their peers [18; 19]. The abstractness of naming was largely related to the intellectual operations of synthesis, analysis, and generalization. Well-known longitudinal studies in the educational systems of D.B. Kabalevsky and B.M. Nemensky showed the positive influence of art on the development of not only individual functions, but also the personality as a whole[12]. The results of longitudinal studies on the impact of art on the personality development in children and adolescents are described in more detail in the work of E. Krupnik[13].

The results on creativity shown by children engaged in drawing indicated that they did not differ from their peers who were not engaged in art on the "originality" scale, but there were differences on the other four indicators. The fluency of young artists was lower than that of their peers, and originality was on the same level as that of children who were not engaged in the arts.

Our empirical study has identified differences in creativity in the context of research activities, but the results of this study are not unambiguous. As a standard tool for measuring creativity, we considered the indicators of originality, fluency, elaboration, resistance to closure, and abstractness of naming. Depending on the type of art activity, these indicators either decrease or increase. Thus, we have shown that children involved in music have lower indicators of originality and fluency, while the drawing classes improve development, resistance to closure, and abstractness of the name.

Our study put forward a general hypothesis that creativity in children involved in the arts and those not involved in the arts is expressed to different degrees. In the course of our empirical research, we were able to prove this hypothesis and clarify it in more detail. Firstly, we measured not only the overall indicator of creativity, but also its individual components. Secondly, we clarified the composition of the sample, where subsamples of children involved in music, drawing and choreography were examined. The results revealed different degrees of expression of creativity components in groups of children involved in art. The analysis of the results presented in tables 2–4 confirms the basic hypothesis, as well as offers specific details on different types of art in which primary school children are involved.

Our article has the title that indicates a closer study of the influence of art on children's creativity. The consensus that art develops creativity in childhood should be questioned, since these activities often take forms that are boring for children. The practice of art teachers shows a large dropout rate associated with a decrease in learning motivation in music and art schools. As shown in the literature, teaching programs in the arts, especially music, are more focused on developing skills rather than creativity. And, as indicated in a number of works cited in the article, there is no understanding of the phenomenon of creativity among art teachers.

To a lesser extent, the children who were engaged in dancing were inferior in creativity. Only on one parameter – development degree – were their results higher than those of peers who were not engaged in dancing.

In general, in all the sub-samples of children engaged in art, the development index was high, which was due to the ability to develop ideas posed to them in detail.

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Attention to detail and the ability to concentrate on details can be provided by the art classes, which are distinguished by attention to detail. For example, in drawing classes, the skills of distinguishing colors, determining proportions, etc. are specifically formed. In music classes, there is also purposeful training in the combination of sounds, which requires attention to detail and may be related to development. Dancing classes are no exception, since clarity and concentration on precise movements are required.

The relatively low scores on originality and fluency among the art students may have been due to the fact that art classes demand a high degree of discipline and thus restrict the ability to exercise spontaneity [20]. Behavior control and high executive functions often prevent a child from "going beyond the generally accepted norms" to find a unique and non-standard solution that creativity requires [21; 22].

The obtained results contribute to the study of children engaged in art. Their paradoxical nature is due to the fact that two key creativity indicators – originality and fluency – were higher in the sample of children who were not engaged in art, and the development degree, resistance to closure, and abstraction of naming were higher in those who are engaged in art. It was shown that creativity in different types of art is expressed to varying degrees. Children who are engaged in music differ significantly in creativity. This was true to a lesser extent for those who were engaged in dancing.

The results of this study are of practical importance, since they initiate reflection on the concept of "creativity" among teachers, the need for which has been stressed in recent years [5]. The prospects of the research are connected with a longitudinal study of the creativity of children engaged in art from the beginning of their studies, in order to establish the dynamics of developing originality and fluency, the key parameters in which these children are inferior to their peers who are not engaged in art.

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