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# UKRAINIAN TEACHERS' BELIEFS ABOUT THE NATURE OF CREATIVITY

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***Abstract.*** *Creativity is one of the top skills in today’s flat and global society, so creativity development should be one of the priority goals of education. In formal education, the effectiveness of creativity development significantly depends on teachers' beliefs about creativity. This study surveyed 394 Ukrainian teachers to explore their beliefs about creativity. The findings revealed that creativity development is insufficiently integrated into Ukrainian teacher education, with over one-third of respondents reporting no mention of creativity during their pre-service training. Although Ukrainian teachers reported high creative self-efficacy and expressed generally positive attitudes toward creativity and its development, they also demonstrated common misconceptions, such as underestimating the importance of usefulness as a criterion for a creative product and exhibiting a certain degree of Art Bias. Teachers' perceptions of creativity are influenced by gender, teaching subject, and work experience. Male teachers demonstrate less positive attitudes towards the ideas of fostering creativity compared to their female counterparts. Teachers of primary education and humanities subjects exhibit a higher interest in developing creativity than those in other disciplines. Additionally, educators with greater teaching experience tend to*

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*be more skeptical about initiatives aimed at promoting creativity. Our study revealed that participating in creativity training programs positively influences teacher creative self-efficacy; however, they have little or no impact on creativity beliefs and sharing common misconceptions. This finding highlights the importance of assessing the effectiveness of existing and future creativity training programs in altering teachers' creativity beliefs. Furthermore, there is a critical need to develop valid and reliable measures of teachers' creativity beliefs to consistently evaluate changes over time and determine the efficacy of such training programs.*

***Keywords:*** *creativity, teacher education, creative thinking, development, creative self-efficacy, Ukraine.*

## 1. INTRODUCTION

Creativity is considered an important component of 21st Century Skills (British Council, 2019). According to the World Economic Forum (2020) reports, creativity has been placed in the top 10 skills of employees for several years in a row. The Organization for Economic Cooperation and Development (2022) identified the development of youth creativity as a key priority until 2030. Empirical research indicates that creativity is an important predictor of career advancement (Fernández-Díaz & Gutiérrez-Ortega et al., 2021). Furthermore, creativity plays a crucial role in everyday life, helping individuals overcome various challenges (Metzl & Morrell, 2008) and maintaining mental well-being even in extraordinary circumstances (Zhai, 2021).

The development of creativity is a continuous process influenced by upbringing and education, including at school, where children spend a significant portion of their lives (Makris et al., 2021). Research indicates that students form their conceptions of creativity based on their experiences and teachers' perceptions of creativity (Langley, 2018). Moreover, teachers' creative self-efficacy beliefs regarding their personal creative abilities influence the value they place on creativity and its development (Mullet et al., 2016). Therefore, school teachers need to be creative individuals, to perceive themselves as creative, and to have accurate conceptions of creativity and its development (Soh, 2011).

## 2. LITERATURE REVIEW

### 2.1. Scientific Conceptions of Creativity

There is no universally accepted definition of creativity in the scientific literature. However, the majority of researchers agree that creativity can be defined as the ability to generate new, useful, and original products, both material and immaterial (Runco & Jaeger, 2012).

Four levels of creativity manifestation are distinguished: mini-c, small-c, pro-C, and Big-C. The latter refers to creativity associated with the creation of products that receive worldwide recognition, whereas mini-c relates to the creation of products that hold value for the individual and their immediate environment (Kaufman & Beghetto, 2009). Although the debate about domain-specificity versus the universality of creativity continues, researchers generally agree that at the initial stages of creativity development, it is universal, but later

becomes specialized in accordance with the activities in which the individual invests time and effort (Kaufman & Baer, 2005). It is important to note that creativity can be manifested not only in the arts but also in science, invention, engineering, sports, and other fields (Sawyer, 2006; Daly et al., 2016).

Among the components of creative potential, researchers identify openness to new ideas, intellectual abilities, domain-relevant knowledge and skills, divergent thinking, motivation, and social-communicative skills (Plucker et al., 2015; Feist et al., 2017; Todd & Thornhill-Miller, 2019; Yesuf et al., 2023). The level of creativity manifestation significantly depends on the environment. Creativity development is fostered by an environment that encourages inquiry, problem-solving, idea generation, open exchange of thoughts, hypothesis formulation and testing, trial and error, freedom of self-expression and speech, and tolerance for mistakes (Maksić & Jošić, 2021).

### 2.2. The Role of Schools and Teachers in Creativity Development

In most cases, teachers are supportive of ideas to foster creativity. Research shows (Al-Nouh et al., 2014; Cropley et al., 2019; Kampylis et al., 2009) that the majority of teachers are convinced that creative thinking is essential, available to everyone, and should be developed in schools. Similarly, students also recognize the significant potential of teachers and secondary education in fostering creativity (Maksić & Jošić, 2021). The ability of teachers to develop students' creativity is influenced by various factors: teachers' skills and attitudes, a flexible approach to the curriculum and schedule, the desire to be role models for students, and so on (Davies et al., 2014).

Nevertheless, occasionally, reasonable doubts are expressed about the role of schooling in creativity development (Robinson, 2006). Some researchers even state that the sharp decline in creativity with the transition from preschool to school age is associated with the negative influence of school (Abbasi, 2011; Krampen, 2012). Researchers often note that teachers may not even be able to recognize creative students in their classes, let alone support their development (Gralewski, 2019). As critics point out, the structure of school education, which emphasizes finding correct answers and memorizing sets of facts, is poorly aligned with the goals of fostering creativity. Teachers complain that overloaded programs, time constraints, full classes, and discipline requirements leave no room for creative activities (Turner, 2013; Bereczki & Kárpáti, 2018). Beghetto (2007) even discusses specific teacher anxiety experienced due to the conflict between the goal of promoting creativity and the task of covering content and preparing students for standardized assessments. Even teachers of 'creative' subjects experience similar pressure (Devaney, 2023).

Another factor influencing the promotion of creativity in the classroom is operationalizing and defining creativity. Research shows that human behavior is guided more by beliefs than by facts and validated theories. The concept of “beliefs” encompasses various terms, including perceptions, conceptions, views, values, attitudes, perspectives, and implicit theories (Andiliou & Murphy, 2010). The same is true for creativity — teachers' practices in the classroom depend on their beliefs and implicit theories of creativity, regardless of their consistency and alignment with reality (Saracho, 2012).

The meta-analysis by Gralewski & Karwowski (2019) suggests that, due to deeply rooted misconceptions about creativity, teachers are sometimes unable to effectively apply

the knowledge they have gained in assessing and fostering creativity. In particular, it is known that there is a lack of a unified understanding of the concept of creativity among teachers (Cho et. al., 2017; Leung, 2008). For example, it is known that teachers often view creativity as synonymous with the arts (Mullet et al., 2016; Michaelidou & Pitri, 2022), do not fully recognize the requirements for a creative product (Mullet et al., 2016; Andiliou & Murphy, 2010), and consider creativity to be innate, something that cannot be nurtured or measured (Rogers & Fasciato, 2005). As expected, teachers with such attitudes believe they cannot influence the development of creativity of their students and barely try to do so (Paek & Sumners, 2019). Moreover, even among teachers who value creative students and foster creative thinking, discrepancies between theory and practice may be observed (Bereczki & Kárpáti, 2018; Langley, 2018; Al-Nouh, 2008).

### 2.3. Present Research

It is known that creative beliefs vary across different cultures, educational systems, and curricula (Andiliou & Murphy, 2010). Currently, there is a notable lack of peer-reviewed research on teachers' perceptions of creativity in former Soviet countries, particularly in Ukraine. Existing studies have primarily utilized qualitative methods with small samples (e.g., see Ibrayeva, 2022), limiting generalizability, whereas quantitative approaches could provide insight into the influence of demographic factors. Furthermore, linguistic distinctions in Ukrainian between the terms "creativity" and "tvorchist", where the "creativity" sometimes is associated with something imaginative but overtly impractical, may contribute to conceptual misunderstandings that affect teachers' attitudes toward creativity in educational contexts.

Thus, the purpose of this study is to explore Ukrainian teachers' beliefs about the nature of creativity and their own creative potential, depending on gender, age, work experience, and the subjects they teach. Two hypotheses were proposed. The first hypothesis was that teachers who attend creativity training will have more accurate perceptions of creativity than those who do not. The second hypothesis was that teachers' beliefs about creativity may vary depending on gender, age, experience, and subject area. Based on these hypotheses, the following research questions were investigated:

1. How do Ukrainian teachers' perceptions of creativity align with current understandings of creativity in educational research?
2. To what extent does participation in creativity training influence teachers' beliefs about their creativity and their students' creative potential?
3. Are there gender differences in Ukrainian teachers' beliefs about creativity and their creative self-efficacy?
4. How do teachers' age, work experience, and subject area influence their perceptions of creativity and practices in fostering creativity in the classroom?

## 3. METHODS

### 3.1. Organization of the Research

To address the research questions, the study employed a quantitative, survey-based approach. This method was selected due to its capacity to collect data from a large, geographically diverse sample of Ukrainian teachers, thus enhancing the representativeness and generalizability of the findings. A self-administered online questionnaire was utilized for its scalability, efficiency, and suitability for reaching participants who might otherwise remain inaccessible. This approach aligns with the study's objective to identify patterns, distributions, and correlational relationships among teachers' beliefs regarding creativity. Specifically, the research examines how demographic factors, professional training, and teaching experience influence perceptions of creativity.

The survey was conducted online via Google Forms from December 19, 2022, to January 16, 2023. The questionnaire was distributed through the intermediaries of educational institution directors and via an online community of Ukrainian teachers on Facebook. Participation was anonymous and entirely voluntary; the purpose of the study was provided in the description under the questionnaire heading. In total, 394 teachers completed the survey. After completing the survey, three teachers requested private conversations (via Messenger on Facebook and Telegram) to discuss certain questionnaire items. Their notes and reasoning are described in the analysis below without disclosing their names.

Since no personal data leading to the identification of survey participants was collected, approval from an ethical committee was not required.

The gender distribution is unequal: 91.6% of the respondents are women, and 8.4% are men. This imbalance may be explained by the significant prevalence of women in the educational sector in Ukraine. According to data from the Ukrainian Institute of Educational Analytics for 2018/2019, 81% of middle and high school teachers are women. In elementary schools, women comprise 99% of the total number of teachers (NUS, 2019).

The vast majority of respondents work in elementary, middle, or high schools (80.4%), with others being teachers in extracurricular educational institutions (7.6%), vocational education institutions, universities, and preschool institutions.

Most respondents (46.7%) are over 46 years old; 32.7% are in the age range of 36 to 45 years; 18% are between 26 and 35 years old; and 2.6% are under 25. A total of 75.9% of respondents had teaching experience of more than 10 years, while only 8.1% had teaching experience of less than 4 years. Therefore, the sample predominantly consists of experienced teachers. The age distribution imbalance may be explained by the significant prevalence of older teachers in Ukrainian schools. According to the Ukrainian NGO "Osvita 360" (2024), young teachers account for less than 5% of the teaching staff, and the average age of Ukrainian teachers is 46 years.

The largest group of surveyed teachers, 26.6%, teach Language and Literature. This category includes both teachers of Ukrainian Language and Literature and Foreign Languages and Literature, as the creative component of teaching different languages likely does not have fundamental differences. 18% of respondents are Primary School teachers, 8.1% are Mathematics teachers, 6.9% are History teachers, 5.3% are Biology teachers, 5% are ICT teachers, and 4.6% are Physics teachers. Additionally, 3.6% of teachers specialize

in Art, and 2.5% teach Industrial Arts. The sample also includes teachers of Chemistry, Physical Education, Decorative and Applied Arts, and school facilitators. The uneven distribution of respondents by specialty can be explained by two factors. First, the allocation of teaching hours for different school subjects, and consequently, the number of teachers involved, depends on the subject being taught. For example, the profile program in Art for 10th grade provides 70 academic hours per year, while the profile program in Ukrainian Language and Literature for the same grade provides 270 hours per year. Second, it can be assumed that teachers of different subjects are not equally motivated to complete the survey.

### 3.2. Research Instrument

The research instrument was an anonymous online survey, containing a short introduction and 31 closed-ended questions. The questionnaire was developed in Ukrainian and contained 31 items.

The first part of the questionnaire contained demographic items regarding participants' gender identity, work experience, age, subjects they teach, place of work, and experience of participating in creativity training.

The second part contained a number of statements about creativity. We based on the conceptual framework for exploring teacher's beliefs of the nature of creativity, proposed by Andiliou and Murphy (2010), that includes four components: distribution (whether creativity is a potential for every individual or a "gift" characteristic of a limited number of individuals), malleability (whether an individual's level of creativity can be changed during one's lifetime), specificity (whether creativity can be manifested differentially in various fields) and context (contextual factors that determine which outcomes are considered creative). Part of the questionnaire was developed using established frameworks (Cachia & Ferrari, 2009) to ensure content validity and consistency with prior research. Responses were measured on a 4-point Likert scale: "Strongly disagree," "Rather disagree," "Rather agree," and "Strongly agree," coded numerically from 0 ("Strongly disagree") to 3 ("Strongly agree"). A neutral option was excluded to minimize its potential use as a hidden non-response category, as supported by evidence from Krosnick and Fabrigar (1997).

Prior to the main survey, the questionnaire was pilot-tested with a small sample of teachers to refine item wording and ensure clarity. The reliability of the instrument was assessed using Cronbach's α and McDonald's ω, with both metrics indicating good internal consistency across the scales. The pilot phase also allowed for identifying and correcting ambiguities in item formulations, ensuring that the instrument was well-adapted for the target audience. By systematically validating the questionnaire and confirming its reliability, the instrument was deemed appropriate for exploring teachers' beliefs about creativity. Specifically, it enabled the study to examine how training, demographic characteristics, and domain-specific teaching experiences influence creativity-related beliefs and self-efficacy.

The third part of the questionnaire included items related to self-perception of creativity and self-reported creativity practices. After pilot testing, this section was presented with a 3-point scale for clarity: "Yes," "No," and "Sometimes," which were then translated into numerical values: 1 for "No," 2 for "Sometimes," and 3 for "Yes".

### 3.2.1. Questionnaire Principal Component Analysis

In order to explore the structure of our questionnaire, we run a Principal Component Analysis (PCA). This method is used to reduce high-dimensional variable data tables to their essential features, which are called principal components. These components are a few linear combinations of the original variables that maximally explain the variance of all the variables. Each component variable receives its coefficient, which is called loading and indicates the strength of its contribution to the principal component. The sign of the coefficient indicates whether it influences the component positively or negatively (Greenacre et al., 2022). Uniqueness represents the variance unique to the variable and not shared with other variables. The higher its meaning, the less the variable is related to other variables.

Therefore, Principal Component Analysis (PCA) is a statistical method that allows identifying patterns in a large set of survey responses by grouping similar items into broader themes, called components. In this study, PCA identified four main themes based on teachers' responses about creativity. The first group of items (PC1) can be described as measures of creative self-efficacy, encompassing statements related to teachers' creative practices and self-perception. The second group (PC2) primarily included items that reflect a "democratic" view on creativity development. The third group (PC3) reflects an "elite" perspective on creativity, combined with a certain Art Bias. The fourth group (PC4) consists of items such as "I believe that I need to work more on developing my creativity," "Creativity can be applied to every school subject," and "Creativity can be applied to every domain of activity." These statements appear to reflect a broad understanding of creativity and recognition of the importance and continuous process of creativity development, regardless of the subject taught. Two items, namely "Creative and original ideas are synonyms" and "Creativity can be measured," did not receive sufficient loading to belong to any group; however, both are closer to the second, democratic group. The PCA results are shown in Table 1; only loadings exceeding 0.2 are presented, and loadings exceeding 0.3 are marked in bold.

**Table 1.** Principal component analysis

| | PC1 | PC2 | PC3 | PC4 | Unique-ness |
|---|---|---|---|---|---|
| I feel that I have a lot of good ideas for various tasks and situations | **0.730** | | | | 0.467 |
| I like to come up with something new | **0.698** | | | | 0.500 |
| I consider myself a creative person | **0.689** | 0.200 | | | 0.457 |
| When planning my lessons, I include methods and activities aimed at fostering the creativity of students | **0.625** | 0.206 | | | 0.548 |
| I prefer to use ready-made materials for classes | **0.568** | | | | 0.601 |
| I usually prepare my own materials for classes | **0.560** | | | | 0.652 |
| I believe that I need to work more on developing my own creativity | **-0.302** | | | **0.414** | 0.720 |
| Creativity can be taught | | **0.755** | -0.239 | | 0.455 |
| Everyone can be creative | | **0.672** | -0.228 | | 0.572 |
| Creativity is an innate talent | | **-0.512** | **0.552** | | 0.591 |

**Table 1.** Principal component analysis

| | PC1 | PC2 | PC3 | PC4 | Unique-ness |
|---|---|---|---|---|---|
| I believe that creativity is a fundamental skill that should be developed in schools. | | **0.488** | | 0.203 | 0.656 |
| Creativity is the ability to create | | **0.442** | | | 0.735 |
| Sometimes ideas can be very creative but silly | | **-0.334** | | 0.295 | 0.829 |
| The development of creativity should primarily be the responsibility of extracurricular educational institutions rather than schools | | **-0.319** | **0.360** | -0.204 | 0.746 |
| Creativity can be measured | | 0.294 | | | 0.857 |
| Creative and original ideas are synonyms | | 0.233 | 0.205 | | 0.852 |
| Creativity is a trait inherent only in outstanding personalities | | -0.224 | **0.679** | | 0.565 |
| If you can't come up with a good idea, it's better not to come up with anything at all | | | **0.655** | | 0.597 |
| A silly idea cannot be creative | | | **0.503** | | 0.679 |
| Creativity is mainly relevant to visual arts, music, drama and artistic performance | | | **0.365** | | 0.771 |
| Children are more creative than adults | | | **0.338** | 0.241 | 0.797 |
| Creativity can be applied to every school subject | | | | **0.777** | 0.410 |
| Creativity can be applied to every domain of activity | | | | **0.597** | 0.585 |

Note. Applied rotation method is promax.

Since the “self-efficacy” group of items revealed high homogeneity, we performed Factor Analysis for this group to explore whether we can analyze them as a single measure. This method allows for simplifying a set of complex variables or items using statistical procedures to explore the underlying dimensions that explain the relationships between the multiple variables/items and identify the underlying factors that the items may have in common. Factor analysis is an important step in developing measurement scales since it produces evidence for its construct validity (Tavakol & Wetzel, 2020). The results of Factor Analysis are presented in Table 2.

**Table 2.** Factor analysis of the “self-efficacy” scale

| | Factor 1 | Uniqueness |
|---|---|---|
| 20. I feel that I have a lot of good ideas for various tasks and situations | **0.661** | 0.563 |
| 19. I consider myself a creative person | **0.658** | 0.567 |
| 21. I like to come up with something new | **0.647** | 0.582 |
| 18. When planning my lessons, I include methods and activities aimed at fostering the creativity of students | **0.558** | 0.689 |
| *23. I prefer to use ready-made materials for classes | **0.451** | 0.797 |
| 24. I usually prepare my own materials for classes | **0.427** | 0.818 |
| 22. I believe that I need to work more on developing my own creativity | | 0.966 |

* Marks the item that was reverse scored
*Note.* Applied rotation method is promax.

Exploratory factor analysis showed that all items, except item 22, grouped on a single factor. When item 22 was removed, the reliability of the scale was tested using two measures: McDonald's omega, which was 0.733, and Cronbach's alpha, which was 0.734. These values indicate that the scale is consistent and trustworthy for measuring the same concept, as scores above 0.7 are generally considered acceptable. Therefore, in further analyses, we summed the scores of the remaining items (excluding item 22) to represent teacher creative self-efficacy.

### 3.3. Data Analysis

The data analysis methods were carefully selected to ensure a rigorous and valid examination of the collected data. Given the non-normal distribution of responses — a frequent characteristic in education and social science research (Blanca et al., 2013; Bono et al., 2017) — nonparametric statistical methods were employed. The Mann-Whitney test was applied to compare groups in cases where the assumptions for parametric tests were not met. To assess the internal consistency and dimensionality of the self-efficacy scale, Principal Component and Factor Analysis were performed alongside reliability measures such as Cronbach's α and McDonald's ω. These analytical techniques ensured robust and reliable inferences, providing a solid foundation for addressing research questions about teachers' beliefs, self-efficacy, and their relationship to demographic and professional variables.

## 4. RESULTS

### 4.1. Creativity Training Experience

A large proportion of the surveyed teachers (84.5%) have attended in-service creativity training or related activities, while 15.5% have not. However, only 20.8% of respondents reported that their mentors emphasized the importance of creativity for a teacher/researcher during pre-service training, 40.1% selected the option "sometimes," and 39.1% responded "no." A higher percentage of teachers reported that their mentors emphasized the importance of developing students' creativity during pre-service training: 31.5% answered "yes," 33.8% selected "sometimes," and 34.7% answered "no." This reflects a contradiction in that teachers are encouraged to foster students' creativity but place less emphasis on developing their creativity.

### 4.2. Teachers' Beliefs About the Nature of Creativity and Its Development

**Distribution of creativity (Is creativity a common trait or something exceptional?)** Most teachers have a democratic view on creativity; 85% of teachers agreed that everyone can be creative, and only 8.9% of teachers believe that creativity is a characteristic of eminent people only. Nevertheless, 43,7% of the surveyed believe creativity is an innate talent. The inter-item correlation between the above-mentioned two statements is 0.309, indicating that teachers do not necessarily perceive innate talent as something rare and exceptional. Thus, we suppose this statement may have an ambiguous interpretation: creativity is something stable from birth, and creativity is a shared talent of all humans.

**Malleability of Creativity (Can creativity be developed?)** Although teachers generally believe that creativity is widespread, more than a quarter of respondents do not believe that creativity can be taught. However, 87.1% of teachers agreed that creativity is a fundamental skill that should be developed in schools. In comparison, 25.7% stated that the development of creativity should primarily be the responsibility of extracurricular educational institutions. It can be hypothesized that the statement "creativity can be taught" received less support due to a disagreement with the idea of "external conditioning" of creativity. As one of the surveyed teachers later explained in a private conversation: “In my opinion, creativity cannot be taught. We can only create the conditions to develop it, to help this innate creativity to manifest itself.”

The majority of teachers believe that children are more creative than adults. This presents a contradiction between the expected role of teachers and schools in fostering creativity and the perceived discrepancy between the creativity levels of students and teachers. Another explanation may be related to the perceived requirements of creative products — children may be considered more creative if originality is valued more than other aspects.

**Context of Creativity (Is there any criteria for the creativity of the product?)** Context reflects the factors that determine which outcomes are considered creative. Notably, only 26.7% of respondents agreed that creativity can be measured, while 73.3% of teachers expressed doubts about this. This may be related to certain cultural constraints. As one of the teachers remarked, “Who are we to judge someone’s creativity? Judge not, and you shall not be judged.” However, claiming that teachers lack criteria for evaluating creativity would likely be a mistake. In fact, 72.8% of teachers agreed that creativity is synonymous with originality. Usefulness was not explicitly mentioned in our survey, but 75.4% of teachers believe that ideas can be very creative yet foolish, which may suggest an underestimation of the importance of usefulness as a requirement for a creative product. This seems contradictory; nevertheless, 35.3% of teachers agreed that a silly idea cannot be considered creative.

Surprisingly, 29.7% of teachers somewhat agreed with the statement, “If you can't come up with a good idea, it’s better not to come up with anything at all.” While there were no clear indications of the definition of "goodness," participants' responses suggest that a significant portion of teachers impose certain limits on the idea generation process.

**Context of Creativity (Do teachers believe that creativity development is important for everyone?)** While 86% of teachers strongly agreed that creativity can be applied to every domain of activity, and 84.8% strongly agreed that creativity can be applied to every school subject, 40.9% of teachers primarily associate creativity with visual arts, music, drama, and artistic performance. Another indication of an Art Bias is that 25.7% of respondents suggested that the development of creativity should primarily be the responsibility of extracurricular educational institutions rather than schools. In Ukraine, the teaching of disciplines such as Fine Art, Music, Dance, and Drama is predominantly concentrated in extracurricular and specialized educational institutions (see Table 3).

**Table 3.** Teachers' beliefs on the concept of creativity

| Item | Disagree | Rather disagree | Rather agree | Agree |
|---|---|---|---|---|
| Creativity is the ability to create | 1% | 5.3% | 40.4% | 53.3% |
| Ideas can be very creative but silly. | 5.1% | 19.5% | 40.1% | 35.3% |
| A silly idea cannot be creative. | 22.6% | 42.1% | 18% | 17.3% |
| Creative and original ideas are synonyms. | 7.9% | 19.3% | 42.6% | 30.2% |
| If you cannot come up with a good idea, it is better not to come up with anything at all. | 34.3% | 36 % | 15.7% | 14% |
| Children are more creative than adults. | 5.8% | 15.7% | 35.5% | 42.9% |
| Creativity can be applied to every domain of activity. | 0.3% | 2.3% | 11.4% | 86% |
| Creativity can be applied to every school subject. | 1.3% | 1.5% | 12.4% | 84.8% |
| Creativity is mainly relevant to visual arts, music, drama, and artistic performance. | 24.9% | 34.3% | 19.3% | 21.6% |
| I believe that creativity is a fundamental skill that should be developed in schools. | 3.3.% | 9.6% | 38.6% | 48.5% |
| The development of creativity should primarily be the responsibility of extracurricular educational institutions rather than schools. | 28.2% | 46.2% | 18.3% | 7.4% |
| Everyone can be creative. | 3.3% | 11.7% | 28.2% | 56.9% |
| Creativity can be taught. | 4.8% | 23.1% | 47.2% | 24.9% |
| Creativity can be measured. | 30.7% | 42.6% | 21.1% | 5.6% |
| Creativity is an innate talent. | 15% | 41.4% | 34.3% | 9.4% |
| Creativity is a trait inherent only in outstanding personalities. | 47% | 44.2% | 7.9% | 1% |

### 4.3. Teachers' Creative Self-Perception and Creative Teaching at School

Table 4 outlines teachers' answers related to their creative self-perception and creative teaching at school. Teachers generally perceive themselves as creative individuals who foster students' creativity during lessons. The majority of teachers also believe that they need to continue developing their creativity. While 32% of teachers prefer using ready-made materials for their classes, more than 70% usually prepare their own. As one survey participant later explained in a private conversation: "If I knew where to find good enough, ready-to-use materials for my lessons, I would prefer them. Unfortunately, I don't know where to find them, so I have to create something myself."

However, it was surprising to find that 5.1% of teachers do not consider themselves to be creative, while even fewer reported not having good ideas or enjoying the process of creating something new. One possible explanation for this could be a misunderstanding of creativity, particularly the association of creativity solely with the arts.

**Table 4.** Teachers' creative self-perception and creative teaching at school

| Item | No | Sometimes | Yes |
|---|---|---|---|
| When planning my lessons, I include methods and activities to foster students' creativity. | 0.3 % | 27.9% | 71.8% |
| I consider myself a creative person. | 5.1% | 33.5% | 61.4% |

| | | | |
|---|---|---|---|
| I feel that I have a lot of good ideas for various tasks and situations. | 1.8% | 39.8% | 58.4% |
| I like to come up with something new. | 1.3% | 29.2% | 69.5% |
| I believe that I need to work more on developing my own creativity. | 8.1% | 27.7% | 64.2% |
| I prefer to use ready-made materials for classes. | 10.4% | 57.4% | 32% |
| I usually prepare my own materials for classes. | 3.3% | 26.1% | 70.6% |

### 4.4. Gender Differences in Creativity Beliefs

A Mann-Whitney U test was conducted to examine gender differences in creativity beliefs. This non-parametric test compares two independent groups without assuming normal distribution. The null hypothesis posits no difference between the distributions of the groups. The test statistic (W or U) is calculated from ranked data and reflects the degree of differences between groups. A larger difference corresponds to a more extreme test statistic. The p-value indicates the probability of observing the result under the null hypothesis; smaller p-values suggest stronger evidence against it. Generally, only p-values lower than 0.05 can be considered significant. Effect size was reported using rank-biserial correlation ($r_\beta$), which quantifies the magnitude of the difference between groups. According to Cohen (1988), approximately .10, .30, and .50 values are interpreted as small, medium, and large effects, respectively.

The most significant difference between males and females is observed in creative self-efficacy. While there are generally no significant gender differences in views on creativity, in some aspects, they are slightly noticeable (see Table 5). In particular, males are less inclined to participate in creativity training and tend to be less likely to agree that creativity has a place in any school subject's study. Also, men more often agreed that the development of creativity should primarily be the responsibility of extracurricular educational institutions rather than schools, and believe that creativity is an innate talent. Finally, men tend to have lower creative self-efficacy than women.

**Table 5.** Gender Differences in Creativity Beliefs and Training

| Statement | U | p-value | $r_\beta$ | Finding |
|---|---|---|---|---|
| Males are less inclined to participate in creativity training. | 4599 | < 0.001 | -0.228 | M < F in inclination to participate in training |
| Males are less likely to agree that creativity has a place in the study of any school subject. (1) | 5195 | 0.051 | -0.128 | M < F in agreement |
| Males are less likely to agree that creativity has a place in the study of any school subject. (2) | 5028 | 0.02 | -0.147 | M < F in agreement |
| Men more often agreed that creativity development should be the responsibility of extracurricular institutions (vs. schools). | 7268 | 0.025 | 0.220 | M > F in agreement |
| Men believe that creativity is an innate talent. | 7121 | 0.048 | 0.196 | M > F in agreement |
| Men have lower creative self-efficacy than women. | 4350.5 | 0.008 | -0.270 | M < F in creative self-efficacy |

### 4.5. Effects of Participation in Creativity Trainings

In order to explore the effects of participation in creativity training, a Mann-Whitney test was used to identify the differences in the perceptions of creativity by the respondents who underwent training and those who did not (see Table 6). The most significant difference is observed in creative self-efficacy – teachers who attended training have higher self-efficacy than those who did not. They also more frequently indicated that their mentors and educators emphasized the importance of creativity for teachers, researchers, and students during their education.

To compare teachers who received creativity training with those who did not, we used the Mann-Whitney U test, a statistical method suitable for analyzing differences between two groups when the data do not follow a normal distribution. Results showed that teachers with creativity training were more likely to hold a democratic view of creativity, agreeing that creativity is a fundamental skill that should be developed in schools and can be taught. In contrast, teachers without training endorsed a more elitist view, more frequently stating that creativity is an innate talent or a trait exclusive to exceptional individuals. No differences were found between the groups regarding the context of creativity. Notably, all effect sizes for these differences were small, indicating that while training has an impact, the magnitude of the difference is modest (see Table 6).

**Table 6.** Differences in Attitudes Toward Creativity Among Teachers with or without Creativity Training

| Statement / Measure | U | p-value | $r_\beta$ | Interpretation |
|---|---|---|---|---|
| **Creative self-efficacy** | 6677.5 | < 0.001 | -0.343 | **Attended** > Not Attended (those who attended training report higher self-efficacy) |
| **Mentors emphasized the importance of teachers' creativity** | 7972.5 | 0.004 | -0.215 | **Attended** > Not Attended (teachers with training more often reported strong mentor emphasis) |
| **Mentors emphasized the importance of developing students' creativity** | 7781.5 | 0.002 | -0.234 | **Attended** > Not Attended (teachers with training more often reported strong mentor emphasis) |
| **Creativity is a fundamental skill to be developed at school** | 8264.5 | 0.011 | -0.186 | **Attended** > Not Attended (training group more likely to agree) |
| **Creativity can be taught** | 8395 | 0.021 | -0.173 | **Attended** > Not Attended (training group more likely to agree) |
| **Creativity is an innate talent** | 12111 | 0.011 | -0.192 | **Attended** < Not Attended (teachers without training are more likely to see creativity as innate) |
| **Creativity is a trait inherent only in outstanding personalities** | 11859 | 0.021 | 0.168 | **Attended** < Not Attended (teachers without training are more likely to endorse an "elite view") |
| **Interpretation of the context of creativity** (e.g., domain-specific vs. domain-general) | – | – | – | No statistically significant difference between the two groups. |

### 4.6. Differences in Perceptions of Creativity Depending on the Workplace

We compared the teachers who identified a school or other general educational institution as their primary workplace, versus those who indicated a different institution (with the Mann-Whitney test). Additionally, we compared teachers from schools and extracurricular educational institutions. In our study, no differences were found in either comparison.

### 4.7. Differences in Creativity Beliefs Depending on the Age and Teaching Experience of Participants

There were several differences (obtained with Mann-Whiney test) only between the youngest (less than 25 years, N=10) and the oldest (more than 55 years old, N=50) participants. It seems that older participants are more likely to hold an elite view on creativity. They more often responded, "If you can't come up with a good idea, it is better not to come up with anything at all," and "A Silly idea cannot be creative". However, younger participants are more likely to associate creativity with art. Also, younger participants more often reported that during pre-service training, their mentors emphasized the importance of developing students' creativity. However, these results should be interpreted cautiously due to the small sample size of the youngest teachers and the extreme prevalence of Art and Primary teachers in the sample. No differences were revealed between other age groups of teachers (Table 7).

Since the sample included individuals who had recently started teaching despite their advanced age and those whose teaching experience exceeded what could be expected for their age, we analyzed attitudes toward creativity based on professional experience (see Table 7). Our study revealed that the most experienced teachers tend to perceive creativity as something "elite". When comparing the most (more than 20 years, N=212) and less experienced teachers (1-4 years of experience, N=32) we observe that participants with higher work experience more often agreed that a silly idea cannot be creative; more often answered that if you can't come up with a good idea, it is better not to come up with anything at all, and are less likely to agree that everyone could be creative. A similar tendency is observed when comparing teachers with 11-20 years of experience (N=98) to those with more than 20 years of experience (N=212) (If you can't come up with a good idea, it is better not to come up with anything at all; Everyone could be creative). Nevertheless, there are no differences in creativity beliefs between teachers with intervals of 1-4, 5-10, and 11-20 years of experience. Thus, considering the huge difference in sample sizes and small effect size, one cannot exclude that these differences are rather a mathematical artifact than an actual pattern.

**Table 7.** Age- and Experience-Related Differences in Creativity Perceptions

| Statement / Item | W | p-value | $r_\beta$ | Interpretation |
|---|---|---|---|---|
| **Youngest (<25, N=10) vs. Oldest (>55, N=50)** | | | | |
| "If you can't come up with a good idea, it is better not to come up with anything at all." | 140.5 | 0.021 | -0.438 | **Oldest > Youngest** (older participants were more likely to endorse this "elite" view) |

| Statement / Item | W | p-value | $r_\beta$ | Interpretation |
|---|---|---|---|---|
| "Silly idea cannot be creative." | 148 | 0.034 | -0.408 | **Oldest > Youngest** (older participants more likely to consider silly ideas non-creative) |
| "Creativity is associated with art." | 345 | 0.051 | 0.380 | **Youngest > Oldest** (younger participants more often link creativity with art) |
| "Mentors emphasized the importance of developing students' creativity (during pre-service training)." | 356.5 | 0.025 | 0.426 | **Youngest > Oldest** (younger participants more frequently reported that mentors emphasized creativity) |
| **Most Experienced (>20y, N=212) vs. Less Experienced (1-4y, N=32)** | | | | |
| "Silly idea cannot be creative." | 2466 | 0.009 | -0.273 | **>20y > 1-4y** (more experienced teachers were more likely to reject "silly" ideas as creative) |
| "If you can't come up with a good idea, it is better not to come up with anything at all." | 2498 | 0.012 | -0.246 | **>20y > 1-4y** (more experienced teachers were more likely to hold this "elite" view) |
| "Everyone could be creative." | 4175.5 | 0.020 | 0.232 | **>20y < 1-4y** (more experienced teachers were less likely to agree that everyone can be creative) |
| **Moderately Experienced (11-20y, N=98) vs. Most Experienced (>20y, N=212)** | | | | |
| "If you can't come up with a good idea, it is better not to come up with anything at all." | 8581.5 | 0.010 | -0.174 | **>20y > 11-20y** (those with >20y again favored the "better no idea than a bad one" stance) |
| "Everyone could be creative." | 11994.5 | 0.015 | 0.155 | **>20y < 11-20y** (more experienced teachers are less likely to believe everyone can be creative) |

### 4.8. Differences Depending on the Subject Taught

We divided the participants into three groups: representatives of Humanitarians/Arts (N=220), STEM fields (N=83), and Primary school teachers (N=82). To the Humanitarians/Arts group, we included languages, literature, art, computer sciences, and history teachers (N=220). To the STEM group, we included teachers of sciences and mathematics (N=83). We used a statistical method called the Mann-Whitney test to compare pairs of these groups (e.g., Humanities/Arts vs. STEM) to see if their responses differed. This method helps determine whether two groups have different opinions or behaviors. The results of the comparison are presented in Table 8.

The main difference between Art and STEM teachers is that the latter are less likely to attend creativity training. However, the effect size is very small. Also, STEM teachers are more doubtful that creativity could be taught, compared to Art teachers. However, no

substantial differences in the association of creativity with Art and creative self-efficacy were observed.

More differences were revealed when comparing STEM and Primary teachers. STEM teachers are less inclined to visit creativity training. Primary teachers more often associate creativity with originality, believe that creativity should be developed at schools, claim they are developing their students' creativity during the lessons, and consider themselves creative people. On the contrary, STEM teachers are more likely to believe that creativity development should primarily be the responsibility of extracurricular institutions rather than schools. No differences in the distribution component of creativity beliefs and in general creative self-efficacy were observed.

The comparison of Primary and Art teachers revealed that Primary teachers are more likely to believe that children are more creative than adults, and that creativity should be developed in schools, while Art teachers more often pointed out that creativity development is the responsibility of extracurricular institutions. No other differences between Primary and Art teachers were observed.

**Table 8.** Differences among Humanitarians/Arts, STEM, and Primary Teachers Regarding Creativity Beliefs and Practices

| Statement / Item | W | p-value | $r_\beta$ | Interpretation |
|---|---|---|---|---|
| **Humanitarians/Arts vs. STEM** | | | | |
| **Attendance of creativity trainings** | 10043.5 | 0.038 | 0.100 | **STEM < Arts** (STEM teachers less likely to attend creativity trainings) |
| **Belief that creativity can be taught** | 10665 | 0.015 | 0.168 | **STEM < Arts** (STEM teachers more doubtful that creativity can be taught) |
| Association of creativity with Art, creative self-efficacy | — | — | — | No significant differences |
| **STEM vs. Primary** | | | | |
| **Attendance of creativity trainings** | 3808 | 0.048 | 0.119 | **STEM < Primary** (STEM teachers less inclined to attend creativity trainings) |
| **Association of creativity with originality** | 4183 | 0.007 | 0.229 | **Primary > STEM** (Primary teachers more often link creativity with originality) |
| **Belief that creativity should be developed at school** | 4101.5 | 0.012 | 0.205 | **Primary > STEM** (Primary teachers more inclined to believe that creativity should be developed in school) |
| **Claim they develop the creativity of their students during lessons** | 2497.5 | < 0.001 | 0.263 | **Primary > STEM** (Primary teachers more likely to claim they develop creativity of their students) |
| **Consider themselves creative persons** | 3953 | 0.039 | 0.162 | **Primary > STEM** (Primary teachers more inclined to consider themselves creative persons) |

| Statement / Item | W | p-value | $r_\beta$ | Interpretation |
|---|---|---|---|---|
| **Belief that creativity development is primarily the responsibility of extracurricular institutions** | 2353 | < 0.001 | -0.309 | **STEM > Primary** (STEM teachers more likely to shift responsibility to extracurricular institutions) |
| Distribution component of creativity beliefs, general creative self-efficacy | — | — | — | No significant difference |
| **Primary vs. Humanitarians/Arts** | | | | |
| **Belief that children are more creative than adults** | 7587.5 | 0.024 | -0.159 | **Primary > Arts** (Primary teachers more likely to believe children are more creative) |
| **Belief that creativity should be developed in schools** | 7538 | 0.015 | -0.164 | **Primary > Arts** (Primary teachers more inclined to say that creativity should be developed in schools) |
| **Belief that creativity development is the responsibility of extracurricular institutions** | 10726.5 | 0.007 | 0.189 | **Arts > Primary** (Art teachers more often believe creativity development lies primarily outside school) |
| Other creativity beliefs and self-efficacy | — | — | — | No significant differences |

## 5. DISCUSSION

The study found that most Ukrainian teachers, as well as teachers all around the world (Al-Nouh et. al., 2014; Cropley et al., 2019; Kampylis et al., 2009) have a positive view on creativity, mostly attend specialized training, and claim they are fostering creativity in their students. However, there are at least three main obstacles to the effective development of creativity in schools: a lack of effective pre-service and in-service training, a lack of creative self-efficacy for some teachers, and a sharing of common misconceptions about creativity.

According to our results, only two-thirds of teachers confidently stated they are creative people. Five percent of teachers even responded that they do not consider themselves creative, which was somewhat unexpected for us, as educational professionals are generally considered to be creative. These findings are significant, as teachers' understanding of creativity partly depends on their own creative self-awareness (Kampylis, 2009). Evidence suggests that teachers with high creative self-efficacy are more likely to invest effort into fostering their students' creativity and are more effective (Çayırdağ, 2017). Furthermore, teachers who perceive themselves as creative are better equipped to recognize creativity in others (Nemeržitski & Heinla, 2020). In our research, the vast majority of teachers claimed that they include tasks aimed at developing students' creativity in their classes. However, we did not assess how much teachers' statements correspond to reality. Research by Langley (2018), Al-Nouh (2008), and Devaney (2023) showed that teachers can talk about developing students' creative abilities while using methods that give the opposite result.

### 5.1. Alignment of Teachers' Beliefs with Contemporary Understandings of Creativity

We revealed the number of misconceptions and internal contradictions in teachers' creativity beliefs. The vast majority of teachers in our sample believe that everyone can be creative, and creativity can be taught. Nevertheless, almost half of them agreed that creativity is an inborn talent. This belief is one of the most stubborn myths of creativity (Treffinger et al., 1996). Some teachers may consider inherent qualities unchangeable, while others, even viewing creativity as an inborn talent, acknowledge the need for development. Similar results were observed in other studies (Kampylis et al., 2009; Karwowski, 2014; Stone & Hess, 2020; Devaney, 2023). Mullet et al. (2016) revealed that the vast majority of teachers believe that creativity can be developed only to a certain extent, which depends on the innate characteristics of the student.

However, Sawyer (2006) placed the statement "Everyone could be creative" among popular creativity myths, explaining that this belief originates in the ideology of total equality, and ideas that no one should judge "what counts as good art and even what counts as "art". Nevertheless, in the case of proclaiming the goal of developing creativity, it is necessary to be able to evaluate the progress. In our study, only a quarter of teachers agreed that creativity can be measured. This result is consistent with that obtained in the study by Cachia & Ferrari (2009); however, it contradicts the results of Cropley et al. (2019), which showed that most teachers believe that creativity can be measured and should be measured.

More than three-quarters of teachers believe that children are more creative than adults, reflecting a common myth (Sawyer, 2006). This belief suggests that teachers view originality as the primary criterion for creativity, while the quality of execution and usefulness are considered secondary. A similar pattern has been observed in other studies: teachers strongly associate creativity with novelty and originality but do not view usefulness as an inherent characteristic of a creative product (Mullet et al., 2016).

However, some teachers agreed that a "silly" idea cannot be considered creative. At first glance, this might indicate an acknowledgment of the importance of usefulness. However, in our study, this item falls within the "elite" component of creativity beliefs and correlates with the statement "If you can't come up with a good idea, it's better not to come up with anything at all." This suggests not only a recognition of the importance of usefulness but also a tendency to restrict creativity due to excessively high expectations for outcomes and a limited understanding of the nature of creative processes.

While most teachers agree that creativity can be applied across all domains of activity and subjects, over 40% of respondents believe that creativity is primarily associated with the Arts. Similarly, a study by Cachia and Ferrari (2009) found that the level of Art Bias expressed by teachers depends on how the question is phrased. When Art is not explicitly mentioned, 98% of teachers agree that creativity can be applied to every domain of activity. However, when Art is directly mentioned, only 86% of respondents still agree that creativity is not confined to the Arts, indicating some level of Art Bias. This may explain why a quarter of the respondents believe that the responsibility for fostering creativity should primarily lie with extracurricular institutions rather than schools. Although general education schools cover subjects related to the Arts, and teachers recognize their importance in the curriculum, the primary focus on Art education often resides in extracurricular or specialized institutions, such as Music and Art schools. The prevalence of Art Bias aligns with findings from the

meta-analysis conducted by Mullet et al. (2016) and the more recent study by Michaelidou and Pitri (2022), indicating that teachers often equate creativity with the Arts. Furthermore, Katz-Buonincontro (2020) observed that teachers who associate creativity primarily with artistic expression are more likely to perceive it as an innate trait. In contrast, those who view creativity as a cognitive process tend to believe it can be nurtured and developed.

### 5.2. Effects of Creativity Training on Teachers' Creative Self-Efficacy and Students' Creative Potential

First and foremost, it should be noted that, overall, insufficient attention is given to creativity in the teacher training process. Less than a third of teachers confidently stated that their mentors emphasized the importance of creativity in teaching during their education. One possible explanation is that the emphasis on creativity in Ukrainian education has been relatively recent, and most of the respondents completed their education at least ten years ago. However, the youngest group of participants (under 25 years old) more frequently reported that their mentors highlighted the importance of creativity compared to the oldest group (over 55 years old). Given that the youngest group consists of only 10 teachers, further research is needed to assess whether the integration of creativity in teacher training has indeed improved in recent years.

Our research also raised concerns regarding the effectiveness of in-service teacher creativity training. The most significant differences (medium effect size) related to participation in creativity training were observed in creative self-efficacy. Smaller, less pronounced differences with small effect sizes were found in recognizing that creativity can be developed and taught. No differences were observed in interpreting the context of creativity or its specificity between these two groups. It appears that creativity training primarily focuses on boosting creative confidence and acknowledging the importance of creativity, without providing a deeper understanding of creativity as a cognitive process, nor methods for measuring and fostering it. However, there is a need for targeted evaluations of the effectiveness of different training programs to more accurately determine their relative impact.

### 5.3. Gender Differences in Teachers' Beliefs About Creativity and Creative Self-efficacy

Our study revealed several gender-based differences in creativity beliefs. Males were less likely to agree that creativity can be applied to all school subjects. They more often indicated that the responsibility for fostering creativity should primarily lie with extracurricular educational institutions rather than schools. Additionally, males reported lower levels of creative self-efficacy. A similar pattern was noted in the study by Cachia and Ferrari (2009), which found that men are likelier to view creativity as an inborn talent, primarily relevant to visual arts, music, drama, and artistic performance, and associated with eminent individuals only. Patston et al. (2018) also noted that males expressed higher Art Bias compared to females. Furthermore, men participated less frequently in creativity training 5.

### 5.4. Effects of Age, Work Experience, and Subject Area on Teachers' Perceptions of Creativity and Their Creativity-Fostering Practices in the Classroom

Analysis showed that demographic variables also influence teachers' creativity beliefs. We revealed that teachers with more work experience are more inclined to hold "elite" views on creativity. These results are in line with other researches (Cachia & Ferrari, 2010; Turner, 2013; Al-Nouh et al., 2014) which revealed that younger teachers, as well as those with less work experience, are more inclined to foster skills and abilities related to creativity, while older teachers seem to prefer teacher-centered approaches, and feel that by fostering creativity they lose control of the classroom. We suppose that under the influence of emotional burnout and stress, which often increase with work experience, teachers become more critical of students' creativity and lose interest in experiments; however, there is a need for further research.

There are differences between teachers depending on the discipline taught. STEM teachers are the least likely to attend creativity training. Compared to Art teachers, STEM teachers are more doubtful that creativity could be taught. Compared with Primary teachers, STEM teachers have lower creative self-efficacy, are less likely to associate creativity with originality, and claim they are developing their students' creativity during lessons. Compared with Art teachers, Primary teachers are more likely to believe that children are more creative than adults. However, the effect sizes of the differences are small.

The most pronounced differences (medium effect size) were observed between STEM, Art, and Primary teachers. Both STEM and Art teachers, compared to Primary teachers, were less likely to agree that creativity should be developed in schools and more likely to believe that creativity development should primarily be the responsibility of extracurricular institutions, rather than schools. This may indicate an Art Bias or the association of creativity with something imaginative but impractical. However, no differences were observed regarding creative self-efficacy or the explicit association of creativity with Art. These findings differ from those of Patston et al. (2018), who found that Math/Science teachers were more likely to endorse an Art Bias than Primary or Art teachers.

### 5.5. Practical Implications

The results obtained should be considered when planning and organizing creativity training, courses, and workshops. It is important to incorporate creativity training in pre-service teacher education since most teachers received creativity training only as an in-service optional opportunity. Another important implication is revealing that most currently existing training results only in increasing teacher creative self-efficacy, which is of great importance, however, there is need to put efforts in building correct understanding of creativity, mainly: provide criteria for evaluation of creative products, stress the role of cognitive processes in creativity, importance of separating idea generation and evaluation to convey that invention of truly creative ideas takes time and effort and usually does not happen on the first attempt. Our study also points out the necessity of tailoring training to specific school subjects; at least there should be differentiated programs for STEM, Art, and Primary teachers focusing on creativity within the corresponding domains. Additionally, as research suggests, a potential direction for teacher development is training programs focused on cultivating a

growth-creative mindset, as it directly impacts teachers' ability to foster students' creativity (He & Chiang, 2024). Finally, there is a need for further development of valid measures to explore teachers' creativity beliefs and evaluate future progress in creativity teacher education.

### 5.6. Limitations

The main limitation of this study is the lack of previously developed, valid measurement instruments for teachers' beliefs about creativity. However, the findings described previously make it possible to validate the instruments for future research. Moreover, it would be valuable to complement quantitative studies with observations examining the relationship between teachers' statements and actual practice. Research shows that teachers' beliefs do not necessarily correlate with practice (Mateos-Moreno & Garcia-Perals, 2024). Additionally, the study's design assumed that only the most motivated and interested teachers would complete the questionnaire. Therefore, it is possible that the sample included only those teachers who, for specific reasons, are already interested in creativity development.

## 6. CONCLUSIONS

Our study is the first quantitative research on Ukrainian teachers' perceptions of creativity and methods for its development. Our research has shown that teachers in Ukraine, for the most part, understand the importance of fostering creativity and recognize the significant role of schools in this process. However, we observed several obstacles that may prevent teachers from fostering creativity effectively: lack of creativity education during pre-service training, uneven effectiveness of in-service creativity training, lack of knowledge regarding the specifics of creative processes, criteria for evaluating creative products, and association of creativity with art. Participating in creativity training programs positively influences teacher creative self-efficacy; however, this has little or no impact on creativity beliefs and sharing common misconceptions. Our study found that teachers with more work experience tend to exhibit a more skeptical attitude toward creativity development ideas. Additionally, STEM teachers are less interested in this area. This indicates the need to evaluate the effectiveness of existing and future creativity training programs for teachers, as well as tailor programs to the target audience, considering their work experience and the subjects they teach. There is also a need to develop valid measures of teachers' creativity beliefs to evaluate future changes and the efficiency of training programs consistently.

In future research, it would be more productive to explore this correlation through a longitudinal study, repeatedly testing teachers as their professional experience increases and observing changes in their attitudes toward creativity. Additionally, it would be valuable to compare the results of teachers who began their careers in schools with those who, for various reasons, transitioned into teaching after gaining professional experience in other fields.

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**Conflict of interest**

We have no conflict of interest.

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## УЯВЛЕННЯ УКРАЇНСЬКИХ ВИКЛАДАЧІВ ПРО ПРИРОДУ КРЕАТИВНОСТІ

Креативність є однією з провідних навичок у сучасному глобалізованому світі, тому її розвиток має бути одним із пріоритетних завдань освіти. В умовах формальної освіти ефективність розвитку креативності значною мірою залежить від уявлень педагогів про це поняття. У межах даного дослідження було опитано 394 українських педагогів з метою вивчення їхніх поглядів на креативність. Результати показали, що розвиток креативності недостатньо інтегрований у систему підготовки українських освітян: понад третини респондентів зазначили, що тема креативності взагалі не порушувалася під час їхнього навчання. Попри те, що українські викладачі продемонстрували високий рівень креативної самоефективності та загалом позитивне ставлення до креативності та її розвитку, серед них виявлено поширені хибні уявлення — зокрема недооцінювання важливості корисності як критерію творчого продукту, а також певну схильність до так званого «мистецького упередження» (Art Bias). Уявлення педагогів про креативність залежать від статі, предмета викладання та педагогічного стажу. Чоловіки продемонстрували менш позитивне ставлення до ідей розвитку креативності порівняно з жінками. Вчителі початкових класів та гуманітарних дисциплін виявляють вищий інтерес до розвитку креативності, ніж представники інших галузей. Крім того, педагоги з більшим досвідом роботи частіше ставляться скептично до ініціатив, спрямованих на розвиток креативності. Наше дослідження також показало, що участь у тренінгах із розвитку креативності позитивно впливає на креативну самоефективність освітян, однак майже не змінює їхні уявлення про креативність та поширені хибні переконання. Це підкреслює необхідність оцінки ефективності чинних і майбутніх програм розвитку креативності щодо їхнього впливу на переконання викладачів. Окрім того, існує нагальна потреба у створенні валідних і надійних інструментів для вимірювання уявлень педагогів про креативність з метою регулярного моніторингу змін упродовж часу та визначення ефективності таких освітніх програм.

**Ключові слова:** креативність, підготовка вчителів, освітні цілі, творче мислення, розвиток, навчання, Україна.