



## The Content And Structure Of The Concept Of "Creative Approach" In Scientific Coverage

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### ABSTRACT

This article analyzes the essence, content-structure and role of the concept of «creative approach» in scientific research activities. Philosophical, psychological and pedagogical definitions of creativity are comparatively studied. Based on empirical research, a five-component model of creative approach has been developed: problem perception, associative thinking, hypothesis formation, test-analysis, and creative synthesis. The research results can serve as a scientific-methodological guide for the scientific community.

### Keywords:

Creativity, scientific coverage, divergent thinking, creative research, cognitive flexibility, scientific methodology.

However, the term "creativity" is often used in the context of art and artistic creation and is not sufficiently systematized in the methodology of scientific research. and as a process of creating new knowledge. In this process, the concept of a creative approach is becoming increasingly important. However, the term "creativity" is often used in the context of art and artistic creation and is not sufficiently systematized in the methodology of scientific research.

Interest in the problem of creativity in the world scientific community has increased since the second half of the 20th century. In 1950, Joy Paul Guilford proposed the theory of divergent thinking, initiating a new wave of research on creativity at the intersection of psychology, pedagogy and cognitive sciences [1]. Later, Torrance (1974), Csikszentmihalyi (1996), Ranko (2014) and other scientists further enriched this field [2, 3, 4]. However, the structure of the creative approach characteristic of scientific coverage — its components, levels, and diagnostic criteria — is still not presented in its entirety.

Although the methodology of scientific research in Uzbekistan is developing, the number of

special studies devoted to the study of creativity in the context of scientific coverage is still insufficient. This gap is the main motivation of this article.

Comparative analysis of philosophical, psychological and pedagogical definitions of the concepts of "creativity" and "creative approach".

2. Development of a five-component model of a creative approach in scientific coverage.

3. Interpret the results of empirical research and make recommendations on the application of the concepts of "creativity" and "creative approach".

2. Development of a five-component model of a creative approach in scientific coverage.

3. Interpret the results of empirical research and make recommendations on their application.

### Materials And Methods

The study was conducted in three higher educational institutions of Uzbekistan — Turon University, Tashkent State Pedagogical University and Nizami TSPU — in 2022-2024. The study involved 186 participants, including master's and doctoral students (124

undergraduates, 62 doctoral students; women — 58%, men — 42%).

The following methods were used in the study:

**Adabiyotlar tahlili (Systematic Literature Review):** From the Scopus, Web of Science, and Google Scholar databases, 312 sources published between 2000 and 2024 were reviewed, of which 67 met the criteria and were included in the analysis.

**So'rovnoma (Questionnaire):** Torrance ijodiy fikrlash testining (TTCT) moslashtirilgan varianti va muallifning original «Ilmiy kreativlik mezonlari» shkalalari (IKM-25) qo'llanildi. IKM-25 shkalasiining Cronbach  $\alpha$  koeffitsienti 0.87 ni tashkil etdi.

– **Chuqur intervyu (Semi-structured Interview):** 45-60-minute

semi-structured interviews with 18 scientific supervisors were conducted and processed using the thematic analysis method.

The significance level was assumed to be  $p < 0.05$  using SPSS 26.0. Correlation analysis, factor analysis (PCA), and the Mann-Whitney U-test were used. The significance level was assumed to be  $p < 0.05$ .

When measuring creativity, three main criteria were identified: (1) fluency — the number of ideas, (2) flexibility — the variety of categories, (3) originality — the level of uniqueness/surprise of ideas. These criteria are based on the classification of Guilford (1967) and Torrance (1974) and have been adapted and applied to the requirements of modern cognitive psychology [1, 2].

**Results**

As a result of the literature analysis, the following table summarizes how the concept of "creative approach" is defined in various fields of science.:

**Table 1. Comparative definitions of the concept of "creativity"**

Sohalar	Ta'rif	Kalit g'oya
Falsafa	Table 1. Comparative definitions of the concept of "creativity"	Innovation and originality
Psixologiya	Divergent thinking and idea generation (Guilford, 1950)	Fluency, flexibility, originality
Kognitiv fan	A thought process that creates new connections (Boden, 2004)	Expansion of conceptual space
Pedagogika	Developing the student's ability to think independently and solve problems in an original way (Torrance, 1974)	Nurturing creative ability
Ilmiy metodologiya	Developing a new theory or method that goes beyond the existing paradigm (Kuhn, 1962)	Paradigma siljishi

Source: compiled by the author based on the literature.

Table 1 analysis shows that although creativity is interpreted differently in different fields, they all have a common thread: innovation, a non-standard approach to a problem, and combining existing knowledge in a new configuration. These three aspects should be manifested at the same time while in the context of scientific lighting.

Through Factor Analysis of the survey results (n=186), the five-component structure of the creative approach in scientific lighting is determined. KMO = 0.831, Bartlett's sphericity test  $\chi^2(300) = 2847.4$ ,  $p < 0.001$ . Five factors explain 72.3% of the total variance:

**2- Table. Five-component model of a creative approach (results of factor analysis)**

Nº	Komponent	Factor load	Dispersiya %	$\alpha$ Kroenbax
1	Muammoni idrok etish (Problem Perception)	0.847	19.2%	0.84
2	Assotsiativ fikrlash (Associative Thinking)	0.819	16.7%	0.81
3	Gipoteza shakllantirish (Hypothesis Formation)	0.802	14.5%	0.79
4	Sinov va tahlil (Test & Analysis)	0.775	12.1%	0.77
5	Ijodiy sintez (Creative Synthesis)	0.763	9.8%	0.83

$p < 0.001$ ; KMO = 0.831; jami tushuntirilgan dispersiya 72.3%.

The results of the study show that the highest factor loading is "Problem Perception" (0.847). This is consistent with Csikszentmihalyi's (1996) theory of "flow," in which proper understanding of the problem plays a crucial role in the creative process [3]. A statistically significant difference in creativity rates was found between undergraduates and doctoral students: doctoral students scored high on all five components (Mann-Whitney U = 2841.5,  $p = 0.003$ ), which gave a positive correlation between scientific experience and creativity levels confirms ( $r = 0.62$ ,  $p < 0.001$ ).

Based on thematic analysis of the results of the interview, three main factors were identified that block the creative approach: (1) fear of failure (87% of respondents noted), (2) time pressure (73%), (3) obligation to strictly adhere to methodological standards (61%). Factors that support creativity were also identified: an open environment (interdisciplinary collaboration), constructive criticism from a scientific supervisor, and the opportunity to look at problems from different angles.

### Discussion

The results obtained allow us to draw several important theoretical and practical conclusions. Firstly, it is insufficient to interpret the concept of a "creative approach" in the context of scientific coverage only as "unusual thinking". The study shows that this understanding is

systemic in nature, involving five interrelated stages, from initial perception of the problem to final synthesis. This contrasts with Wallas' (1926) four-stage model (preparation, incubation, inspiration, verification), which also encompasses the practical components inherent in scientific illumination. [5].

Second, the fear of failure was empirically confirmed as a major barrier to creativity (87%). This is consistent with Amabile's (1983) theory of the relationship between creativity and intrinsic motivation [6]. It has been empirically proven that creating a psychologically safe environment that recognizes the "right to make mistakes" in a scientific setting is a prerequisite for creative research..

Third, interdisciplinary collaboration emerged as the most powerful factor in increasing creativity. This is consistent with the study by Jain and Paul (2019) [7], which found that working with people from different fields allows for the creation of new associative connections, which is directly related to the associative component of creativity.

Fourth, our study found that the superiority of doctoral students over master's students in terms of creativity ( $p = 0.003$ ) is actually due to methodological freedom, not experience and knowledge. Ph. D. students showed high creativity due to their belief that "I can try a new

method". This supports Bandura's (1997) self-efficacy (self-efficacy) theory.

Limitations of the study: Since the sample consisted of three universities from a single country, the full generalization of the results to other cultural contexts requires caution. In addition, self-assessment (self-report) based surveys lead to subjective error probability. In subsequent studies, it is recommended to compare with observation (observation) and practical project results.

### Conclusion

The results of this study made it possible to determine the concept of a "creative approach" in scientific coverage on a new conceptual basis. The following main conclusions were drawn:

1. "Creative approach" is not a random creative state of scientific illumination, but a systematic process consisting of five components: problem perception, associative thinking, hypothesis formation, trial-and-error analysis, and creative synthesis.
2. Among the components, "Problem Perception" (factor loading 0.847) has the highest determinative importance, indicating that correctly understanding the problem at the initial stage of the scientific process determines the creative outcome.
3. The main factor hindering creativity is the fear of failure (87%) — which indicates the need to create a psychologically safe environment in scientific institutions.
4. A positive correlation was found between scientific experience (doctoral level) and creativity level ( $R = 0.62$ ,  $p < 0.001$ ), but the fact that the basis of this connection is methodological freedom, not experience, was confirmed through the results of the interview.

5. The developed scale of "Scientific Creativity Criteria" (IKM-25) has sufficient reliability indicators ( $\alpha = 0.87$ ), which allows its wide use as a diagnostic tool.

Practical recommendations: In higher education institutions, scientific supervisors should purposefully create a "creative environment", that is, allow master's and doctoral students to test hypotheses without the risk of failure. Also, interdisciplinary seminars and training in the "problem chest" (problem sandbox) format can be effective in developing the associative component of the creative approach.

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