DEVELOPING THE CREATIVE POTENTIAL OF PRIMARY SCHOOL PUPILS: THEORETICAL APPROACHES, INTERNATIONAL EVIDENCE, AND A METHODOLOGICAL MODEL

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ABSTRACT

This article examines the development of primary school pupils' creative potential through an integrative analysis of major theories of creativity, recent systematic reviews in primary education, and the OECD PISA 2022 creative thinking framework. Eighteen scholarly and official sources published between 1950 and 2024 were purposively selected using explicit relevance and quality criteria. The analysis integrates the novelty–appropriateness conception of creativity, indicators of divergent thinking, classroom-context factors, task characteristics, and information-processing processes. On this basis, an integrative methodological sequence is proposed for primary education: understanding information; selecting and reorganising it; identifying a problem; generating alternatives; selecting an original and appropriate idea; justifying it; and evaluating and improving it. A grade-sensitive matrix for Grades 1–4 is also proposed to support progression from simple idea generation to perspective shifting, justification, and refinement. PISA 2022 findings are treated as a system-level signal rather than as direct evidence about primary pupils. The framework remains conceptual and requires classroom validation, but it provides a theoretically grounded basis for designing creative tasks and formative assessment in primary education.

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Keywords: *primary education, creativity, creative potential, creative thinking, divergent thinking, open-ended tasks, information processing, PISA 2022, methodological model.*

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Introduction

In twenty-first-century education, remembering information or reproducing a ready-made algorithm is no longer a sufficient learning outcome. In complex and rapidly changing social and information environments, pupils need to identify problems, generate possible solutions, justify ideas, and revise them when necessary. Creative thinking should therefore be treated not as optional enrichment in primary education but as a competence closely connected with subject learning, language development, problem solving, and independent decision-making. The Concept for the Development of the Public Education System of the Republic of Uzbekistan until 2030 similarly identifies the development of modern competencies and the improvement of educational content and assessment as strategic priorities (President of the Republic of Uzbekistan, 2019).

Although creativity has been conceptualised in different ways, contemporary definitions commonly converge on two criteria: an idea or product should be novel and appropriate to the requirements of the situation. Guilford (1950) helped establish creative thinking as a distinct field of psychological inquiry by drawing attention to divergent production, while Runco and Jaeger (2012) later described novelty and

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effectiveness as the two standard criteria of creativity. Sternberg and Lubart (1999) likewise characterise a creative product as both original and appropriate. This distinction matters in primary education because an unusual pupil response is not automatically creative; it should also be meaningful, intelligible, and relevant to the task.

Creative potential should not be interpreted solely as an innate capacity. Amabile (1996) and Hennessey and Amabile (2010) show that knowledge, motivation, the social environment, and task conditions jointly shape creative activity. Vygotsky (2004) argues that imagination in childhood develops through novel recombinations of elements from prior experience. Kaufman and Beghetto's (2009) Four-C model similarly identifies personally meaningful construction in learning as 'mini-c' creativity, showing that everyday school creativity need not resemble major inventions or works of art. The practical implication is that primary education should provide every pupil with opportunities to construct meaning, propose alternatives, explain ideas, and improve them.

International assessment data further underline the relevance of the issue for Uzbekistan. PISA 2022 assessed creative thinking in 64 countries and economies and conceptualised the competence in terms of generating, evaluating, and improving ideas (OECD, 2023, 2024a). The Uzbekistan country note reports that 16% of 15-year-old students reached at least Level 3 in creative thinking, compared with an OECD average of 78% (OECD, 2024b). These figures should not be transferred directly to primary pupils because PISA assesses 15-year-olds. Nevertheless, they may reasonably be interpreted as a system-level indicator of the need to address creative thinking systematically from the early years of schooling.

Accordingly, this article synthesises theoretical and empirical evidence on the development of creative potential in primary education, identifies methodological criteria for designing creative tasks, and proposes an integrative model linking creativity with information processing. Three questions guide the analysis: Which components of creative thinking are methodologically most important for primary education? Which task characteristics are most likely to support creative activity? How can creative tasks be organised progressively across Grades 1–4 in accordance with increasing cognitive complexity?

Theoretical Foundations

Creativity and divergent thinking should not be treated as synonymous. Divergent thinking refers to the capacity to generate multiple, varied, or unusual responses to a problem; although it is an important indicator of creative potential, it does not guarantee a creative outcome (Runco & Acar, 2012). Torrance (1966) operationalised dimensions such as fluency, flexibility, originality, and elaboration. In primary education, these dimensions can be observed by asking how many ideas a pupil generates, whether those ideas represent different categories, whether a response is unusual, and whether an idea can be developed through meaningful detail. Final judgement should also consider appropriateness to the task.

The classroom environment strongly influences whether creative potential is expressed. Beghetto and Kaufman (2014) show that teachers' responses to error, the degree of choice afforded to pupils, psychological safety, and openness to diverse answers can support or suppress creative possibility. Amabile (1996) likewise emphasises intrinsic motivation and interest in the task. A 'creative task' therefore should not be equated with an attractive picture, a fairy tale, or a dramatisation activity. If pupils have no meaningful choice, only one predetermined answer is accepted, or every idea is immediately closed down through a binary 'right–wrong' judgement, the creative potential of the task remains limited.

OECD work on fostering creativity and critical thinking in schools recommends integrating creativity across subject areas rather than treating it as a separate discipline (Lucas et al., 2013; Vincent-Lancrin et al., 2019). The PISA 2022 framework requires students to generate ideas, generate diverse and original ideas, and evaluate and improve ideas (OECD, 2023). These processes can be adapted to primary education through texts, images, everyday situations, natural phenomena, or simple problems. Inventing an alternative story ending, for example, is not merely an exercise in fantasy: the pupil must understand

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the text, identify causal relationships, generate an alternative, align it with the narrative, and explain the choice.

Recent systematic evidence also highlights the importance of task characteristics. Potters et al. (2023) reviewed 52 studies across two decades of research on creativity development in primary education and identified task openness and the integration of activities as important analytical dimensions. Ruiz-del-Pino et al. (2022) synthesised methodologically strong studies of creativity programmes in primary education and found a moderate overall positive effect on creativity or divergent thinking. Together, these findings support the view that creativity can be developed, while indicating that effectiveness depends on the cognitive structure of a task, teacher support, and assessment rather than on the label 'creative'.

In this article, creative potential is therefore defined as a broad personal and pedagogical capacity, whereas creative thinking is its cognitive manifestation in a particular situation through the generation, selection, justification, and refinement of ideas. Divergent thinking is treated as the component that expands the range of possible ideas. A creative product is a response, text, question, solution, image, or other outcome that meets the criteria of novelty and appropriateness to some degree. These distinctions provide the conceptual basis for the proposed model.

Table 1

Review of Research by Scholars from CIS Countries

Scholar	Country	Research focus	Work or approach	Main idea/contribution
M. R. Rahimova	Uzbekistan	Competence development through a creative approach in primary mother-tongue and reading lessons	"Ways of Developing Creative Thinking in Mother-Tongue and Reading Literacy Lessons"	Developing critical and divergent thinking through problem questions and creative tasks.
Z. R. Jalolova	Uzbekistan	Unlocking primary pupils' creative potential through a competence-based approach	"A Creative Approach to Teaching Reading Literacy in Primary Education"	Integration of analytical reading and thinking.
M. To'xtaxonova	Uzbekistan	Methods for developing creative thinking in primary education	Not specified	Enhancing creativity through text work, question-and-answer activities, and creative writing in mother-tongue lessons.
D. Madraximova	Uzbekistan	Developing pupils' creativity through expressive and written language	"Developing Creative Thinking in Primary School Pupils"	Not specified
O. M. Dyakonova	Russia	Methodology of mother-tongue teaching	Rewriting, analysis, and creative story composition based on literary texts	Creative work with texts as a method for developing reading competence.
E. V. Bukanova	Russia	Developing creativity through text work in primary education	Visual imagery, expressive tasks, metaphor, and fantasy exercises	Developing creativity in primary school through systematic work with texts.
T. V. Kudryatsev	Russia	Developing creative thinking in preschool and primary education	"Creativity and Development"	Creative engagement with learning materials is presented as a key factor in a child's personal development.

Note. The table provides a contextual overview of selected CIS scholarship relevant to creative thinking in primary education. It is supplementary to the 18-source integrative review described in the methodology.

Research Methodology

The study was designed as a theoretical-analytical integrative literature review combined with conceptual synthesis. It does not claim to analyse an empirical corpus of textbooks. Its purpose is to organise existing scholarly evidence from the perspective of primary education methodology and to develop an explicit model for subsequent empirical testing. Accordingly, the task examples presented

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below are treated as methodological illustrations rather than as verbatim quotations from a verified textbook corpus. The paper also includes a contextual review table, a grade-level task bank, and two conceptual figures to support the methodological synthesis.

Four criteria guided source selection: direct relevance to the definition or measurement of creativity or creative thinking; evidence concerning creativity in school or primary education contexts; publication as an established scholarly work, peer-reviewed article, systematic review, meta-analysis, or official international document; and discussion of task design, classroom conditions, or assessment criteria that can be meaningfully transferred to primary education. On this basis, 18 scholarly and official sources published between 1950 and 2024 were selected. They include foundational theoretical works, research on classroom contexts, recent systematic reviews, OECD documents on school creativity and PISA 2022, and an official policy document concerning education in Uzbekistan.

The analysis proceeded in three stages. First, core constructs were coded across the selected sources: novelty, appropriateness or effectiveness, fluency, flexibility, originality, elaboration, and the evaluation and improvement of ideas. Second, factors relevant to school settings were extracted, including open-endedness, pupil choice, the availability of an information source, multiple possible answers, perspective shifting, justification, revision, and psychological safety for exchanging ideas. Third, these elements were integrated with the sequence through which primary pupils process information, producing a grade-sensitive matrix of increasing cognitive complexity and an accompanying conceptual model.

This review is not a full systematic review conducted according to PRISMA requirements, nor does it include a new meta-analysis. It therefore makes no claim to cover all available research. Its contribution lies in synthesising distinct theoretical and empirical strands into a testable methodological construct for primary education. The proposed model should subsequently be examined through classroom observation, task content analysis, expert evaluation, and experimental or quasi-experimental comparison of pupil outcomes.

Results

Three main results emerged from the synthesis. First, an ‘open response’ criterion alone is insufficient for identifying a genuinely creative task in primary education. A methodologically strong task should create at least three opportunities: the pupil selects among alternatives or generates alternatives; develops a selected idea into a meaningful form; and justifies it with evidence, reasons, or contextual information. At a higher level, the pupil also revisits and improves the idea. The core pedagogical mechanism can therefore be represented as ‘select – create – justify – refine’.

Second, creativity is inseparable from information processing. A primary pupil does not create a new story ending, question, or alternative solution ‘from nothing’. The pupil first receives information from a text, image, observation, or problem, identifies important elements, reorganises them, and uses them in a new combination. Vygotsky’s (2004) account of imagination as the recombination of elements from experience, together with the PISA framework, supports an understanding of creativity as active work with both content and ideas. The integration of creativity and information processing therefore represents a promising methodological direction for primary education.

Third, cognitive complexity should increase progressively across grades. In Grade 1, pupils can generate several simple ideas from a familiar word, image, or situation and express one coherently. Grade 2 can place greater emphasis on linking elements, continuing an event, or relating text and image. In Grade 3, pupils can practise perspective shifting, transformation of a character trait, and explanation of a choice. Grade 4 can prioritise viewing a problem from several perspectives, generating questions, comparing alternatives, and improving an idea. Table 2 presents illustrative grade-level tasks aligned with this progression, while Table 3 presents the analytical matrix derived from the synthesis.

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Table 2

Creative Tasks for Developing Information-Processing Competence in Grades 1–4

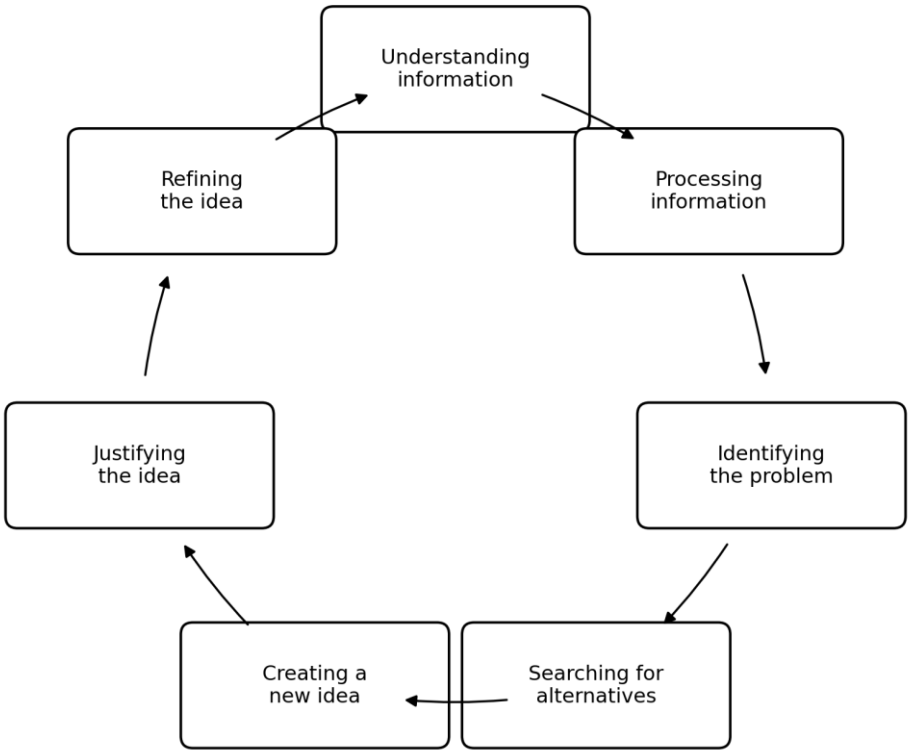
Grade	Task type(s)	Task instructions
Grade 1	1. "Story from a Word" 2. "Change the Ending of a Fairy Tale" 3. "Compose a Poem"	1. Use the word "bird" to write a short story of 3–4 sentences. 2. "The Wolf and the Goat": If the goat escaped from the wolf, how might the fairy tale end? Write your own version. 3. Using the words joy, school, and book, write a four-line poem.
Grade 2	1. "From Word to Picture, from Picture to Text" 2. "Continue the Fairy Tale" 3. "From Sentence to Picture, from Picture to Story" 4. "Create a Script"	1. How would you represent the word "friendship" in a picture? Draw it and write 2–3 sentences explaining its meaning. 2. "Once upon a time, there was a little mouse …" Continue the fairy tale and bring it to your own ending in 4–5 sentences. Add new events. 3. Read the sentence "The children are reading a book under a tree in the garden." Draw the scene and create a short story based on your picture. 4. Create a short scene with 2–3 roles on the theme "A Book Is a Source of Knowledge" (for example, Book, Child, and Ignorance).
Grade 3	1. "Give the Text a New Title" 2. "Change the Character"	1. Read a short text prepared by the teacher. Give it a new title, explain your choice, and state the main idea of the text. 2. Choose a familiar fairy-tale character (for example, Zumrad, the Wolf, or Little Red Riding Hood) and change one aspect of the character. What would happen if the Wolf were kind? What would happen if Little Red Riding Hood had bad intentions? Explain how the story would change.
Grade 4	1. "One Event, Two Perspectives" 2. "Treasury of Ideas" 3. "A New Event Based on a Text" 4. "Creative Question-and-Answer"	1. Write the event "A child lost a friend's book" from two perspectives: the child's and the friend's. What might each person think about the event? 2. Continue the statement "If I were the school headteacher for one day, I would …" in 6–7 sentences. 3. Choose an event from a text read in class and write a new continuation. For example: What would happen if the "Golden Fish" appeared again? 4. Create questions that would appropriately produce the following answers: "Because they loved books"; "Because the sun was setting"; "Because friendship is the most important thing." The questions should be creative and supported by reasoned explanation.

Note. The tasks are illustrative methodological examples rather than verbatim quotations from a verified textbook corpus.

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Figure 1

Sequence of Creative Activity in Primary Education



Note. The sequence illustrates progression from understanding and processing information to identifying a problem, generating alternatives, creating and justifying a new idea, and refining it.

Figure 1 presents the seven-stage sequence underpinning the synthesis. Figure 2 extends this logic by making explicit the selection of an original and appropriate idea, together with evaluation and improvement.

Table 3

Methodological Matrix for the Progressive Development of Creative Tasks in Grades 1–4

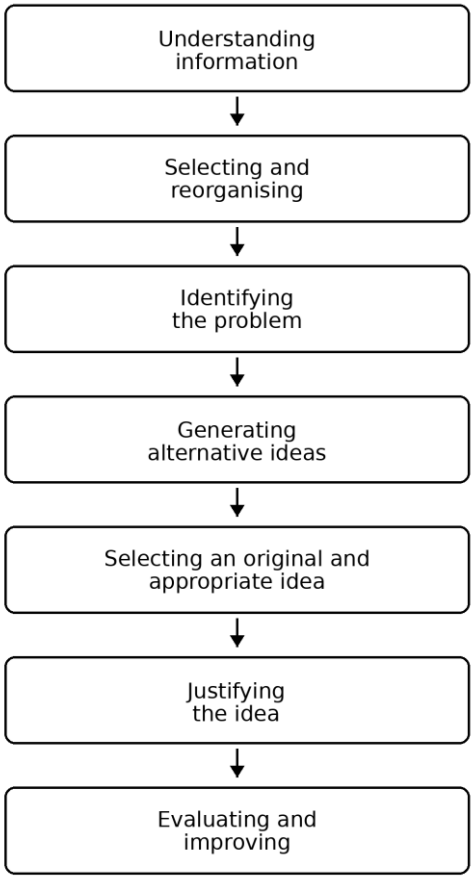
Grade	Priority cognitive objective	Illustrative example task	Primary assessment indicator
Grade 1	Fluent idea generation and simple connections	Using the word ‘bird’ and an accompanying picture, invent two different short events; write one of them in 3–4 sentences.	Number of ideas, relevance to content, simple originality
Grade 2	Connecting elements and transformation	Create two different beginnings for a story that fit the given picture, then continue one of them.	Flexibility, logical connection, detail
Grade 3	Perspective shifting and justification	Change one characteristic of a familiar fairy-tale character and explain how the story would change as a result.	Originality, causal explanation, task relevance
Grade 4	Multiple perspectives, evaluation, and refinement	Write one situation from the perspectives of two characters; choose the stronger version and improve it using peer feedback.	Diversity, justification, quality of selection, refinement

Note. The matrix operationalises the theoretical and empirical synthesis presented in this study.

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Figure 2

Integrative Methodological Model of Creative Thinking and Information Processing in Primary Education



Note. Conceptual synthesis based on OECD (2023), Runco and Jaeger (2012), and Vygotsky (2004).

Discussion

The proposed model avoids reducing creativity to 'free imagination'. The dual criterion of novelty and appropriateness emphasised by Runco and Jaeger (2012) is equally relevant to school tasks: a pupil's idea may be unusual, but if it has no meaningful connection with the given text, situation, or problem, the intended learning objective is not achieved. Assessment should therefore move beyond 'Is it original?' and also ask whether the idea is appropriate, explained, connected to evidence, and capable of improvement.

This distinction also clarifies the role of divergent thinking. Fluency and flexibility help pupils generate more numerous and varied alternatives, but convergent evaluation is needed to select an idea that is fit for purpose. The PISA 2022 framework reflects this balance by distinguishing the generation of ideas from their evaluation and improvement (OECD, 2023). Teachers should therefore avoid the assumption that more answers automatically indicate greater creativity and should attend to quality, relevance, and justification.

Classroom context remains crucial. Even a well-designed open-ended task may fail if pupils fear ridicule for an unusual response or expect immediate negative judgement. Beghetto and Kaufman (2014) emphasise the sensitivity of creative potential to classroom context, while Amabile (1996) shows that excessive external control and reward-focused motivation can constrain creativity under some conditions. Primary teachers should listen to an idea before judging it, invite further alternatives, allow pupils to extend one another's ideas, and treat error as a normal part of thinking.

The PISA 2022 findings make the issue particularly salient in Uzbekistan. The relatively low proportion of 15-year-olds reaching Level 3 compared with the OECD average suggests that creative

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thinking should not be addressed only through short-term preparation in later schooling (OECD, 2024b). At the same time, the result does not demonstrate the ineffectiveness of any particular primary textbook, teacher, or method. A system-level indicator should be used to justify sustained methodological work rather than to infer causality.

The task characteristics identified by Potters et al. (2023) are compatible with the grade-sensitive matrix proposed here: open and integrative tasks can connect multiple forms of knowledge and activity. Nevertheless, 'open' does not automatically mean cognitively demanding. 'Draw anything you like' offers freedom but may require little information processing or justification. By contrast, 'Change the character's decision and explain, using three reasons, how the change would affect the ending' combines transformation, causal reasoning, and justification. Methodological quality therefore depends on the number and interrelation of the cognitive operations required.

A further implication concerns the distinction between task demand and pupil performance. A task may create an opportunity for creative thinking without guaranteeing that every pupil will use that opportunity. Conversely, a relatively constrained task may still elicit an original response from a particular pupil. For methodological purposes, task quality should therefore be described in terms of the cognitive opportunities it affords, while pupil creativity should be evaluated through observable responses to those opportunities. This distinction is important when comparing textbooks, lessons, or interventions because it prevents task design from being treated as direct evidence of learning outcomes. It also supports cautious use of international frameworks: originality, appropriateness, and refinement can guide task design, but their classroom expression will depend on language, subject matter, prior knowledge, and culturally shaped expectations about acceptable responses.

The article makes two related conceptual contributions. First, components of creative thinking are integrated with understanding and reorganising information within a single sequential model. Second, a matrix is proposed for increasing task complexity across Grades 1–4. The matrix is a conceptual proposal derived from theoretical and empirical literature and requires expert review and classroom testing.

Practical Methodological Recommendations

Several practical implications follow. First, every creative task should have a meaningful content base, such as a text, image, observation, object, simple data set, or real-life situation. The base should provide sufficient information for developing a new idea without directing pupils towards a single predetermined answer. Second, a task should permit more than one reasoned response. This does not imply that all answers are equally acceptable; rather, several answers may satisfy the task when they are relevant and adequately justified.

Third, assessment can be organised around four indicators: diversity, originality, appropriateness, and justification. In the upper primary grades, refinement can be added as a fifth indicator. A Grade 4 pupil, for example, may revisit an initial idea after peer feedback and briefly explain what was changed and why. This provides an age-appropriate form of the evaluation and improvement processes emphasised in the PISA framework.

Fourth, creative tasks should extend beyond language and reading literacy. In mathematics, pupils can solve the same problem in two ways and explain when each method is useful; in science, they can generate several hypotheses for an observed phenomenon; in technology or visual arts, they can devise different functional solutions using available materials. Vincent-Lancrin et al. (2019) similarly support creativity across subject areas.

Finally, teachers' questions should progress from reproductive to transformative prompts. 'What happened in the text?' supports comprehension, but it can be followed by 'What would happen if one condition changed?', 'Which two solutions could be combined?', or 'How could you improve your answer?'. Textbook and methodological-guide authors should likewise plan creative tasks according to cognitive progression rather than distribute them randomly across grades. The proposed progression is a

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methodological direction rather than a rigid age norm and should be adapted to class readiness and individual differences.

Formative Assessment of Creative Thinking

The development of creative thinking is unlikely to be sustained without appropriate formative assessment. In conventional tasks, teachers often focus on whether the final answer is correct; in creative tasks, both process and product should be observed. Lucas et al. (2013) argue that formative approaches capable of making progression visible are important for developing creativity in school. The purpose of assessment should therefore be to identify the creative operation being developed and provide feedback that supports the next step, rather than to rank pupils rigidly against one another.

Four criteria are particularly useful. Diversity concerns whether a pupil can produce meaningfully different alternatives rather than repeat the same idea. Originality concerns the extent to which the response moves beyond simple copying or reproduction of a model. Appropriateness concerns how well the idea meets the conditions of the text, situation, or problem. Justification and development concern whether the pupil can explain a choice and improve it after feedback. These criteria represent a primary-education synthesis of Torrance (1966), Runco and Acar (2012), and OECD (2023). They do not replace standardised testing but provide practical criteria for everyday observation.

The language of feedback also shapes the classroom climate. Rather than closing discussion with ‘wrong’, a teacher might ask, ‘Which part of this idea fits the text?’, ‘What evidence would make it stronger?’, or ‘What would change if we combined it with another option?’. Such questions encourage revision. Feedback should identify a strength and a specific route for improvement rather than offer only general praise.

Age should also be considered. In Grades 1–2, criteria can be expressed through simple oral self-check questions such as ‘Did I give two different ideas?’ and ‘Does my idea fit the picture or text?’. In Grades 3–4, self-assessment and peer dialogue can be strengthened. A partner might identify the most original part of an initial response and one aspect to improve, after which the pupil produces a second version. Explicit task-related indicators also reduce the risk that a teacher’s personal taste becomes the assessment standard.

Limitations of the Study

The study has three main limitations. First, it is based on an integrative literature analysis rather than an empirical textbook corpus or classroom intervention; the effectiveness of the proposed matrix and model in Uzbek primary schools therefore remains a theoretically grounded hypothesis. Second, source selection was purposive rather than based on a complete systematic search protocol and PRISMA flow diagram. Third, international models of creativity may not manifest identically across cultural and disciplinary contexts.

Future research should identify a defined corpus of Uzbek Grade 1–4 textbooks, catalogue open-ended and semi-open tasks, and code them independently for fluency, flexibility, originality, justification, and refinement. Inter-rater agreement should be calculated. Selected tasks could then be tested in experimental and control groups to examine changes in pupils’ creative thinking. Such work would turn the present conceptual model into an empirical research programme.

Conclusion

Developing creative potential in primary education cannot be reduced to occasional ‘interesting’ activities. Creative thinking is a complex cognitive process in which pupils understand information, identify relevant elements, reinterpret a problem, generate alternatives, select an original and appropriate option, justify it, and refine it. The literature indicates that creativity can be developed, but its development depends on the interaction of task characteristics, classroom climate, teacher support, and assessment.

The integrative model proposed in this article links creativity with information processing and envisages a gradual increase in task complexity across Grades 1–4, from simple idea generation to

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perspective shifting, justification, and refinement. Its central principle is that pupils should not merely find an answer but generate alternatives; not merely generate alternatives but justify them; and not merely justify them but, where necessary, revise and improve them. The priority for primary education is therefore not simply to increase the number of open-ended tasks, but to improve their cognitive quality. The proposed model and matrix should now be tested empirically in Uzbekistan and refined across age groups, subject areas, and assessment contexts.

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