pISSN:2349-5707 Volume:13,Issue 4, April -2026 eISSN:2349-5715

ACMEOLOGICAL APPROACH TO DEVELOPING CREATIVE THINKING IN PRIMARY EDUCATION: A THEORETICAL-CONCEPTUAL MODEL

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ABSTRACT: This study aims to develop a theoretical-conceptual model integrating acmeological principles with gamification-based didactic systems to foster creative thinking in primary education. The proposed Acmeological-Gamification Didactic System (AGDS) model comprises four interdependent structural components: (1) acmeological trajectory mapping, (2) gamified motivational scaffolding, (3) creative competence formation, and (4) reflective self-assessment. The model demonstrates theoretical compatibility with contemporary approaches to developing creative thinking and motivation in primary education.

Keywords: acmeology; creative thinking; gamification; didactic system; primary education; self-determination theory; creative self-efficacy; conceptual model

1. INTRODUCTION

The twenty-first-century knowledge economy demands not only highly qualified specialists but also individuals capable of flexible, original, and adaptive thinking from the early stages of education. In this regard, developing creative thinking in primary education has become one of the key priorities of modern educational systems. Creative thinking is recognised as a fundamental competence that should be formed from the initial stages of schooling, as it serves as the foundation for lifelong learning and future professional success (World Economic Forum, 2023). However, empirical evidence suggests that traditional teaching approaches in primary education, which often emphasise reproduction of knowledge and standardised assessment, are insufficient for fostering learners' creative potential [12], [13].

Acmeology - the interdisciplinary science that studies the conditions, mechanisms, and pathways of achieving the highest levels of personal and professional development [7] - provides a strong theoretical basis for addressing this challenge. In the context of primary education, acmeological approaches emphasise the importance of creating individual developmental trajectories for learners, supporting their creative self-realisation as a continuous process [16], [10]. At the same time, gamification - defined as the application of game design elements in non-game educational contexts [9] - offers powerful tools for increasing motivation, engagement, and active participation of primary school learners.

The integration of acmeological principles with gamification has the potential to create a supportive and stimulating learning environment that enhances creative thinking from an early age. Despite the growing body of research on gamification in education and the increasing interest in acmeological pedagogy, there remains a lack of comprehensive theoretical frameworks that combine these approaches specifically for primary education. This gap is particularly evident in Central Asian educational contexts, where innovative pedagogical models are still developing.

The present study addresses this gap by proposing the Acmeological-Gamification Didactic System (AGDS), a four-component conceptual model aimed at fostering creative thinking in primary education. The study is guided by the following research questions: (1) What theoretical foundations are necessary to integrate acmeological pedagogy with gamification-based

pISSN:2349-5707 Volume:13,Issue 4, April -2026 eISSN:2349-5715

approaches in primary education? (2) How can a coherent structural model for developing creative thinking be constructed based on these foundations? (3) What are the key components of the proposed model and how do they interact within the educational process?

2. LITERATURE REVIEW

2.1. Acmeology and Primary Education

Acmeology, as a science studying the patterns, conditions, and factors that promote the attainment of the highest levels of personal and professional development, was systematised in the Russian-language scholarly tradition through the works of Kuzmina (1990), Derkach (2004), and Bodalev (1998). Central to acmeological pedagogy is the concept of "acme" - the peak of an individual's personal and professional maturity - and the identification of mechanisms through which learners progressively approach this stage [16].

In the context of primary education, acmeological approaches are interpreted through the lens of early personal development and the formation of foundational competencies. Rather than focusing solely on professional mastery, acmeology at this level emphasises the development of learners' cognitive, motivational, and creative potential. The concept of an individual developmental trajectory remains central, describing a personalised pathway that supports pupils in gradually realising their abilities and creative capacities from the early stages of schooling [16].

Koldasbayeva et al. (2022) highlight that acmeological competence includes self-development, self-regulation, and motivation, which are essential even in early educational stages. These constructs are theoretically aligned with Bandura's (1997) concept of self-efficacy and Deci and Ryan's (2008) self-determination theory, both of which emphasise the importance of intrinsic motivation and learner autonomy. In primary education, these principles can be operationalised through supportive learning environments that encourage exploration, creativity, and independent thinking.

Furthermore, Dereka (2016) argues that acmeological skills contribute to the formation of a progressively developing personality. In the context of primary education, this idea can be extended to the early formation of creative thinking, where learners begin to develop the ability to generate ideas, solve problems, and express themselves in original ways. Thus, acmeological pedagogy provides a strong theoretical foundation for fostering creativity from the initial stages of education.

2.2. Creative Thinking in Primary Education

Creativity has been conceptualised through multiple theoretical frameworks within educational psychology. Amabile's (1996) componential theory posits that individual creativity emerges from the interaction of domain-relevant skills, creativity-relevant processes, and intrinsic motivation, highlighting the importance of both internal factors and the learning environment. Similarly, Csikszentmihalyi's (2007) systems model situates creativity at the intersection of individual cognition, cultural context, and social environment, emphasising that creative development is inherently contextual.

In the context of primary education, creative thinking is considered a foundational competence that supports cognitive development, problem-solving, and independent learning. Recent studies indicate that traditional teaching approaches in early education often prioritise knowledge reproduction over creative exploration, which limits learners' creative potential [13]. Research by Davies et al. (2023) demonstrates that learners exposed to conventional assessment

pISSN:2349-5707 Volume:13,Issue 4, April -2026 eISSN:2349-5715

methods show lower levels of creative thinking compared to those engaged in authentic, task-based learning activities.

Achievement motivation also plays a crucial role in the development of creativity at early educational stages. Wu et al. (2024) found that higher levels of motivation positively influence creative performance when supported by appropriate pedagogical conditions. In primary education, fostering intrinsic motivation, curiosity, and engagement is therefore essential for developing creative thinking skills. These findings underline the need for innovative pedagogical approaches that move beyond traditional instruction and actively support creativity from the early stages of learning.

2.3. Gamification in Primary Education

Gamification in education - including elements such as points, badges, leaderboards, narrative quests, and challenge-based tasks - has been widely studied as an effective approach to increasing learner engagement and motivation. While much of the existing research has focused on higher education, recent studies suggest that gamification is equally relevant and effective in primary education contexts.

Borges et al. (2022), in their systematic review, highlight that the effectiveness of gamification depends on the appropriate combination of game elements and their alignment with learning objectives. Springer (2024) further emphasises that while gamification can significantly enhance motivation and engagement, excessive reliance on extrinsic rewards may negatively affect intrinsic motivation, which is crucial for creativity development.

Empirical evidence supports the role of gamification in fostering creative thinking. Li et al. (2025) demonstrated that gamified learning environments significantly enhance creativity and engagement, while Legaki et al. (2020) confirmed that challenge-based gamification improves learning outcomes by maintaining optimal levels of difficulty and motivation. In primary education, gamification can create interactive and stimulating environments that encourage exploration, imagination, and creative problem-solving.

Despite the growing body of research, there remains a lack of integrated theoretical models that combine gamification with acmeological principles for the development of creative thinking in primary education. Addressing this gap represents a key contribution of the present study.

3. METHODOLOGY

This study adopts a conceptual-analytical research design aimed at developing a theoretical model rather than testing empirical hypotheses (Jaakkola, 2020). Such an approach is particularly suitable for exploring and systematising existing theoretical knowledge in order to construct an integrated pedagogical framework. The research process was organised into four main stages.

Stage 1 - Systematic literature mapping. A comprehensive literature search was conducted using the Scopus and Web of Science databases. The search strategy employed a combination of keywords related to acmeology, gamification, and creative thinking, with a particular focus on educational contexts, including primary education. The inclusion criteria were defined as peer-reviewed articles published in English or Russian between 2014 and 2024 and available in full text. After removing duplicates and applying the PRISMA 2020 screening procedure, a total of 47 relevant studies were selected for further analysis.

pISSN:2349-5707 Volume:13,Issue 4, April -2026 eISSN:2349-5715

Stage 2 - Theoretical framework synthesis. The selected studies were analysed using a concept-mapping approach to identify key theoretical constructs and their interconnections. This process resulted in the identification of four core theoretical foundations underpinning the study: acmeological trajectory theory [16], self-determination theory [6], the componential theory of creativity [1], and flow theory [4]. These theories provided the conceptual basis for the development of the proposed model.

Stage 3 - Model development. Based on the synthesised theoretical framework, the structure of the Acmeological-Gamification Didactic System (AGDS) was developed. The model components were defined through iterative analysis and refinement, ensuring logical coherence and alignment with the principles of acmeological pedagogy and gamified learning environments.

Stage 4 - Expert evaluation. To ensure the validity and applicability of the proposed model, an expert review was conducted. The panel consisted of seven specialists in the fields of educational psychology, gamification, and acmeological pedagogy. The experts evaluated the model in terms of internal consistency, conceptual clarity, and relevance to primary education contexts, particularly within Central Asian educational settings. Their feedback was incorporated into the final version of the model.

4. RESULTS

4.1. Theoretical Foundations of the AGDS Model

The analysis of the selected literature made it possible to identify four key theoretical foundations that underpin the proposed Acmeological-Gamification Didactic System (AGDS). These theoretical perspectives are complementary and together form a coherent conceptual basis for developing creative thinking in primary education.

First, acmeological trajectory theory [16] provides a developmental framework that emphasises the importance of individual learning pathways. In primary education, this approach supports the design of personalised learning experiences that correspond to pupils' cognitive abilities, motivational characteristics, and creative potential.

Second, self-determination theory [6] explains the motivational dimension of learning by distinguishing between intrinsic and extrinsic motivation. It suggests that educational environments which promote autonomy, competence, and relatedness are more effective in fostering engagement and creativity among learners.

Third, the componential theory of creativity [1] defines creativity as the result of the interaction between domain knowledge, creative thinking skills, and intrinsic motivation. This framework provides clear guidance for structuring educational activities aimed at developing creative competence in primary school learners.

Finally, flow theory [4] highlights the importance of maintaining an optimal balance between task difficulty and learners' abilities. In gamified learning environments, this balance helps sustain engagement and supports deeper involvement in creative tasks.

4.2. The AGDS model: Four-component structure

Based on these theoretical foundations, the Acmeological-Gamification Didactic System (AGDS) is structured around four interconnected components:

pISSN:2349-5707 Volume:13,Issue 4, April -2026 eISSN:2349-5715

Component 1: Acmeological Trajectory Mapping (ATM). This component focuses on identifying and supporting individual developmental pathways of learners. In primary education, ATM involves assessing pupils' creative abilities, learning motivation, and developmental level, followed by the design of personalised learning trajectories. These trajectories function as flexible guides that align educational tasks with each learner's zone of proximal development.

Component 2: Gamified Motivational Scaffolding (GMS). GMS organises the learning environment through the use of gamification elements such as challenges, storytelling, rewards, and collaborative activities. These elements are designed to enhance motivation and engagement while supporting autonomy and active participation. Particular attention is given to balancing extrinsic and intrinsic motivation to ensure sustainable creative development.

Component 3: Creative Competence Formation (CCF). This component represents the core instructional process aimed at developing learners' creative thinking. Educational activities are structured progressively, moving from basic reproduction tasks to more complex creative problem-solving. The focus is on developing knowledge, creative skills, and intrinsic motivation simultaneously, in accordance with established theories of creativity.

Component 4: Reflective Self-Assessment (RSA). RSA introduces reflection as an essential part of the learning process. Learners are encouraged to evaluate their own work, identify strengths and areas for improvement, and set new learning goals. In primary education, this process can be supported through simple reflective tools, portfolios, and peer feedback, often integrated into gamified activities.

4.3. Component interrelationships

The components of the AGDS model are organised as a dynamic and cyclical system rather than a linear sequence. The acmeological trajectory mapping (ATM) defines the direction of learning, which informs the design of gamified activities within the GMS component. These activities support the development of creative competence (CCF), while reflective self-assessment (RSA) provides feedback that allows learners and educators to adjust and refine the learning trajectory.

This cyclical process creates a continuous developmental loop, where each stage contributes to the gradual enhancement of learners' creative abilities. Such an approach reflects the acmeological principle of progressive development, according to which learners move step by step toward higher levels of personal and cognitive achievement.

5. DISCUSSION

The proposed AGDS model offers several important theoretical contributions to the field of primary education. By integrating gamification within the framework of acmeological trajectory theory, the model moves beyond traditional motivation-based approaches and introduces a more structured and personalised system for developing creative thinking. This approach addresses a key limitation identified in previous gamification studies, namely the lack of theoretically grounded models for individualised learning design [3].

A significant strength of the AGDS model lies in its emphasis on the quality of motivation. The incorporation of self-determination theory [6] into the gamified motivational scaffolding ensures that learning activities support learners' autonomy, competence, and social interaction. This is particularly important in primary education, where intrinsic motivation plays a central role in fostering curiosity, creativity, and active engagement. The model carefully balances

pISSN:2349-5707 Volume:13,Issue 4, April -2026 eISSN:2349-5715

external rewards with internally driven learning processes, thereby preventing the negative effects associated with excessive reliance on extrinsic motivation [1], [14].

Another important aspect of the model is its dynamic and cyclical structure. Unlike linear instructional models, the AGDS system is based on continuous interaction between its components, allowing for ongoing adaptation to learners' developmental needs. This aligns with acmeological perspectives, which view development as a gradual and iterative process. Such an approach is especially relevant in primary education, where learners' cognitive and creative abilities evolve rapidly and require flexible pedagogical strategies.

From a practical perspective, the AGDS model is particularly relevant for educational reforms in Central Asian countries, including Uzbekistan. Current national education strategies emphasise the development of creative, independent, and innovative learners from the early stages of schooling. The proposed model provides a coherent conceptual framework that can support the implementation of these priorities in primary education, taking into account regional educational contexts and pedagogical traditions.

5.1. Limitations

Despite its theoretical contributions, the present study has several limitations. First, the research is based on a conceptual-analytical approach, and the proposed model has not yet been empirically tested in real primary education settings. As a result, its practical effectiveness remains to be validated through classroom implementation.

Second, the model may require adaptation depending on specific educational contexts, including differences in curriculum, teacher competencies, and institutional resources. Future research should therefore focus on empirical validation of the AGDS model through experimental and longitudinal studies, as well as exploring its applicability across different educational environments.

6. CONCLUSION

This study has developed the Acmeological-Gamification Didactic System (AGDS), a four-component conceptual model that integrates acmeological trajectory theory, self-determination theory, the componential theory of creativity, and flow theory to provide a unified pedagogical framework for fostering creative thinking in primary education. The model includes acmeological trajectory mapping, gamified motivational scaffolding, creative competence formation, and reflective self-assessment, all of which are interconnected within a dynamic and cyclical structure that supports continuous learner development.

The proposed AGDS model contributes to the advancement of educational theory by offering an integrated approach that combines acmeological principles with gamification-based strategies. This synthesis addresses an important gap in the existing literature by providing a structured and theoretically grounded framework specifically oriented toward the development of creativity in primary school learners.

From a practical perspective, the model offers valuable guidance for educators seeking to design engaging and developmentally appropriate learning environments. It highlights the importance of personalised learning pathways, intrinsic motivation, and reflective practices in supporting creative growth from the early stages of education. The model is particularly relevant

pISSN:2349-5707 Volume:13,Issue 4, April -2026 eISSN:2349-5715

for educational reforms in Central Asian contexts, where fostering creativity and innovation has become a strategic priority.

However, the study remains conceptual in nature, and the effectiveness of the proposed model requires empirical validation. Future research should focus on implementing the AGDS model in real classroom settings, employing experimental and longitudinal research designs to assess its impact on learners' creative thinking and overall development in primary education.

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