A CONCEPTUAL FRAMEWORK FOR FOSTERING CREATIVE THINKING SKILLS IN PRIMARY SCHOOL LEARNERS THROUGH DIGITAL STORYTELLING AND STEAM-BASED ACTIVITIES

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Abstract. This article proposes a conceptual framework for developing creative thinking skills in primary school learners through digital storytelling and STEAM-based (Science, Technology, Engineering, Arts, Mathematics) activities within a digital learning environment. The framework integrates cognitive, motivational, and technological components and identifies pedagogical conditions under which digital tools support fluency, flexibility, originality, and elaboration in young learners' thinking. The article outlines a staged model for classroom implementation and discusses its implications for primary education practice.

Keywords: digital learning environment, creative thinking, primary education, digital storytelling, STEAM education, pedagogical model.

Introduction

Creativity is increasingly recognized as a core competence to be cultivated from the earliest stages of formal schooling, alongside literacy and numeracy. Primary school age is widely regarded as a sensitive period for the development of imagination, divergent thinking, and symbolic expression. At the same time, the expanding presence of digital tools in classrooms — tablets, interactive applications, digital drawing and storytelling platforms — offers new affordances for creative engagement that were not previously available. However, digital tools are frequently used in primary classrooms to replicate traditional, reproductive tasks rather than to stimulate genuinely creative activity. This gap between technological potential and pedagogical practice motivates the present conceptual framework.

Literature review and problem statement

Creativity in educational contexts is commonly understood through its structural components: fluency (the ability to generate many ideas), flexibility (the ability to shift between categories of ideas), originality (the ability to produce unusual or novel ideas), and elaboration (the ability to develop and refine an idea in detail). Sociocultural theories of learning emphasize that higher mental functions, including creative thinking, develop through mediated, tool-supported activity and social interaction, within what is often described as a learner's zone of proximal development. Digital storytelling — the practice of combining narrative, images, sound, and sometimes simple interactivity to construct a story — and STEAM-based tasks, which integrate scientific inquiry with artistic and design thinking, are two categories of digital activity particularly well suited to this developmental logic, as both require learners to plan, construct, and iterate on an original product rather than reproduce a fixed answer.

Methodology

The framework was developed through theoretical analysis and synthesis of pedagogical and developmental principles relevant to creativity and digital learning, combined with structured classroom observation of how digital storytelling and STEAM-type tasks are typically implemented in primary settings. The components of creative thinking were used as an analytical lens to examine which features of digital activity design (task openness, multimodal expression, iterative revision, collaborative construction) correspond to which creativity components.

Framework and discussion

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The proposed framework consists of four interrelated components.

Narrative construction component. Digital storytelling tasks that ask learners to build an original narrative — choosing characters, sequencing events, and combining text, image, and voice — primarily support fluency and originality, as learners must generate and select among multiple possible story directions.

Design and engineering component. STEAM-based tasks involving simple digital design (building a virtual structure, programming a basic sequence, solving an open-ended design challenge) support flexibility and elaboration, as learners must adapt their approach when an initial solution fails and refine their design through iteration.

Multimodal expression component. The combination of visual, textual, and audio tools allows learners with different strengths to externalize ideas in the mode most natural to them, broadening participation in creative tasks beyond learners who are strong in traditional verbal or written expression.

Collaborative iteration component. Pair or small-group digital projects introduce peer feedback and negotiation into the creative process, requiring learners to justify, compare, and combine ideas, which strengthens flexibility and the social dimension of creative work.

For this framework to function as intended, several pedagogical conditions must be met: tasks must be genuinely open-ended rather than having a single correct output; teachers require preparation in facilitating open digital tasks rather than only operating the technology; screen-based creative activity should be balanced with analogue creative activity (drawing, building, oral storytelling); and formative feedback should focus on the process of idea generation and revision rather than only the final product.

Conclusion and recommendations

Digital storytelling and STEAM-based activities offer a coherent, theoretically grounded pathway for developing the distinct components of creative thinking in primary school learners, provided they are implemented as open-ended, iterative, and multimodal tasks rather than as digitized versions of closed exercises. It is recommended that primary curricula incorporate a structured sequence of digital storytelling and STEAM tasks aligned explicitly with fluency, flexibility, originality, and elaboration; that teacher training programs include specific modules on facilitating open-ended digital creative tasks; and that future empirical research test the framework's components through classroom-based experimental studies.

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