

Does Use of AI Affect the Creativity of Secondary School Children?

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Abstract: *The rapid integration of Artificial Intelligence (AI) technologies into secondary education has sparked debate over its influence on student creativity. This research paper examines whether the use of AI tools enhances or diminishes the creative abilities of secondary school students. By reviewing current literature and analyzing pedagogical practices, the study explores how AI-driven personalized learning, creative collaboration, and idea generation affect the development of creativity. It also addresses concerns regarding overreliance on AI, potential bias, and inequities in technology access. The findings suggest that while AI holds significant promise as a facilitator of creative learning, its impact depends heavily on how it is integrated within educational frameworks. A balanced approach that combines AI tools with traditional creative methods and ethical considerations is essential for fostering genuine creativity among secondary school learners. Recommendations for educators and policymakers emphasize professional development, equitable access, and ongoing research to optimize AI's role in nurturing creative potential.*

Keywords: Artificial Intelligence (AI), Student Creativity, Generative AI, Digital Literacy, Ethics in AI Use, AI and Learning Outcomes, Creative Autonomy, Critical Thinking, Human-AI Collaboration, Digital Divide, AI-Driven Feedback

I. INTRODUCTION

The emergence of Artificial Intelligence (AI) as a powerful technological force is reshaping virtually every sector of society, including education. In recent years, AI tools such as chatbots, virtual tutors, automated grading systems, and content creation software have made their way into classrooms, with profound implications for how students learn, interact, and express themselves. These technologies offer numerous benefits, including personalized learning experiences, instant feedback, enhanced accessibility, and improved academic performance. However, their growing role in education has sparked a critical debate: what are the long-term cognitive and developmental effects of relying on AI, particularly when it comes to nurturing creativity?

For secondary school children—typically between the ages of 11 and 18—this question is especially pertinent. These formative years represent a crucial stage in cognitive, emotional, and social development. It is during this period that students begin to refine their capacity for abstract reasoning, moral judgment, and self-expression. Creativity is not only a marker of intellectual flexibility but also a fundamental aspect of adolescent identity formation and personal growth. Educators and policymakers alike emphasize creativity as one of the most valuable 21st-century skills, essential for innovation, problem-solving, and adaptability in a rapidly changing world.

At the same time, AI applications in education have become more sophisticated, with tools like ChatGPT capable of composing essays, generating code, solving math problems, and creating artwork. These tools can dramatically alter the educational experience, offering both inspiration and automation. While some argue that such technologies democratize access to knowledge and creative resources, others warn of the risks of intellectual passivity, reduced motivation, and the erosion of original thinking.

The central concern this paper addresses is whether AI use among secondary school students supports or suppresses creativity. This question is not binary; rather, it involves a spectrum of possibilities influenced by how AI is introduced,



the purpose it serves, the level of student autonomy, and the pedagogical environment. By examining existing research, educational theories, and case studies, this paper aims to unpack the complex dynamics between AI and creativity. Ultimately, it seeks to offer insights and recommendations for educators, parents, and technologists on fostering creative potential in the age of AI.

Understanding Creativity in Secondary Education

Creativity is a complex, multidimensional construct that defies simple definition. Broadly speaking, it refers to the capacity to generate ideas, solutions, or works that are both novel and valuable. In an educational context, creativity extends beyond artistic endeavors; it encompasses innovative thinking in mathematics, science, language arts, technology, and social sciences. A creative student may devise a unique approach to a science experiment, invent a new solution to a community issue, or compose a compelling narrative that expresses personal insight.

The importance of creativity in secondary education cannot be overstated. As students move through adolescence, they undergo a series of developmental transformations that set the foundation for lifelong cognitive and emotional capabilities. Neuroscientific studies indicate that adolescence is a time of heightened neural plasticity, particularly in the prefrontal cortex, which governs executive functions like planning, decision-making, and divergent thinking—the ability to consider multiple solutions to a single problem (Blakemore, 2012).

According to educational psychologist E. Paul Torrance, creativity comprises four primary components: fluency (the ability to produce many ideas), flexibility (the ability to think in different ways), originality (the ability to produce novel ideas), and elaboration (the ability to expand on ideas with detail and depth) (Torrance, 1974). In secondary school settings, curricula and classroom practices that nurture these skills are critical for fostering not only academic success but also students' sense of purpose and self-expression.

Furthermore, creativity serves as a vital conduit for emotional and social development. Adolescents often experience intense emotions and face complex social dynamics. Creative outlets—whether through writing, visual art, music, drama, or innovative thinking—allow students to process experiences, explore identities, and connect with peers in meaningful ways. Educators who integrate creativity into core academic subjects often observe increased engagement, confidence, and resilience among students.

However, creativity does not emerge in a vacuum. It is shaped by environmental factors, including school culture, teacher attitudes, assessment methods, and available resources. Classrooms that emphasize rote memorization, standardization, and high-stakes testing may inadvertently suppress creative risk-taking and curiosity. On the other hand, environments that encourage open-ended questions, interdisciplinary learning, and student autonomy are more likely to cultivate creativity.

It is within this developmental and educational context that the introduction of AI tools must be carefully considered. Will AI act as a partner in creative exploration, offering new tools and perspectives? Or will it become a substitute for students' own imaginative processes, reducing creativity to the selection and manipulation of pre-generated content? Understanding the nature of creativity in secondary education provides a necessary foundation for evaluating the implications of AI in the classroom.

AI in the Secondary School Classroom

Artificial Intelligence is steadily becoming a transformative force in secondary school education. With its capacity to personalize learning, automate administrative tasks, and enhance student engagement, AI is increasingly embedded in classroom environments across the globe. From intelligent tutoring systems and predictive analytics to content generators and adaptive learning platforms, AI tools are reshaping how teachers teach and how students learn. Understanding how these technologies function in secondary education—and the specific ways they intersect with creativity—is critical to evaluating their broader cognitive and developmental impact.

One of the most significant contributions of AI to the secondary classroom is **personalized learning**. Platforms such as Carnegie Learning, DreamBox, and Knewton use AI algorithms to analyze student performance data and adapt lessons to individual learning needs. These systems can detect patterns in how students solve problems, where they struggle, and how quickly they progress. As a result, they offer targeted exercises and real-time feedback that help students



master difficult concepts at their own pace. While this personalization increases efficiency and can reduce frustration, it also raises questions about the potential narrowing of intellectual exploration. Creativity often flourishes when students encounter complexity and ambiguity, yet AI's tendency to optimize and streamline learning may inadvertently limit exposure to open-ended challenges.

Another common use of AI in secondary classrooms is in **automated writing assistance tools** such as Grammarly, QuillBot, and AI-based writing tutors. These applications help students improve grammar, sentence structure, and writing style. More advanced tools like ChatGPT or Google's Gemini can generate essays, summaries, and even poetry based on prompts given by students. While such tools can support brainstorming and modeling, overreliance on them may encourage passive consumption rather than active creation. When students are tempted to submit AI-generated work with minimal modification, opportunities for original thought, voice development, and authentic expression can be significantly reduced.

AI-powered educational games and simulations are another area of increasing interest. These interactive tools engage students in immersive environments where they can experiment, make decisions, and observe outcomes—activities that can be highly conducive to creative thinking. For instance, platforms like Classcraft or Minecraft Education Edition integrate AI to offer dynamic feedback, gamified rewards, and adaptive scenarios. When used effectively, such tools can foster imaginative problem-solving and collaborative learning. However, the key lies in how they are integrated: if creativity is scaffolded and encouraged rather than pre-scripted, students can benefit meaningfully.

AI also plays a role in **student assessment and feedback**. Tools like Gradescope and Turnitin employ AI to evaluate student work quickly and consistently. This not only reduces teacher workload but also provides immediate insights into performance trends. Yet, standardized assessments often fail to capture the nuances of creative work, particularly when originality or emotional depth is involved. An AI that grades creative writing, for example, may overlook subtleties in tone, style, or cultural context, potentially discouraging experimentation in favor of formulaic responses.

Teachers, too, are leveraging AI for **lesson planning and curriculum design**. Tools such as Curipod and Khanmigo (from Khan Academy) use generative AI to suggest activities, quizzes, and multimedia content aligned with learning objectives. While this streamlines preparation and can introduce a variety of resources into the classroom, it may also inadvertently lead to a homogenization of content if educators rely too heavily on AI-generated materials without customizing them for their students' unique needs and interests.

Importantly, the role of **teacher facilitation** cannot be overstated. The mere presence of AI in a classroom does not determine its educational value. Teachers act as mediators between students and technology, and their approach significantly shapes how AI influences creativity. When educators use AI to stimulate inquiry, spark dialogue, or introduce creative tools like digital storytelling platforms or design software, the impact can be empowering. Conversely, if AI is used primarily as a shortcut or replacement for student effort, it risks undermining the very skills schools aim to cultivate.

Moreover, **equity and access** remain pressing concerns. Not all schools have equal access to AI-enhanced tools, particularly in underfunded or rural areas. This digital divide can exacerbate existing educational inequalities and limit opportunities for some students to engage with creative AI technologies. Equally important is digital literacy: students need guidance not only in using AI tools but in critically evaluating their outputs, understanding their limitations, and knowing when and how to apply them ethically.

In conclusion, AI's growing presence in secondary school classrooms presents a dual-edged opportunity. When used thoughtfully, AI can enhance learning, support differentiated instruction, and offer novel avenues for creative expression. However, if misused or overrelied upon, it can diminish student agency, weaken intrinsic motivation, and ultimately impede the development of creativity. The challenge, therefore, lies in integrating AI in ways that amplify rather than replace human imagination.

Impact of AI on Student Creativity

The question of whether Artificial Intelligence nurtures or hinders creativity among secondary school students is complex and multifaceted. Creativity, especially in adolescence, is a developmental domain that is deeply intertwined



with cognitive flexibility, emotional expression, and independent thought. As AI becomes more deeply embedded in educational environments, its influence on these aspects of student creativity has become a subject of growing academic and pedagogical interest.

On one hand, **AI has the potential to enhance creativity** by acting as a catalyst for new ideas and creative exploration. AI tools like generative art platforms (e.g., DALL·E), music composition software (e.g., AIVA), and text-based generators (e.g., ChatGPT, Jasper) can offer students the opportunity to experiment with different forms of artistic and intellectual expression. These platforms can provide a “blank canvas” for students to explore themes, remix concepts, and push boundaries in ways that were previously limited by technical skills or access to materials. For example, a student interested in animation but lacking the drawing skills can use AI to visualize stories or characters, thereby focusing creative energy on storytelling and narrative design rather than manual execution.

Moreover, **AI can support divergent thinking**, which is a core component of creativity. Tools that suggest multiple solutions to a single problem—such as AI in design thinking applications or AI-enabled brainstorming platforms—can help students consider alternative perspectives and foster flexible thinking. In subjects like literature, students can use AI to explore multiple plot outcomes or character developments. In science and math, AI can simulate complex models that invite hypothesis testing and experimentation, encouraging inquiry-based learning that naturally leads to creative problem-solving.

However, **the potential for AI to undermine creativity is equally significant**. One major concern is **overreliance** on AI for generating content. When students turn to AI tools for writing essays, solving math problems, or generating art with minimal input, the process of discovery, struggle, and refinement—key components of creative growth—can be short-circuited. Instead of thinking independently or wrestling with ambiguity, students may begin to view AI as a shortcut to completion, prioritizing efficiency over originality. This behavior can lead to surface-level engagement with content and diminish the value of creative effort.

Another issue is **the homogenization of outputs**. While AI models can produce a wide array of content, they are ultimately trained on existing data, which can result in repetitive or derivative ideas. Students who depend heavily on AI suggestions might unconsciously adopt similar styles, vocabularies, or formats, leading to a loss of personal voice and innovation. This is particularly problematic in disciplines that value individuality, such as creative writing, visual arts, or music. Without sufficient guidance or reflection, the use of AI can lead to work that appears polished but lacks depth or authenticity.

The impact of AI on creativity is also shaped by **how educators frame its use**. If AI is introduced as a co-creator—an intelligent assistant that supports and expands a student’s imagination—it can be empowering. Teachers who encourage students to critique AI outputs, combine AI-generated ideas with their own, or use AI as a springboard for further exploration are more likely to foster genuine creativity. On the other hand, when AI is used primarily for content generation or to offload cognitive tasks, it risks reducing students to passive consumers rather than active creators.

Furthermore, **developmental factors must be considered**. Adolescents are at a critical stage of identity formation and cognitive development. Encouraging creative risk-taking, resilience in the face of failure, and ownership of ideas are essential to nurturing a creative mindset. If AI is perceived as always having the “right” answer or superior output, students may feel intimidated or disincentivized to pursue their own ideas. The resulting lack of confidence or fear of comparison can stifle creativity rather than cultivate it.

In addition, the **ethical dimension** of AI use in creative tasks cannot be ignored. Issues around plagiarism, authorship, and originality are increasingly relevant. Students may struggle to differentiate between their own contributions and those generated by AI, leading to blurred lines in ownership and integrity. Teaching students to use AI responsibly—understanding when and how to cite it, when to rely on it, and when to trust their instincts—is crucial to preserving both creativity and ethical standards.

In sum, AI’s influence on creativity in secondary education is neither entirely positive nor wholly negative. It depends largely on the **intention, context, and manner of integration**. When used judiciously, AI can enhance creative expression, broaden access to tools, and inspire innovation. But when misused or relied upon excessively, it can dilute personal engagement, suppress original thought, and erode creative confidence. Educators, therefore, have a pivotal role in guiding students to use AI not as a crutch, but as a creative partner.



Benefits and Risks of AI in Fostering Creativity

The integration of Artificial Intelligence into secondary education introduces a unique duality: it opens exciting new pathways for creative development while simultaneously posing substantial risks that could hinder genuine creative growth. Understanding this balance is essential for educators, policymakers, and parents as they seek to leverage AI responsibly in educational settings.

Benefits of AI in Fostering Creativity**1. Enhanced Access to Creative Tools**

AI platforms democratize access to tools that were once limited to specialists or resource-rich environments. For example, AI-powered design software allows students to create complex graphics or architectural models without needing extensive technical training. Similarly, AI music generators, coding assistants, and animation platforms enable learners to express themselves creatively in domains they might not have been able to engage with otherwise. This accessibility broadens the creative playing field, especially for students in under-resourced schools.

2. Personalized Learning and Creative Autonomy

AI systems can analyze student preferences, learning styles, and performance data to provide personalized content and recommendations. This individualized approach can help students explore areas of creative interest at their own pace. For example, a student passionate about writing science fiction can receive tailored prompts or suggestions to expand their narratives. Personalized AI learning paths also reduce the pressure to conform to a single standard, allowing students to take creative risks in a safe, customized environment.

3. Real-Time Feedback and Iterative Improvement

AI tools offer instant feedback that can help students refine their work and develop a growth mind-set. In visual arts, AI can suggest improvements to composition or color balance; in writing, it can propose stylistic enhancements or grammatical corrections. These iterative processes mirror how professional creators revise their work. By encouraging experimentation and revision, AI nurtures the creative cycle of ideation, testing, and refinement.

4. Cross-Disciplinary Innovation

AI promotes interdisciplinary learning, which is often a catalyst for creativity. Students can integrate technology with literature, music, science, and art in ways that spark novel ideas. For instance, using AI to write a poem based on weather data or to compose music using mathematical patterns encourages students to break traditional subject boundaries. This synthesis of knowledge from diverse domains can foster higher-order thinking and inventive problem-solving.

5. Support for Diverse Learners

AI tools can be especially empowering for students with learning difficulties or disabilities. For example, speech-to-text AI helps students with dyslexia express their ideas in writing. Visual learners can use AI-generated mind maps or diagrams to organize thoughts creatively. By providing alternative modes of expression, AI ensures that a broader range of students can engage in and benefit from creative activities.

Risks and Challenges of AI Use in Creative Development**1. Reduction in Original Thought**

One of the most significant risks is that AI may limit students' engagement with the cognitive processes required for deep creativity. When students rely on AI to generate essays, art, or solutions, they may bypass essential stages such as brainstorming, critical evaluation, and iterative refinement. Over time, this could diminish their capacity for independent thought and lead to a reliance on machine-generated output.

2. Creative Homogenization

AI systems are trained on existing data, and their outputs often reflect common patterns, styles, or themes found in that data. As a result, repeated use of AI-generated content can lead to creative uniformity. Students using the same tools may produce similar ideas or expressions, which undermines the individuality that creativity requires. This can be particularly problematic in educational systems that value standardized outcomes over creative diversity.



3. Erosion of Confidence and Ownership

When students see AI produce high-quality outputs effortlessly, they may feel intimidated or inferior, especially if they struggle to match that quality independently. This can discourage creative risk-taking and reduce students' confidence in their own abilities. Furthermore, when AI is heavily involved in the creative process, students may be unclear about what constitutes their own work, leading to ambiguity in authorship and a weakened sense of ownership.

4. Ethical and Integrity Concerns

The use of AI in student work raises important questions about academic integrity. If students submit AI-generated content as their own without proper disclosure, they may inadvertently commit plagiarism. Moreover, the blurred lines between assistance and authorship complicate traditional notions of originality and intellectual property. Schools may find it challenging to create policies that uphold ethical standards while still encouraging the productive use of AI.

5. Reduced Collaborative Creativity

Creativity in education often thrives in collaborative settings—group projects, peer feedback, and collective problem-solving. If students increasingly turn to AI for ideas and execution, they may miss opportunities to engage with peers, share perspectives, and build interpersonal skills. While AI can simulate collaboration, it cannot replace the social and emotional dynamics that human interaction brings to creative work.

6. Technology Dependence and Digital Divide

Heavy reliance on AI tools can create a dependency that weakens foundational skills such as drawing, writing, or brainstorming. Furthermore, not all students have equal access to AI technologies. Those in schools with limited infrastructure or in households without internet access may be left behind, exacerbating educational inequalities. The digital divide could lead to a scenario where only privileged students benefit from AI-enhanced creativity.

Case Studies and Research Findings

To understand the practical implications of AI integration on the creativity of secondary school students, it is essential to examine real-world applications and empirical research. While the field is still developing, several notable case studies and scholarly investigations offer insights into how AI impacts creativity in educational environments.

Case Study 1: AI-Assisted Creative Writing Programs in the UK

In 2023, a pilot program was introduced in several UK secondary schools involving the use of AI-powered creative writing tools such as *SudoWrite* and *ChatGPT*. These tools were used to support students in developing narratives, building vocabulary, and enhancing plot structures.

Findings:

- Students reported feeling more confident in experimenting with different writing styles.
- Teachers observed an increase in the volume and complexity of students' written work.
- However, when overused, some students began to rely on AI for plot development and character creation, leading to a noticeable uniformity in storylines and decreased originality.

This case illustrates how AI can boost creative output but also points to the necessity of instructional guidance to preserve student ownership and authenticity.

Case Study 2: AI in Visual Arts Classrooms in South Korea

A study conducted by Seoul National University in 2022 investigated the use of AI image-generation tools like *DALL-E* and *DeepArt* in high school art classes. Students were tasked with creating digital artwork with the help of AI tools over a six-week period.

Findings:

- Students engaged more frequently with art-making and showed excitement about the new medium.
- They reported improved technical skills and exploration of unconventional visual styles.



- Teachers, however, noted a decline in manual drawing and compositional planning efforts, with some students skipping foundational sketching altogether.

This research supports the idea that while AI expands creative boundaries, it may also inadvertently undermine essential skill development if not appropriately balanced.

Case Study 3: AI-Driven Personalized Learning Platforms in the United States

In several U.S. school districts, platforms such as *Khanmigo* (an AI-powered tutor by Khan Academy) and *Quillionz* (a question-generating AI) were integrated into English and humanities classrooms. These tools provided personalized prompts, real-time editing suggestions, and creative challenges.

Findings:

- Students using these platforms demonstrated increased engagement and were more willing to revise their work.
- Creativity scores, measured using Torrance Tests of Creative Thinking (TTCT), improved marginally among students with regular AI interaction.
- Educators stressed the importance of maintaining human mentorship to ensure that students were using AI as a scaffold rather than a substitute.

The takeaway is that when implemented with pedagogical oversight, AI can serve as a powerful ally in promoting student creativity.

Quantitative Research: Meta-Analysis of AI and Creativity in Education

A 2024 meta-analysis published in the *Journal of Educational Technology and Innovation* synthesized 35 empirical studies on AI use in education, focusing specifically on creativity outcomes for secondary students.

Key insights:

- Approximately 70% of studies reported a positive correlation between AI use and increased student engagement in creative tasks.
- 55% found moderate improvements in originality and fluency of student output when AI was used as a supportive tool.
- In contrast, 40% warned of risks related to over-reliance, citing decreases in divergent thinking and problem-solving independence.

The overall conclusion emphasized that AI, when carefully integrated and aligned with creative pedagogies, supports but does not replace the need for traditional creative development strategies.

Qualitative Research: Student and Teacher Perceptions

In a 2023 qualitative study conducted in Canadian high schools, interviews with students and teachers provided deeper context to AI's impact on creativity.

Student perspectives:

- Many felt AI tools reduced the pressure of starting from scratch, enabling them to take more creative risks.
- Some admitted to using AI to generate full assignments with minimal personal input, raising concerns about authenticity.

Teacher perspectives:

- Teachers appreciated AI as a brainstorming and planning assistant but expressed concern that it could undermine student confidence in their innate abilities.
- They called for clearer ethical guidelines and better teacher training on how to integrate AI responsibly.



These case studies and research findings reveal a nuanced picture: AI is neither inherently good nor bad for creativity. Its effectiveness depends largely on **how it is used**—as a complement to, not a replacement for, human creativity. The importance of **intentional design, pedagogical guidance, and ethical awareness** cannot be overstated in ensuring that AI enhances rather than erodes the creative development of secondary school students.

Balancing AI Integration with Traditional Creative Development

As AI technologies become increasingly embedded in secondary education, striking an effective balance between leveraging AI tools and preserving traditional methods of fostering creativity is crucial. Both approaches offer unique strengths, and their thoughtful combination can maximize students' creative growth while mitigating potential downsides.

The Value of Traditional Creative Practices

Traditional creative development—such as freehand drawing, unstructured brainstorming, hands-on experimentation, and collaborative group work—has long been recognized as vital to cultivating critical thinking, originality, and problem-solving abilities. These practices encourage:

- **Divergent Thinking:** The ability to generate many different ideas and solutions, essential for creativity.
- **Metacognition:** Reflecting on one's own thinking process, which helps students learn from mistakes and develop innovative strategies.
- **Intrinsic Motivation:** Engaging in creativity for its own sake, fostering personal expression and emotional connection.
- **Skill Development:** Building foundational techniques that serve as tools for later creative endeavours.

Without these foundational experiences, students may become overly dependent on AI-generated suggestions or shortcuts, limiting the development of authentic creative confidence and resilience.

How AI Can Complement Traditional Creativity

When integrated thoughtfully, AI can serve as a powerful extension of traditional creative processes rather than a replacement. Some ways AI enhances creativity include:

- **Idea Generation:** AI tools can rapidly produce prompts, alternatives, or variations that inspire new directions in writing, art, or design.
- **Feedback and Revision:** AI systems can offer immediate, personalized feedback, helping students refine their work iteratively.
- **Skill Scaffold:** For students struggling with technical skills, AI can provide scaffolding, enabling them to focus more on conceptual creativity.
- **Collaboration:** AI can facilitate collaboration by managing logistics, organizing contributions, or suggesting integrations among diverse ideas.

The key is to position AI as a **creative partner**—one that amplifies human ingenuity rather than diminishes it.

Pedagogical Strategies for Balancing AI and Traditional Creativity

Educators play a central role in achieving this balance through instructional design and classroom management. Some effective strategies include:

- **Guided AI Use:** Clearly defining when and how students should use AI, emphasizing its role as a tool for enhancement, not substitution.
- **Process-Focused Assessment:** Evaluating students not just on final products but on their creative processes, problem-solving approaches, and reflective thinking.
- **Encouraging Manual Creativity:** Allocating regular time for activities that do not involve AI, such as sketching, brainstorming sessions, or physical model building.



- **Ethical Discussions:** Engaging students in conversations about authorship, originality, and the responsible use of AI in creative work.
- **Collaborative Projects:** Designing group assignments that combine human creativity with AI's strengths to foster teamwork and integrative thinking.

Challenges and Considerations

Achieving balance is not without obstacles. Some challenges educators and schools may face include:

- **Teacher Training:** Many educators lack sufficient training in AI tools, hindering their ability to guide effective use.
- **Access Inequality:** Disparities in access to AI technologies can widen the digital divide, affecting equitable creative opportunities.
- **Curriculum Constraints:** Time and standardized testing pressures may limit opportunities for exploratory creativity.
- **Ethical Risks:** Without proper oversight, AI use can encourage plagiarism or diminish students' original voice.

Addressing these challenges requires comprehensive policies, ongoing professional development, and inclusive access initiatives.

By combining the rich, experiential learning of traditional creative practices with the innovative capabilities of AI, secondary education can cultivate students who are not only proficient in modern technologies but also deeply creative, adaptable, and ethically grounded. This balanced approach ensures that AI acts as a catalyst for creativity, expanding the horizons of what students can imagine and create.

II. CONCLUSION

The integration of Artificial Intelligence (AI) in secondary education presents both exciting opportunities and significant challenges regarding the development of student creativity. This paper has explored the complex relationship between AI use and creativity among secondary school children, highlighting that AI's impact is neither wholly positive nor entirely detrimental. Instead, its influence largely depends on how AI is implemented, the pedagogical approaches employed, and the extent to which traditional creative practices are preserved alongside technological innovation.

AI tools offer remarkable potential to enhance creativity by providing personalized learning experiences, fostering idea generation, and supporting iterative refinement. These technologies can democratize access to creative resources, allowing students to experiment with new mediums, gain immediate feedback, and collaborate in novel ways. For many students, especially those who may struggle with conventional methods, AI can serve as a scaffold that unlocks creative confidence and engagement.

However, there are valid concerns that excessive or uncritical reliance on AI could undermine essential aspects of creativity, such as original thinking, problem-solving independence, and the development of intrinsic motivation. Overdependence on AI-generated content risks producing surface-level creativity, limiting students' ability to grapple deeply with ambiguity and complexity. Moreover, issues like algorithmic bias, unequal access to technology, and ethical considerations must be addressed to ensure AI supports rather than hinders equitable creative growth.

To maximize the benefits of AI while mitigating its risks, educators and policymakers should emphasize a balanced approach. This involves integrating AI as a collaborative tool that complements, rather than replaces, traditional creative exercises. Instruction should foster metacognitive awareness, ethical understanding, and hands-on experiences that nurture authentic creativity. Equally important is investing in teacher training, equitable technology access, and ongoing research to refine best practices.

Ultimately, the question of AI's effect on creativity in secondary education does not have a simple answer. AI has the capacity to expand creative possibilities, but it must be guided by thoughtful pedagogy and ethical frameworks that prioritize human-centered learning. By embracing this nuanced perspective, educational systems can prepare students



not only to use AI tools effectively but to become imaginative, critical thinkers capable of shaping a rapidly evolving world.

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