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Enhancing Student Engagement through Generative AI Tools

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Webinar Objectives



Enhance Engagement

Explore how generative AI tools fosters student engagement



Foster Creativity

Discover AI's role in creative learning



Personalized Education

Explore generative AI tools for personalized personalized education.



Benefits and Limitations

Discuss benefits, challenges, and ethical considerations..

Finding 1:

Effects of Generative AI on Student Engagement



University Writing & Language: Boosts engagement, motivation, and writing self-efficacy.



Programming Courses: Enhances coding motivation.



High School Settings: Increases creativity and academic engagement.

Impact of Generative AI on Student Engagement



Challenges & Trade-Offs



More posts but less peer feedback



Lower self-regulated learning,
exam participation &
homework completion



AI improves motivation in some
areas but may affect traditional
academic performance

Study	Engagement Type	Observed Changes	Context Factors	Key Findings
Study 1	Behavioral, cognitive, affective	Significant improvements in all dimensions	EFL writing class	ChatGPT group showed higher engagement levels
Study 2	Academic engagement	High positive correlation with AI use	High school setting	Moderate increase in creativity and engagement
Study 3	Needs satisfaction	Potential improvement in engagement	Interdisciplinary learning	Generative AI tools can satisfy student needs
Study 4	Self-regulation, agency	Reliance on AI rather than learning	Online learning platform	Potential negative impact on self-regulated learning
Study 5	Self-regulated learning processes	Fewer metacognitive processes in AI group	University writing task	AI group showed less engagement in metacognitive activities
Study 6	Motivation, writing self-efficacy	Positive effects on both metrics	EFL university classes	Significant improvements in AI-assisted group
Study 7	Content creation, engagement	More posts but less engagement received	Online learning platform	AI-assisted students posted more but received fewer comments
Study 8	Exam participation, homework completion	Decreased rates in AI group	Online coding class	Negative impact on traditional engagement metrics
Study 9	Writing motivation, engagement	Positive effects reported	EFL university writing	Qualitative findings indicate increased engagement
Study 10	Motivation towards programming	Significantly higher in AI group	University programming course	

Student Engagement and Satisfaction



Increased
Motivation



Enhanced
Engagement



Satisfaction with
Personalization



Autonomous
Learning



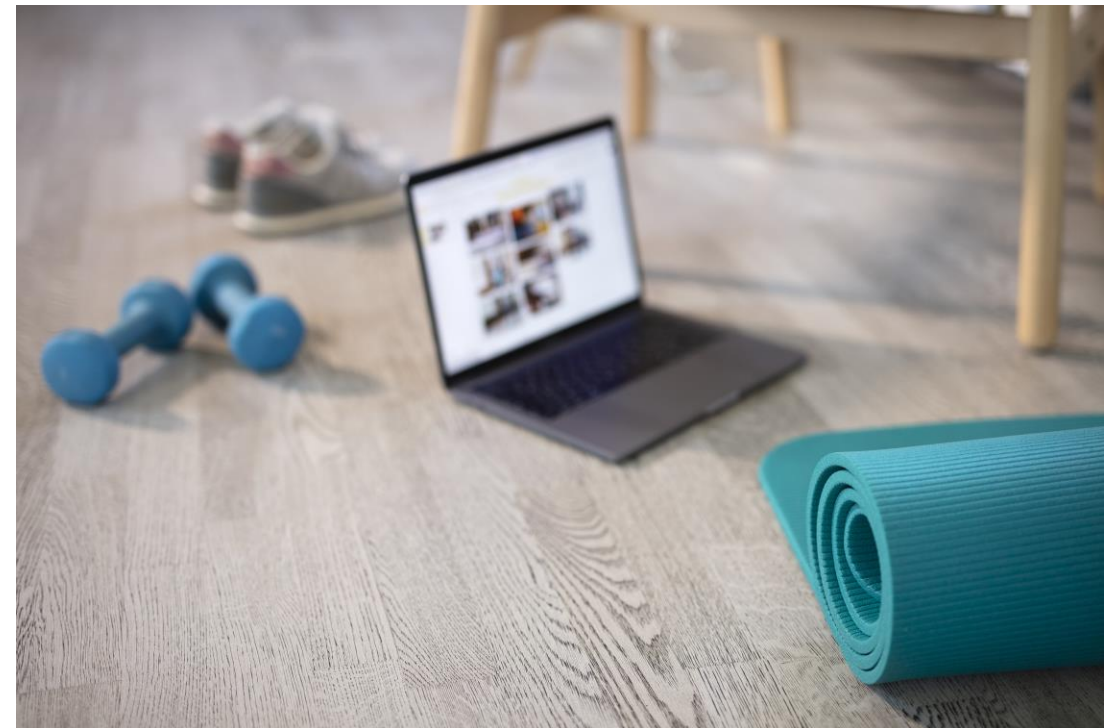
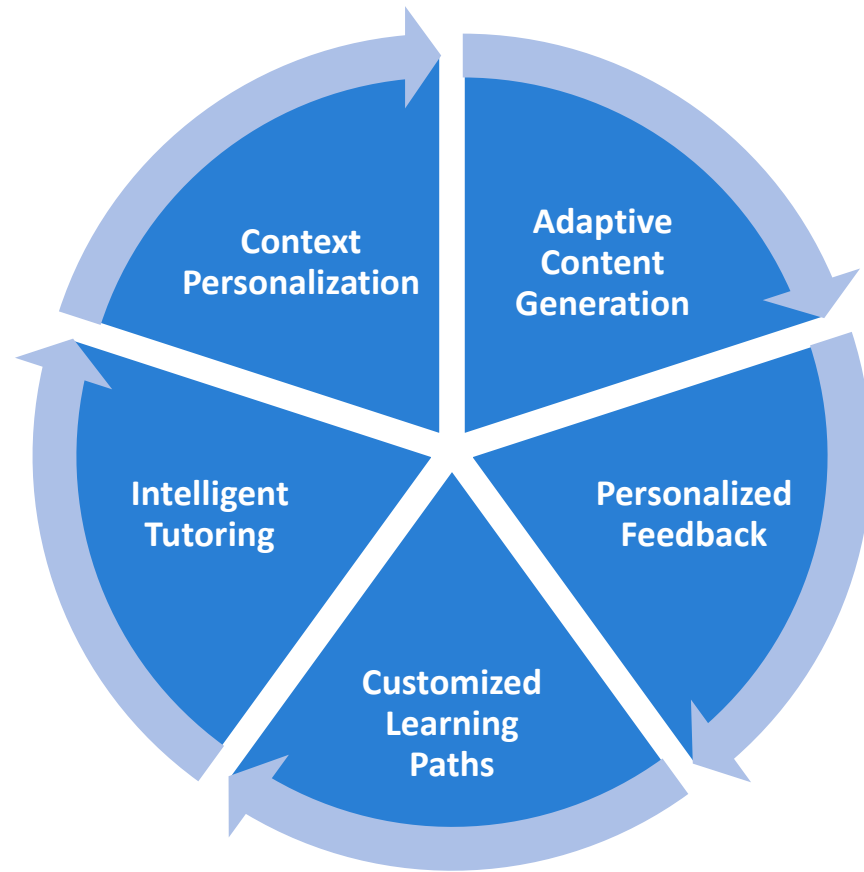
Varied
Responses

Finding 2:

Generative AI tools for personalized education.

Study	Tool Type	Personalization Features	Implementation Method	Success Indicators
Study 1	ChatGPT	Personalized feedback, virtual co-teacher	Integrated with 5Es model (Engage, Explore, Explain, Elaborate, Evaluate)	Improved engagement, better quiz results
Study 2	OpenAI API	Content generation aligned with learning objectives	Integrated with Learning Management System (LMS)	Increased test scores and grades
Study 3	Coursera Coach, AI-assisted course building tool	Adaptive learning, intelligent tutoring	Integrated into course design	Enhanced comprehension, retention, problem-solving
Study 4	GPT-turbo-3.5	Personalized text examples	Vocabulary learning app	Increased motivation, no immediate performance gain
Study 5	No mention found	Customized learning paths	No mention found	Improved efficiency, engagement, satisfaction
Study 6	OpenAI's GPT-4, ChatGPT	Multiple content variants, auto-generated quizzes	Integrated with Learning Management System (LMS)	Increased engagement and study time
Study 7	ChatGPT	Personalized feedback, doubt resolution	No mention found	Enhanced academic work, autonomous learning
Study 8	No mention found	No mention found	Applied to writing and programming tasks	Improved efficiency, competency, creativity
Study 9	No mention found	Personalized learning advice	Learning support system	Positive contribution to learning
Study 10	OpenAI's ChatGPT	Peer feedback tool, study tool	No mention found	Study ongoing, results not reported

Personalization Mechanisms



AI Chatbots in Education

Definition

- AI chatbots simulate human conversation for learning
- Offer 24/7 assistance, instant feedback, and personalized experiences

Examples

- ChatGPT & Claude: Answering students' academic questions.
- Socratic (by Google): Helping students solve problems step-by-step.
- EdTech Chatbots (e.g., TutorBot): Providing guided learning experiences.

Finding 3:

Discover AI's role in students' creative learning

Study	Study Design	Creative Field	AI Tools Used	Sample Size	Full text retrieved
Cotroneo and Hutson, 2023	Mixed methods study	Art and Design, Game Design	OpenAI's DALL-E2 (Image-based)	15	Yes
Diraco et al., 2024	Experimental study	Early Childhood Education (ECE), Computer Science (CS)	No mention found	66 (32 ECE, 34 CS)	No
French et al., 2023	Case study	Games Programming	ChatGPT (Text-based), Dall-E (Image-based)	20	Yes
Habib et al., 2023	Mixed methods study	Creativity (specific discipline not mentioned)	ChatGPT-3 (Text-based)	No mention found	No
Kicklighter et al., 2024	Action research	3D Animation	Image-based generative AI tools	No mention found	No
Lively et al., 2023	Mixed methods study	Web design and User Interface/User Experience (UI/UX)	Stable Diffusion, Lensa.ai (Image-based), ChatGPT3 (Text-based)	33	Yes
Stübinger, 2024	Case study	Machine Learning and Artificial Intelligence	No mention found	No mention found	No
Sáez-Velasco et al., 2024	Qualitative study	Arts, specifically illustration and image analysis	DreamStudio Artificial Intelligence (Image-based)	10 (5 students, 5 educators)	Yes
Wang et al., 2024	Case study	Architecture	Image-based generative AI	No mention found	No
Wang, "Scaffolding Creativity"	Case study	Business education	No mention found	No mention found	No



Enhancing Student Creativity with Generative AI

Creative Writing

Generate creative writing ideas (e.g., ChatGPT story prompts).

Digital Artwork & Music

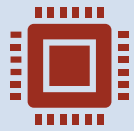
Create AI-assisted digital artwork & artwork & music.

Interactive Multimedia

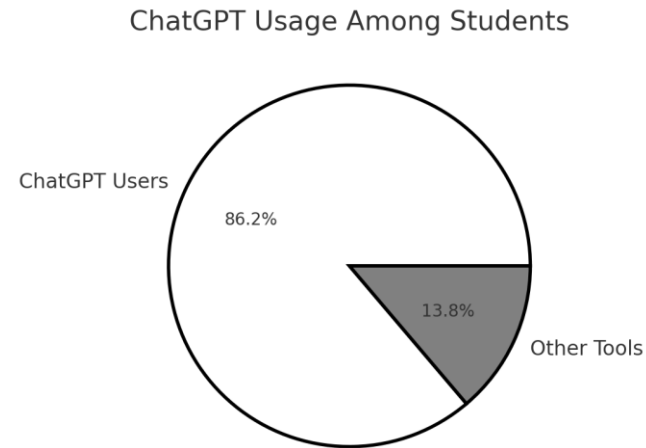
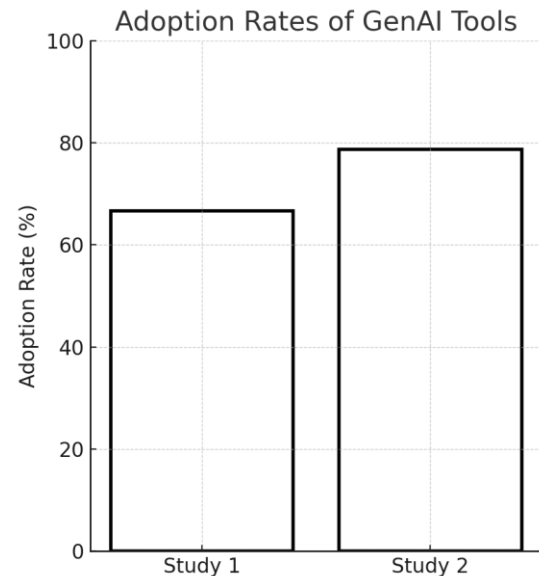
Develop interactive multimedia content.

Finding 4:

Generative AI in Higher Education - Adoption and Concerns



High Adoption Rates: 66.7–78.7% of students use GenAI tools; one study reports 86.2% use of ChatGPT.



Generative AI in Higher Education - Adoption and Concerns



Roles of GenAI: Functions as a digital assistant, tutor, and peer for writing, research, language support, and coding.



Benefits: Saves time, generates ideas, provides personalized explanations, and complements traditional instruction.



Concerns:

Accuracy & originality of AI-generated content.

Risk of over-reliance, affecting critical thinking.

Academic integrity issues.

Student Recommendations: Verify AI outputs and maintain a balance between AI support and independent learning.

Integration Challenges

Variability in Student Benefits

Balancing Engagement and Learning Outcomes

Ethical Concerns

Need for Pedagogical Support

Long-term Effects

Technical Integration

Quality and Reliability of AI-generated Content

ATTENDANCE AND FEEDBACK

In conclusion, while the studies reviewed provide valuable insights into the effects of generative AI tools on student engagement, the diversity in educational settings, student populations, and implementation approaches necessitates careful consideration when applying these findings to specific educational contexts.

- Workshop 2 (Afternoon session)
Attendance:
- <https://forms.gle/kncYHpqkwaiVFD5U7>
- Feedback Survey Workshop 2:
- <https://forms.gle/veUjVTusJ7gCW Bd89>



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