

# AI <in> Education Integration and Interfaces

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+  
◦ AI <in > Education

# Integration









# On the road to... Personalized Learning

- **Adaptive Learning Platforms:**  
(examples)
  - [DreamBox](#)
  - [Smart Sparrow](#)
  - [Khan Academy](#)
- **Benefits:**
  - Tailored instruction
  - Increased engagement
  - Reduced frustration
  - Meets individual needs

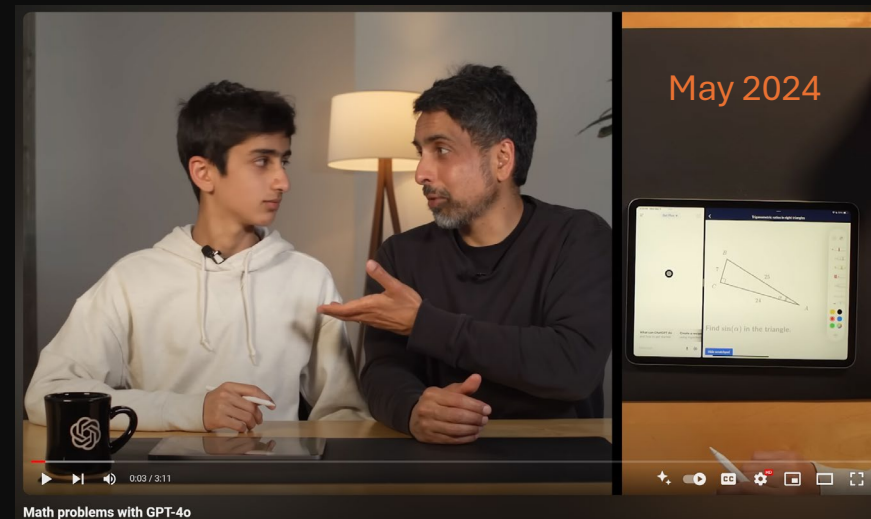


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# Tutoring Systems:

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- **AI-Powered Tutors:** (examples)
  - [Chat-GPT 4 \(example\)](#) Carnegie Learning's [MATHia](#) provide 24/7 assistance, helping students with problems in real-time
- **Advantage:**
  - Immediate feedback and assistance
  - helps students outside classroom hours



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# Accessibility and Inclusivity:

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## AI Assistive:

- Speech-to-text
- Language translation for non-native speakers
- Relatability
- Adjustable Difficulty

- +
  - AI <in> Education

# Interfaces





# (Semi-)Intelligent Virtual Assistants:

2014-2024

## **(Slightly) Personalized Interaction:**

- Siri, Google Assistant, Alexa
- Quick answers, reminders, and organizational tasks
- Resources, navigation





# AI Interfaces

- Text Based
- Search
  - [Perplexity.ai](#)
  - [MS Co-Pilot \(RIT\)](#)
  - [Open AI SearchGPT](#)
  - [Echoes \(plugin\)](#)

Colin Scotland

Prompt Engineering (2023)

- Tip 1: Be clear and specific (1:48)
- Tip 2: Provide context (2:18)
- Tip 3: Consider how you phrase your questions (3:03)
- Tip 4: Anchor your prompts with examples (3:48)
- Tip 5: Constrain ChatGPT (4:23)
- Tip 6: Break things down step by step (5:01)
- Tip 7: Encourage multiple alternatives (6:12)
- Tip 8: Use iterative prompting (6:45)
- Tip 9: Review and edit (7:30)
- Tip 10: Test and iterate (8:10)
- Tip 11: Be playful and experiment (9:05)

# Khanmigo Tools

Free AI powered tools designed to save you time and improve instruction!

Tools

My Documents

★ My Favorites

☰ All Tools

● Plan

● Create

● Differentiate

● Support

● Learn

🔍 Search



## Chunk Text

Break complex texts into manageable sections for easier student comprehension.



## Class Newsletter

Produce engaging newsletters to keep parents informed about class activities.



## Class Snapshot

Review your students' performance and trends.



## Clear Directions

Generate concise, easy-to-follow instructions for assignments and activities.



## Discussion Prompts

Craft engaging prompts to stimulate meaningful classroom discussions.



## Exit Ticket

Create quick end-of-lesson assessments to check student understanding.



## Fun Class Summary Poem

Transform memorable class moments into a creative poetic recap.



## IEP Assistant

Streamline the creation of Individualized Education Plans.



## Informational Text

Create informational text for a variety of topics.



## Learning Objective(s)

Develop clear, measurable learning objectives to guide instruction.



## Lesson Hook

Plan compelling lesson starters to engage students.



## Lesson Plan

Create structured, detailed lesson plans tailored to your curriculum and students' needs.



# Many Emerging Interfaces

- Claude [Artifacts](#)
  - Combining Interfaces: [Cursor](#)
- Open AI [Canvas](#)
  - Opens in a separate window, allowing you and ChatGPT to collaborate on a project.
  - A new way of working together—not just through conversation, but by creating and refining ideas side by side.
- [Google](#)
  - [Gems](#)
  - [Notebook LM](#)

The screenshot displays the 'AI For Education' interface. At the top, there are 'Settings' and 'Share' buttons. Below the header, there are two 'Saved Response' cards. The left card is titled 'Potential Benefits' and contains text about the benefits and limitations of AI in education, along with a bulleted list: 'Personalized Learning: AI algorithms can adjust content based on individual student learning pace and style. [1]' with a sub-point 'This tailored instruction can increase student engagement, reduce...'. The right card is titled 'Uses of AI for Students' and contains text about key ways AI is used to improve educational experiences, along with a bulleted list: 'Personalized Learning: AI algorithms can power adaptive learning platforms that adjust content based on each student's learning pace and style. This type of tailored instruction can increase student engagement, reduce frustration, and better...'. Both cards have a '5 citations' button at the bottom.

Below the cards, there is a section titled '\* Notebook guide' with a 'Help me create' button. Underneath, there are buttons for 'FAQ', 'Study Guide', 'Table of Contents', 'Timeline', and 'Briefing Doc'. Below these buttons is a 'Summary' section with text about the role of AI in education, mentioning Professor Shaun Foster and various AI tools like adaptive learning platforms, automated grading systems, and AI-powered virtual assistants. The text also addresses potential benefits and challenges of integrating AI in education, such as ensuring data privacy, maintaining a balance between teacher-student interaction and AI-driven support, and preventing AI from replacing human creativity and empathy. The text also includes a reference to a workshop focused on the practical application of AI in education using a tool called Khanmigo.

On the right side of the interface, there is a section titled 'Audio Overview' with a 'Load' button. This section is highlighted with a red box. Below it, there is a 'Suggested questions' section with three questions: 'How is AI transforming the way teachers and students interact in the classroom?', 'What are the ethical considerations and potential risks associated with AI implementation in education?', and 'How can AI be used to personalize learning experiences and address the diverse needs of students?'.



# Multimodal AI

- **3D, Image & Video:**
  - Design
  - Recognition
  - Critique
  - Language
  - Generation
- **Simulation**
  - 3D Environments
  - Crowd Simulation

(November Focus!)

GPT4 image recognition saving me a lot of time!

Discussion

The screenshot shows a GPT-4 interface. At the top, there is a 'Discussion' tab. Below it, a balance sheet image is displayed. The balance sheet is titled 'BALANCE SHEET' and is presented in a table format. The table is divided into three main sections: ASSETS, LIABILITIES, and SHAREHOLDER EQUITY. Each section has a sub-total and a total. The ASSETS section includes Cash On Hand, Accounts Receivable, Footwear Inventories, Total Current Assets, Net Investment in Facilities and Equipment, Construction Work In Progress, Production Improvement Options On Order, Total Fixed Assets, and Total Assets. The LIABILITIES section includes Accounts Payable, 1-Year Bank Loan Payable, Current Portion of Long-Term Bank Loans, Overdraft Loan Payable, Total Current Liabilities, Long Term Bank Loans Outstanding, and Total Liabilities. The SHAREHOLDER EQUITY section includes Common Stock, Additional Capital, Retained Earnings, Total Shareholder Equity, and Return On Average Shareholder Equity. Below the image, there is a text prompt: 'help me write a report base on this image. Please make it standard style in finance sector.' The interface also shows a 'Financial Analysis Report' section with input fields for 'Company: [Company Name]' and 'Date: [Insert Date]', and a 'Stop generating' button. At the bottom, there is a 'Send a message' button.

BALANCE SHEET			
<b>ASSETS</b>			<b>\$000s</b>
Cash On Hand			0
Accounts Receivable	(see Note 1)		85,439
Footwear Inventories			43,115
<b>Total Current Assets</b>			<b>128,554</b>
Net Investment in Facilities and Equipment			261,700
Construction Work In Progress	(for new space)		48,000
Production Improvement Options On Order			0
<b>Total Fixed Assets</b>	(see Note 2)		<b>309,700</b>
<b>Total Assets</b>			<b>438,254</b>
<b>LIABILITIES</b>			<b>\$000s</b>
Accounts Payable	(see Note 3)		22,481
1-Year Bank Loan Payable	(see Note 4)		0
Current Portion of Long-Term Bank Loans	(see Note 5)		15,900
Overdraft Loan Payable	(see Note 6)		61,480
<b>Total Current Liabilities</b>			<b>99,871</b>
Long Term Bank Loans Outstanding	(see Note 7)		81,300
<b>Total Liabilities</b>			<b>181,171</b>
<b>SHAREHOLDER EQUITY</b>			<b>\$000s</b>
	Beginning Balance	Change in Y11	
Common Stock	(see Note 8)	20,000	0
Additional Capital	(see Note 9)	110,000	0
Retained Earnings	(see Note 10)	79,988	47,095
<b>Total Shareholder Equity</b>		<b>209,988</b>	<b>47,095</b>
<b>Return On Average Shareholder Equity</b>	(see Note 11)		<b>20.2%</b>

help me write a report base on this image. Please make it standard style in finance sector.

Financial Analysis Report

Company: [Company Name]

Date: [Insert Date]

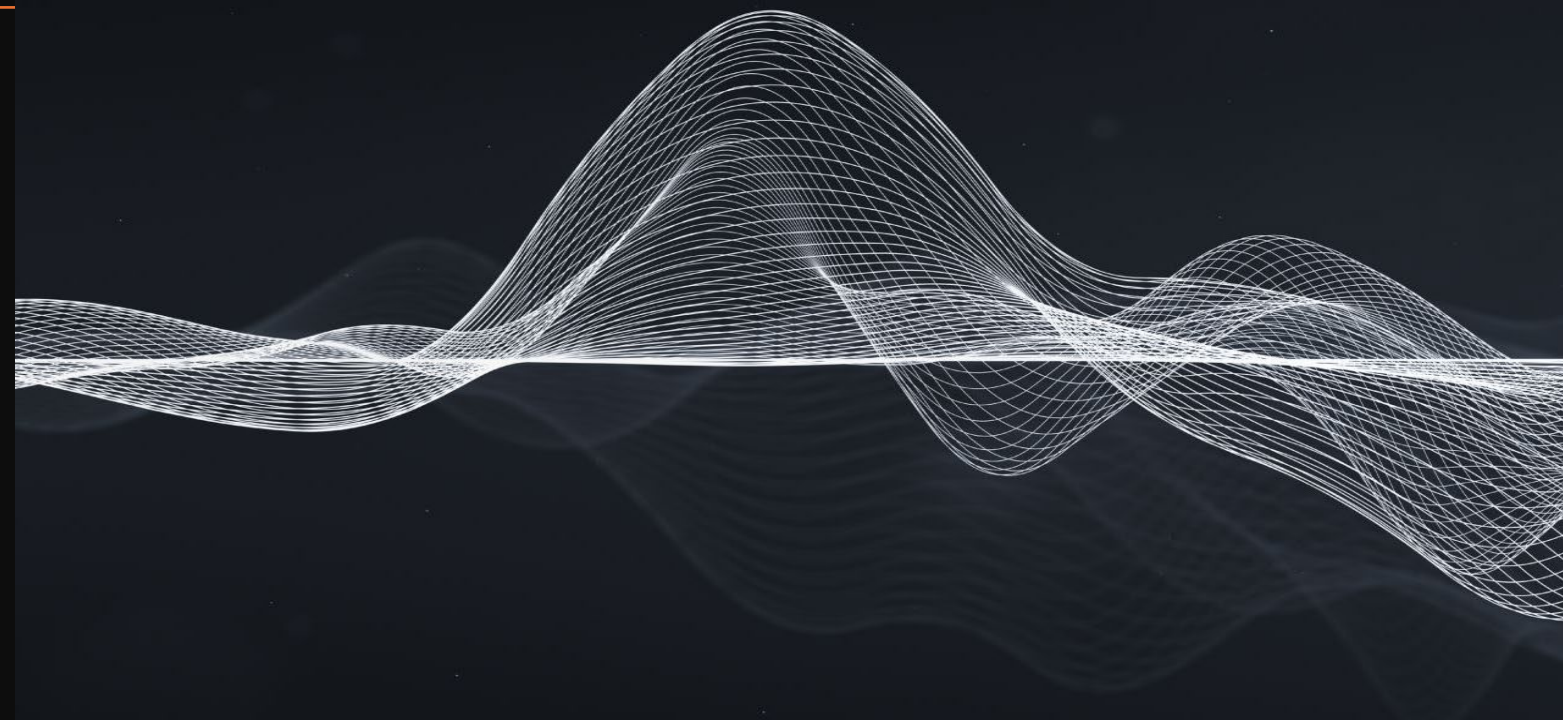
Stop generating

Send a message

# Multimodal AI

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- **Voice Interfaces**
  - Input & Discussion
  - Language
  - Personas
- **Hybrid / Mediated**
  - Robotics training
  - Digital Twins



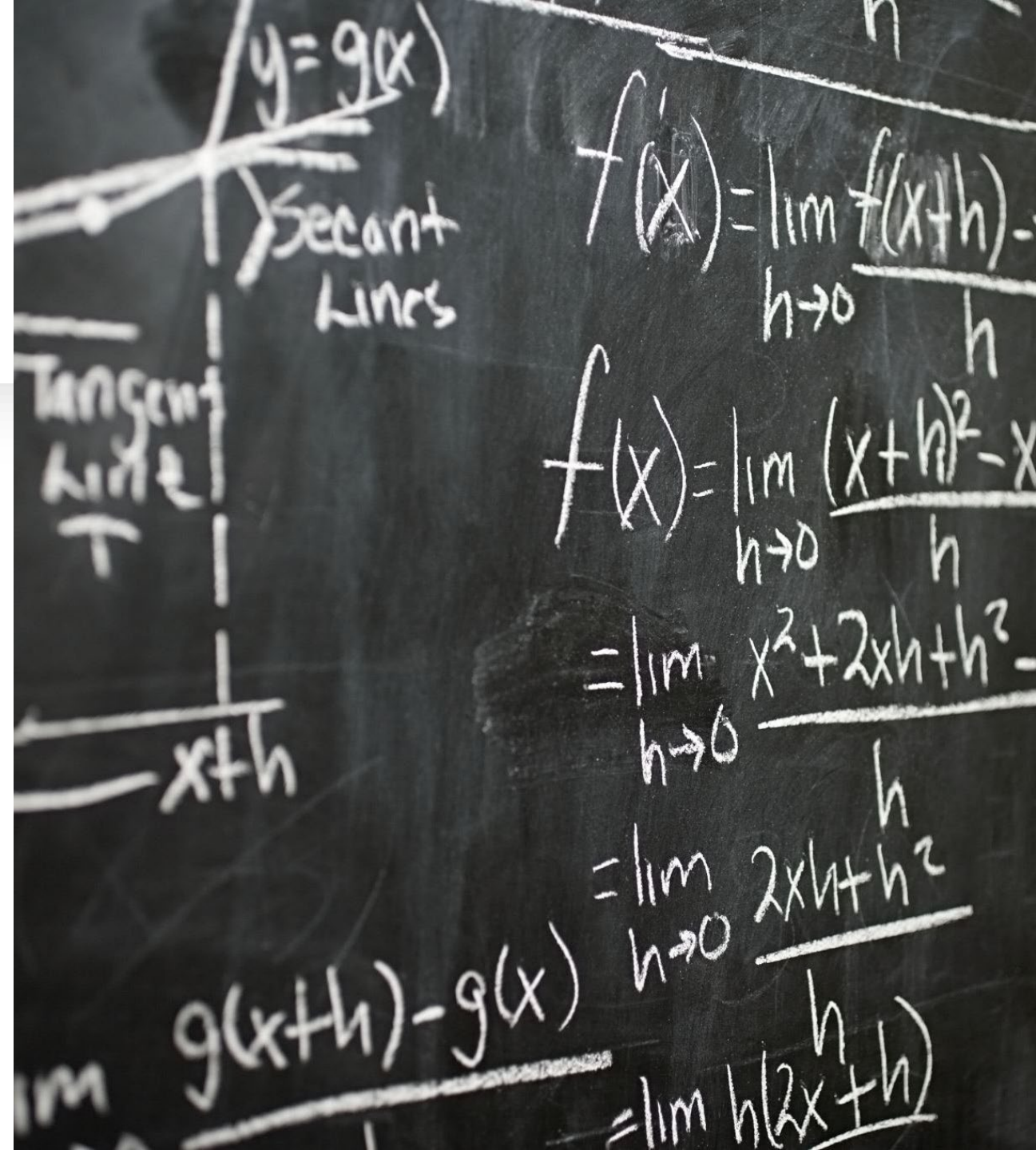
# AI in Learning Management Systems (LMS): (integration)

- **Interactive Dashboards:**

- Moodle, Blackboard (and soon all LMS), will offer tailored content recommendations based on performance data.

- **Data Insights:**

- analyzes student engagement and progress
- recommend study materials and identify areas where students need improvement.





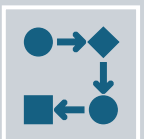
# AI Agents



AGENTS “Agentic Frameworks”



AI that **autonomously** pursue goals and objectives.



Making decisions and carrying out actions **without** constant **human intervention**.



# Thanks!



## AI For Educators

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AI Quiz and Auto Grading!



AI for Educational



GPT Chatbot Tutor



AI Accelerated Curriculum

## QR Link & this talk

