



Generative AI in Education: Innovations, Applications, and Future Directions

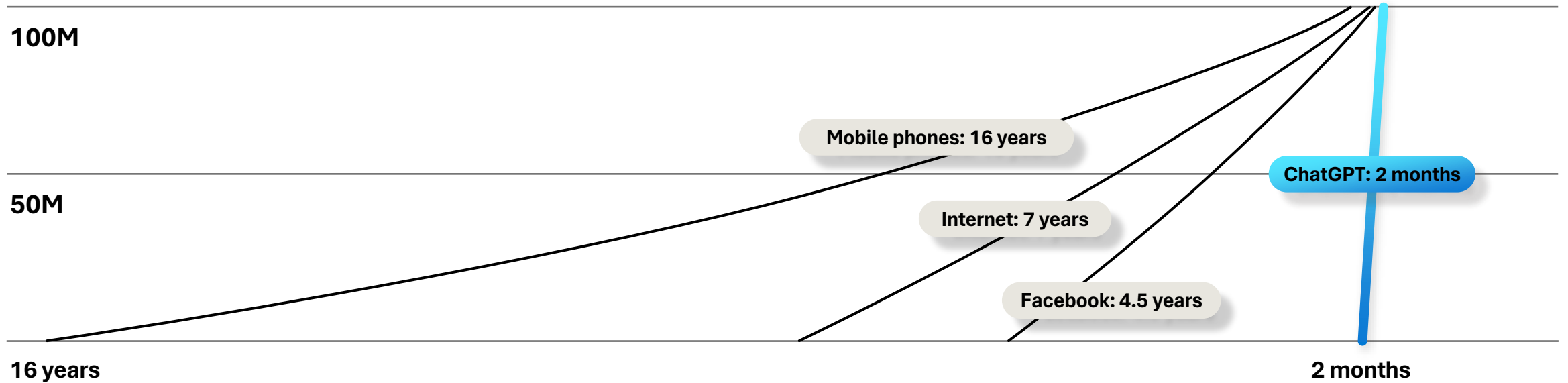
Christian Vaillancourt – General Manager Data & AI, Microsoft Manufacturing
Nick Kwiecien, Ph.D. – Principal AI Architect, Microsoft Manufacturing

Monday, March 3rd, 2025



Historical Technology Adoption Trends

Time to reach 100M users




Forbes

FORBES > INNOVATION > ENTERPRISE TECH

5 Unexpected Ways Generative AI May Change Your Daily Life

By Bernard Marr Contributor @

Jan 8, 2024, 02:55am EST



8 Unexpected Ways Generative AI May Change Your Daily Life - 40086 STOCK

No doubt you've seen dozens of headlines (or more) about generative AI and how tools like ChatGPT are going to transform our jobs. But what about everyday life? Because the fact that AI can now generate content – including text, images, video, and

Bloomberg

Values Careers Stories Press Find jobs

Generative AI to Become a \$1.3 Trillion Market by 2032, Research Finds

June 01, 2023

Bloomberg Intelligence: New Report Finds That the Emerging Industry Could Grow at a CAGR of 42% Over the Next 10 Years

Rising demand for generative AI products could add about \$280 billion of new software revenue

New York, June 01, 2023 – With the influx of consumer generative AI programs like Google's Bard and OpenAI's ChatGPT, the generative AI market is poised to explode, growing to \$1.3 trillion over the next

MIT Technology Review

ARTIFICIAL INTELLIGENCE

AI for everything: 10 Breakthrough Technologies 2024

Generative AI tools like ChatGPT reached mass adoption in record time, and reset the course of an entire industry.

By Will Douglas Heaven
January 8, 2024



accenture

A new era of generative AI for everyone

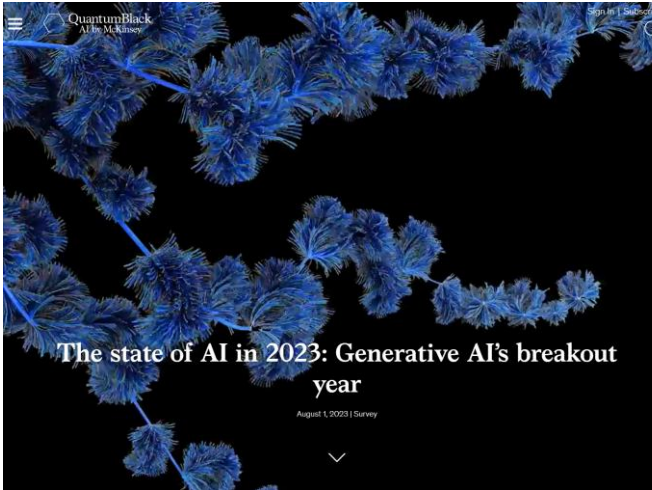
The technology underpinning ChatGPT will transform work and reinvent business.



QuantumBlack
AI by McKinsey

The state of AI in 2023: Generative AI's breakout year

August 1, 2023 | Survey




FAST COMPANY

12-03-23

What Is Generative AI? Your Questions Answered

As generative AI becomes increasingly popular, here's a guide that will get you up to speed.



(Photo: Rawpixel (hand, pen and paper; circuit board))

BY DANICA LO LONG READ

Generative AI seems to have popped up everywhere in the mainstream lately—primarily via the popularity of ChatGPT, but also through the proliferation of text-to-image tools and AI avatars in our social media feeds. But beyond fun smartphone apps and ways for students to shirk essay-writing assignments, what can generative AI do? How does it work? How will it AI

WIRED BACKCHANNEL BUSINESS CULTURE GEAR IDEAS MORE

How WIRED Will Use Generative AI Tools

Some publications are already using text and image generators. Here's how WIRED will—and won't—use the technology.

LIKE PRETTY MUCH everyone else in the past few months, journalists have been trying out generative AI tools like ChatGPT to see whether they can help us do our jobs better. AI software can't call sources and wheelie information out of them, but it can produce half-decent transcripts of those calls, and new generative AI tools can condense hundreds of pages of those transcripts into a summary.

Writing stories is another matter, though. A few publications have tried—sometimes with disastrous results. It turns out current AI tools are very good at churning out convincing (if formulaic) copy riddled with falsehoods.

This is WIRED, so we want to be on the front lines of new technology, but also to be ethical and appropriately circumspect. Here, then, are some ground rules on how we are using the current set of generative AI tools. We recognize that AI will develop and so may modify our perspective over time, and we'll acknowledge any changes in this post. We welcome feedback at mail@wired.com.

Text Generators (e.g. LaMDA, ChatGPT)

We do not publish stories with text generated by AI, except when the fact that it's AI-generated is the whole point of the story. (In such cases we'll disclose the use and flag any errors.) This

THE WALL STREET JOURNAL

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How Did Companies Use Generative AI in 2023? Here's a Look at Five Early Adopters

Business technology leaders in construction, travel, retail, healthcare and energy say AI is already improving productivity and changing customer behavior. But they are also sorting through its high costs and limitations.

By Belle Liu
Dec. 26, 2023 7:00 am EST

Generative artificial intelligence emerged this year as the most buzzed-about new technology for businesses, promising to supercharge productivity while transforming the way white-collar work gets done.

But AI's high cost, need for specialized talent, and legal and privacy risks have stymied attempts to fully realize that promise, with many businesses cautious



How Generative AI Can Deliver

Generative AI is **everywhere** – fueling creativity, shattering boundaries, and changing our world at lightning speed

Artificial Intelligence

Machine Learning

Deep Learning

Generative AI



Artificial Intelligence

The field of computer science that seeks to create intelligent machines that can replicate or exceed human intelligence



Machine Learning

Subset of AI that enables machines to learn from existing data and improve upon that data to make decisions or predictions



Deep Learning

A machine learning technique in which layers of neural networks are used to process data and make decisions



Generative AI

Create new written, visual, and auditory content given prompts or existing data

Generative AI

Intelligent Content Creation with Natural Language

Prompt

Write a tagline for an ice cream shop.

Response

We serve up smiles with every scoop!

Prompt

I'm having trouble getting my Xbox to turn on.

Response

There are a few things you can try to troubleshoot this issue

Prompt

Thanks! That worked. What games do you recommend for my 14-year-old?

Response

Here are a few games that you might consider: ...

Prompt

```
Table customers, columns =  
[CustomerId, FirstName,  
LastName, Company, Address,  
City, State, Country,  
PostalCode]
```

Create a SQL query for all customers in Texas named Jane
query =

Response

```
SELECT *  
FROM customers  
WHERE State = 'TX' AND  
FirstName = 'Jane'
```

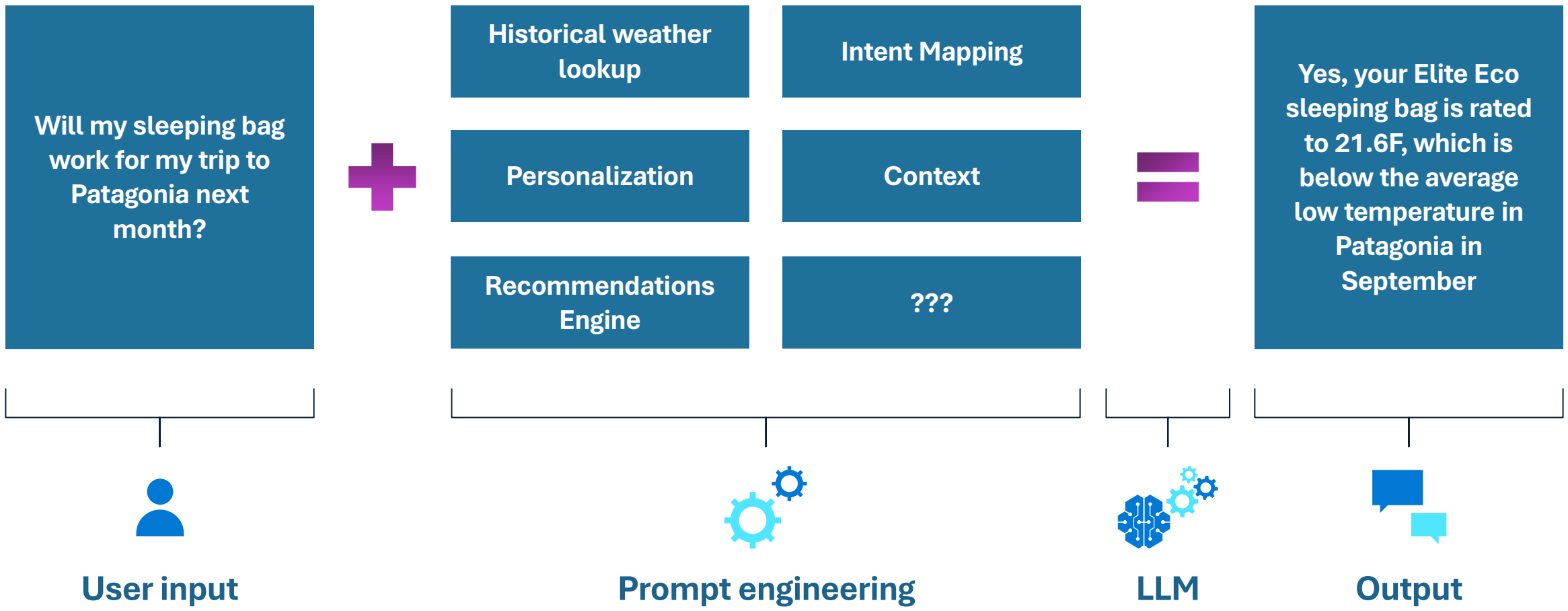
Prompt

A ball of fire with vibrant colors to show the speed of innovation at our media and entertainment company

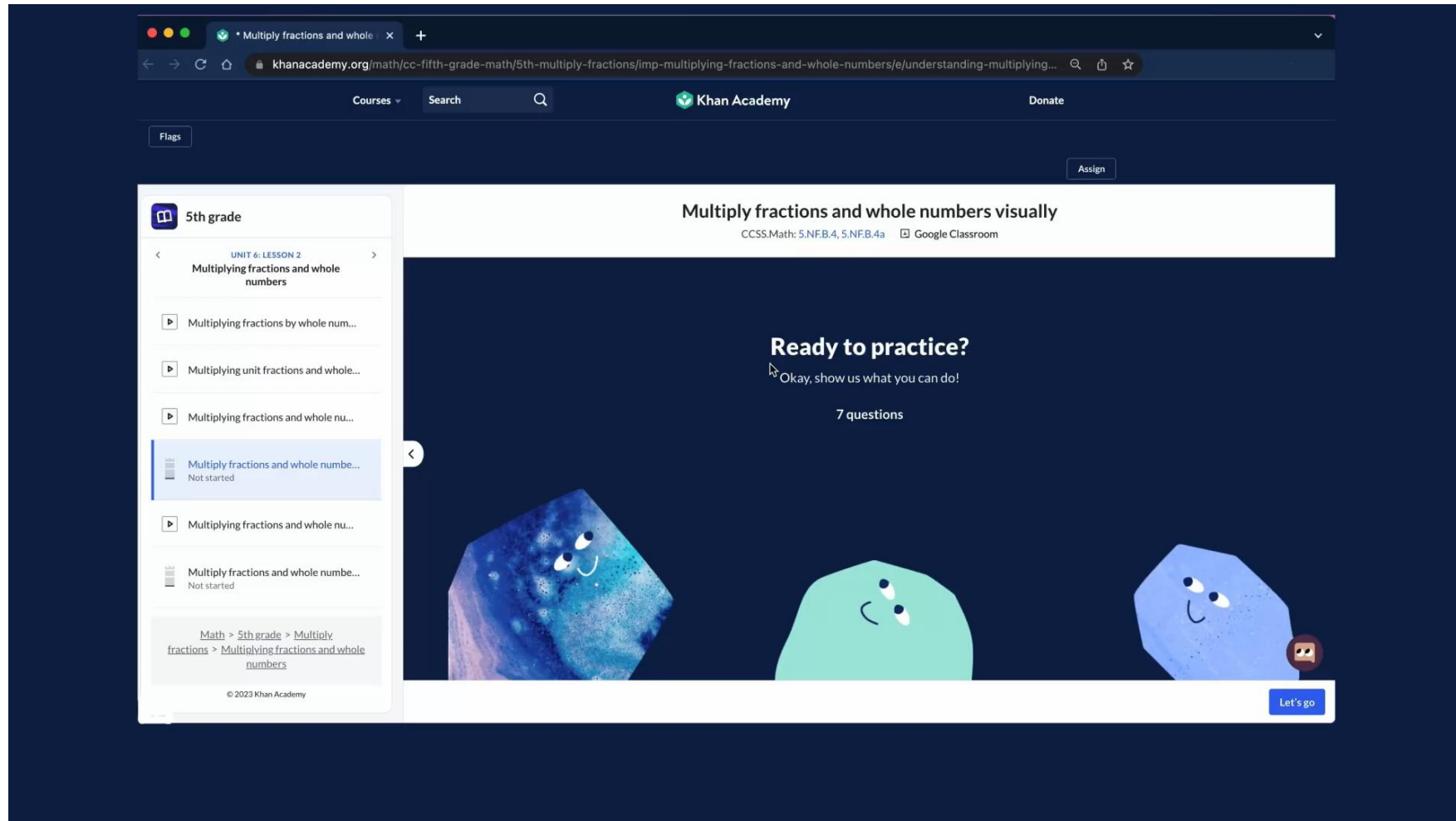
Response



Using Generative AI as a 'Language Calculator'



AI in Education – Khan Academy & OpenAI



“We think GPT-4 is opening up new frontiers in education. A lot of people have dreamed about this kind of technology for a long time. It’s transformative and we plan to proceed responsibly with testing to explore if it can be used effectively for learning and teaching.”

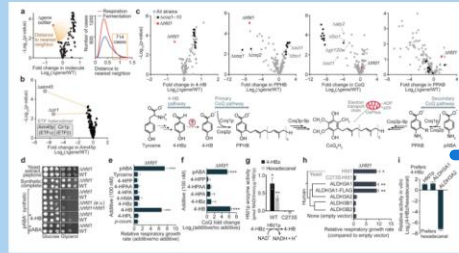
– **Kristen DiCerbo, Chief Learning Officer, Khan Academy**

Advances in AI Technology

Prompt

Below is a figure from a research paper focused on evaluating the phenotypic responses at the proteome, metabolome, and lipidome level for a series of single gene deletion yeast knockout strains.

Review the figure and create a summary of what you believe the role of HFD1p is in the highlighted metabolic pathway. Explain your response and justify using data presented in the figure.



Response

The figure presents several panels (a-i) that collectively elucidate the role of HFD1p in yeast metabolism, particularly focusing on its involvement in the pathway for coenzyme Q (CoQ) biosynthesis.

Summary of the Role of HFD1p:

HFD1p appears to be a critical enzyme involved in the conversion of 4-hydroxybenzaldehyde (4-HBZ) to 4-hydroxybenzoic acid (4-HB) in the CoQ biosynthesis pathway. This is supported by multiple lines of evidence shown in the figure:

1. Phenotypic Analysis (Panels a-d):

- Panel (a): Knockout strains including $\Delta hfd1$ show significant changes in the levels of metabolites such as 4-HB and CoQ, indicating the involvement of HFD1p in these metabolic processes.
- Panel (c): The $\Delta hfd1$ strain shows a substantial decrease in 4-HB levels and an accumulation of 4-HBZ, suggesting that HFD1p catalyzes the conversion of 4-HBZ to 4-HB. This is further supported by the fact that $\Delta hfd1$ also impacts levels of other CoQ pathway intermediates, such as PPHB and PPAB.
- Panel (d): Growth assays on different media demonstrate that $\Delta hfd1$ strains have impaired growth on glucose but can be partially rescued by supplementation with 4-HB or pABA, implying that the disruption in HFD1p function affects CoQ biosynthesis.

2. Enzyme Activity and Substrate Specificity (Panels e-g):

- Panel (e): $\Delta hfd1$ strains show decreased respiratory growth, which can be rescued by adding 4-HB, reinforcing that HFD1p is necessary for converting 4-HBZ to 4-HB.
- Panel (f): Addition of 4-HB and other intermediates to $\Delta hfd1$ strains increases CoQ levels, confirming that HFD1p acts upstream in the CoQ biosynthesis pathway.

Multi-Modal Processing (Text, Images, Audio, Video)



Prompt: A litter of golden retriever puppies playing in the snow. Their heads pop out of the snow, covered in.

Video Generation



Reduced Latency

NEWS | 01 October 2024

'In awe': scientists impressed by latest ChatGPT model o1

The chatbot excels at science, beating PhD scholars on a hard science test. But it might 'hallucinate' more than its predecessors.

By [Nicola Jones](#)



Improved Reasoning Capabilities

The background features a vertical gradient from purple at the bottom to blue at the top. On the left side, several thin, white, curved lines sweep across the frame, creating a sense of motion and depth. The text is centered in the middle of the image.

AI in Education – Case Studies

Wichita Public Schools

Educators use Microsoft Copilot to make learning accessible and save valuable prep time

Wichita Public Schools understands that no two students learn in precisely the same way. But the amount of time and energy required of educators to individualize their lessons was becoming unsustainable. With the introduction of Microsoft Copilot, educators found that they could bring a greater diversity of tailored learning experiences into the classroom—in a fraction of the time.

A next-generation teaching and learning solution

- Microsoft Copilot prepares students not only for the current technological landscape, but for their future as well.
- Wichita teaches its staff how to use AI effectively and responsibly.
- With purposeful adoption, school leaders are seeing AI bring educators back into the conversation regarding how education is evolving.
- To support educators with AI, Wichita Public School leaders have put several PD stations in place aided by guides and hints.

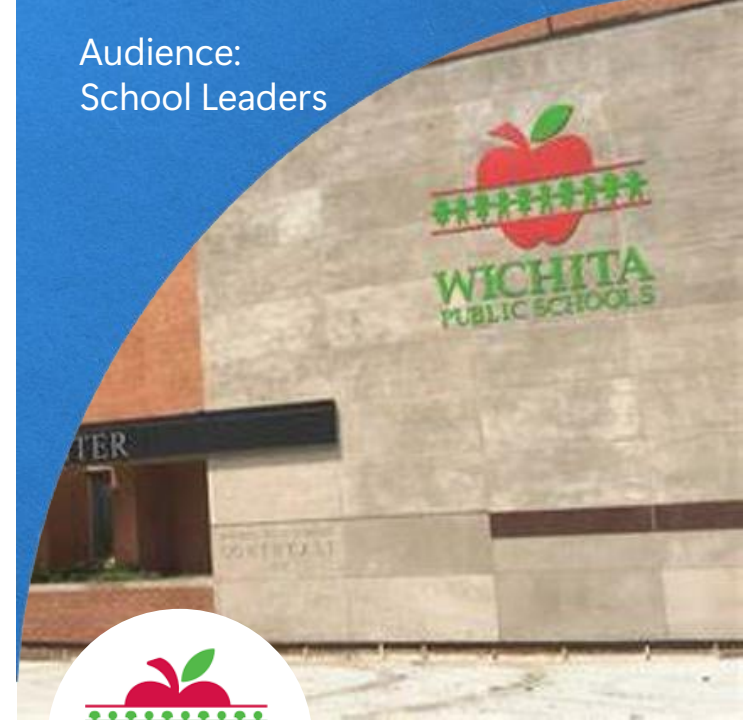
"When teachers embrace Copilot and begin to understand the time savings it represents, I see the anxiety fade away, replaced by sighs of relief."

—Dyane Smokorowski, District Digital Literacy Coordinator, Wichita Public Schools



Fast Facts

- Largest school district in Kansas
- 50,000 students in K-12
- 112 different student languages
- Microsoft 365 A5 accounts for all staff
- Early adopter of Microsoft Copilot (formerly Bing Chat Enterprise) and GPT-4



New York City Public Schools

A custom AI-powered teaching assistant multiplies teacher effectiveness while reducing burn-out

A swift reaction to block ChatGPT in schools led to some unwanted attention and forced NYC district leaders to rethink the role that generative AI would play in their schools' future. They changed course and forged a resulting partnership with Microsoft that empowered them to navigate uncharted waters while keeping privacy and security at the forefront. NYC Schools worked with Microsoft to create a data hub of close to 2 billion records, forming the foundation for a custom-built AI teaching assistant and family communication tool with Azure OpenAI.

Showcasing leadership and improved communication

- Educators reported greater access to personalized learning tasks with the custom AI teaching assistant—ultimately saving time and reducing burn-out.
- When a chatbot was introduced to the district website, call volume decreased which led to reduced overhead costs and fewer frustrated families.

"Our mission is for students to graduate on a pathway to a rewarding career and long-term economic security, equipped to be a positive force for change. If we are not using AI in education, we're putting our students at risk of being behind."

—Tara Carrozza, NYC Director of Digital Learning Initiatives



Fast Facts

- Largest public school system in the world
- More than 1 million students and 1,700 public schools
- More ELL students in NYC (161,896) than in Chicago and Houston combined

Coquitlam School District

Guiding support and automating communication for at-risk students

To standardize district-wide strategy for documenting struggling students, Coquitlam School District built their own "Insufficient Evidence of Learning App", which makes critical data visible and impossible to ignore and act upon to support the most vulnerable students achieve more and prevent them from repeating classes. They also created a "School-based Team Support App" that manages all supplementary support for learners experiencing learning challenges and barriers. Coquitlam's ability to build apps and workflows on top of their existing datasets in Microsoft Power Platform helps them ensure all their student data would be utilized in a way that was easy to understand and take action.

Enhancing administrative efficiency and compliance

- School leaders automatically receive data that helps them be more efficient in tracking students in need of support, helping to reduce the administrative workload on educators.
- These AI-powered apps support leaders in meeting documentation requirements for student support, ensuring compliance with educational standards and regulations.

Audience:
School leaders



Fast Facts

- Located in the Metro Vancouver region of British Columbia
- Serving 32,000 students in 70 schools, third largest in B.C.
- Approximately 4,500 total employees including 2,600 teachers



Thank You!



The background is a gradient from purple to blue. On the left side, there are several thin, white, curved lines that sweep across the page, creating a sense of motion and depth.

Appendix – AI in Education: Microsoft Special Report



AI in Education

A Microsoft Special Report



Introduction

The rapid ascent of generative AI is changing the way we as a society create, solve problems, learn, and communicate.

It's an inflection point that affects every industry, and in education, the technology can have transformational impact. There is no better time to reimagine education.

AI can enable personalized learning, free up time for educators to focus on what matters most, and help address issues of equity and accessibility. It can also improve operational efficiency, bringing much-needed support to overburdened administrators and IT teams.

But tapping into these advantages requires navigating both longstanding and new challenges in the educational field.

The Microsoft logo, consisting of four colored squares (red, green, blue, yellow) arranged in a 2x2 grid, is positioned to the left of the text. The text reads: "The Microsoft of responsible AI, trust, and transparency are amplified when it comes to

We're just beginning to understand the future of AI in education. As we continue to learn, we believe it is important to share our early findings. In this report, we'll highlight insights from our research at Microsoft, as well as research from partner organizations and academia. We'll also share recommendations and resources to help capture the opportunities that come with this unique moment.

1
6

Key Takeaways

1

Start AI Conversations Today

There is an urgent need to communicate clearly and openly about AI, increase AI literacy, and create usage guidelines at educational organizations.

2

Learn How AI Can Help

There is a clear opportunity for AI to help educators and administrators lighten workloads, boost productivity, and improve efficiency.

3

Explore New Ways to Learn

Early studies ¹demonstrate the potential of AI to improve educational experiences and learning outcomes.

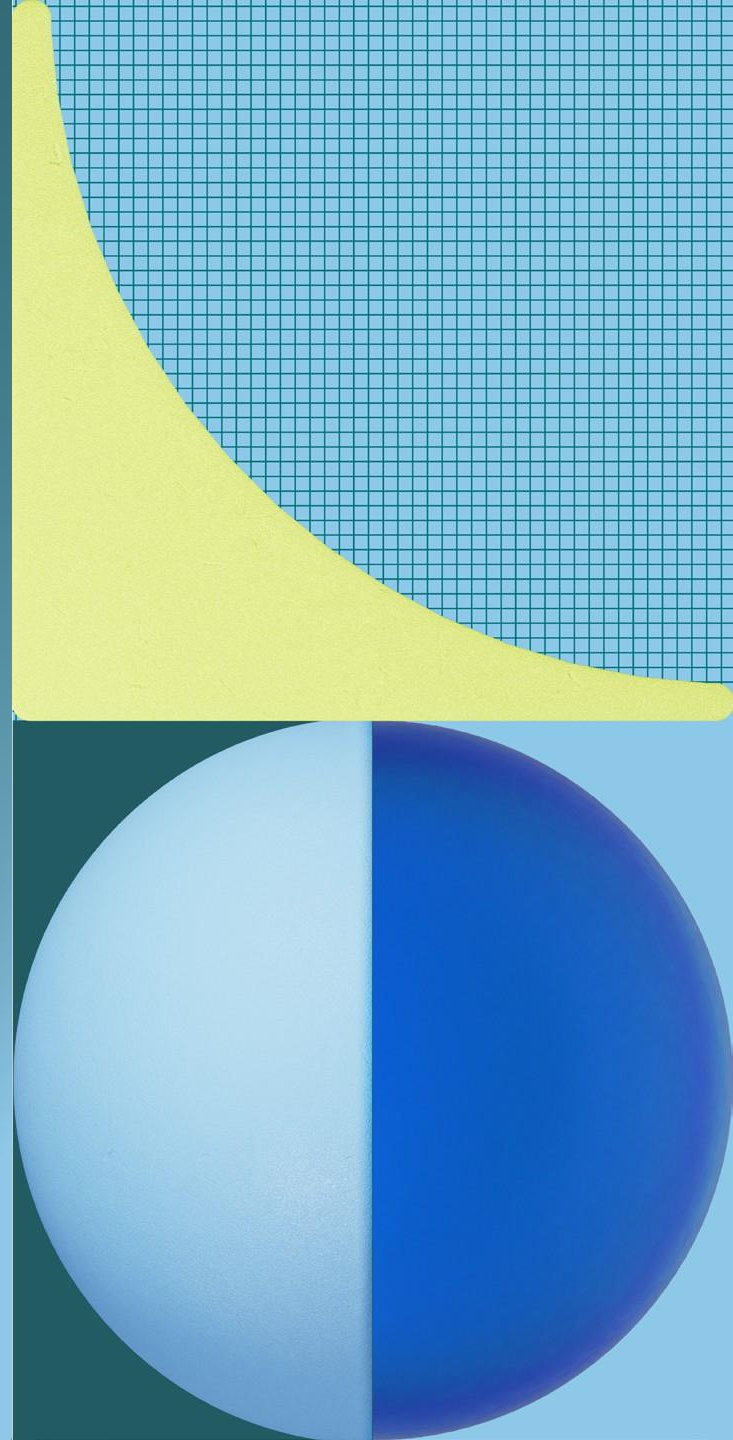
4

Prepare for the Future

Students need to build people skills *and* technical capacity to prepare for a world transformed by AI.

1

Start AI
Conversations
Today



Start AI Conversations Today

In education, the potential benefits of AI go beyond productivity. AI brings opportunities to provide actionable insights, improve learning outcomes, and make more time for human connection and collaboration. But there are also challenges to navigate and overcome to realize that potential.

To better understand the needs and opportunities around AI in education, we recently surveyed educators, academic and IT leaders, and students from K-12 and higher education institutions about their perceptions, familiarity, uses, and concerns around AI.



Bridging the AI Literacy Gap

We found that the majority of educators, students, and education leaders have already used AI for school-related purposes, yet only a small percentage report a strong familiarity with AI—in other words, their use of AI outpaces their understanding of the technology. This holds true for all groups, though leaders reported having more familiarity with AI than students and educators.

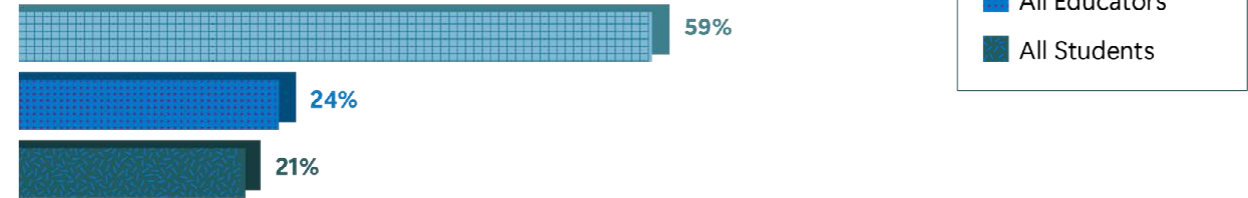
This disconnect points to an urgent need to increase AI literacy and AI integration in strategic priorities, standards, policies, and professional development.

Exploring Unknown Territory

The majority of students and educators are already using AI, despite saying they don't know much about it.

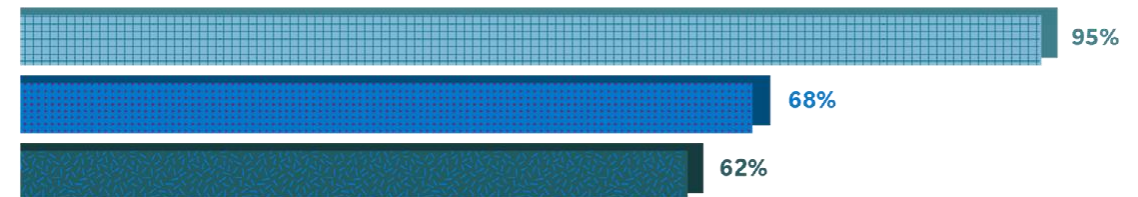
Familiarity with AI

'Know a lot about AI'

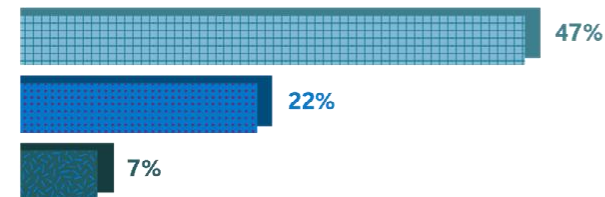


AI Usage in School Settings

Have used it at least once or twice



Daily Use



Source: AI in Education Microsoft Study (November 2023)

Survey questions: How much do you know about AI (prior to taking this survey)? Select only one. Have you used or tried an AI tool or service before in your role at your educational institution or for school-related purposes? Select only one. How often do you use AI tools/services in your role at your educational institution or for school-related purposes?

How Is AI Being Used in Education today?

Students most frequently use AI to summarize information, while educators most often use the technology for class planning and materials, and decision makers use it to drive process efficiency.

Use Cases

Among respondents who report using AI, most people say they use it to enhance productivity, personalize learning, and improve efficiency.



Source: AI in Education Microsoft Study (November 2023)

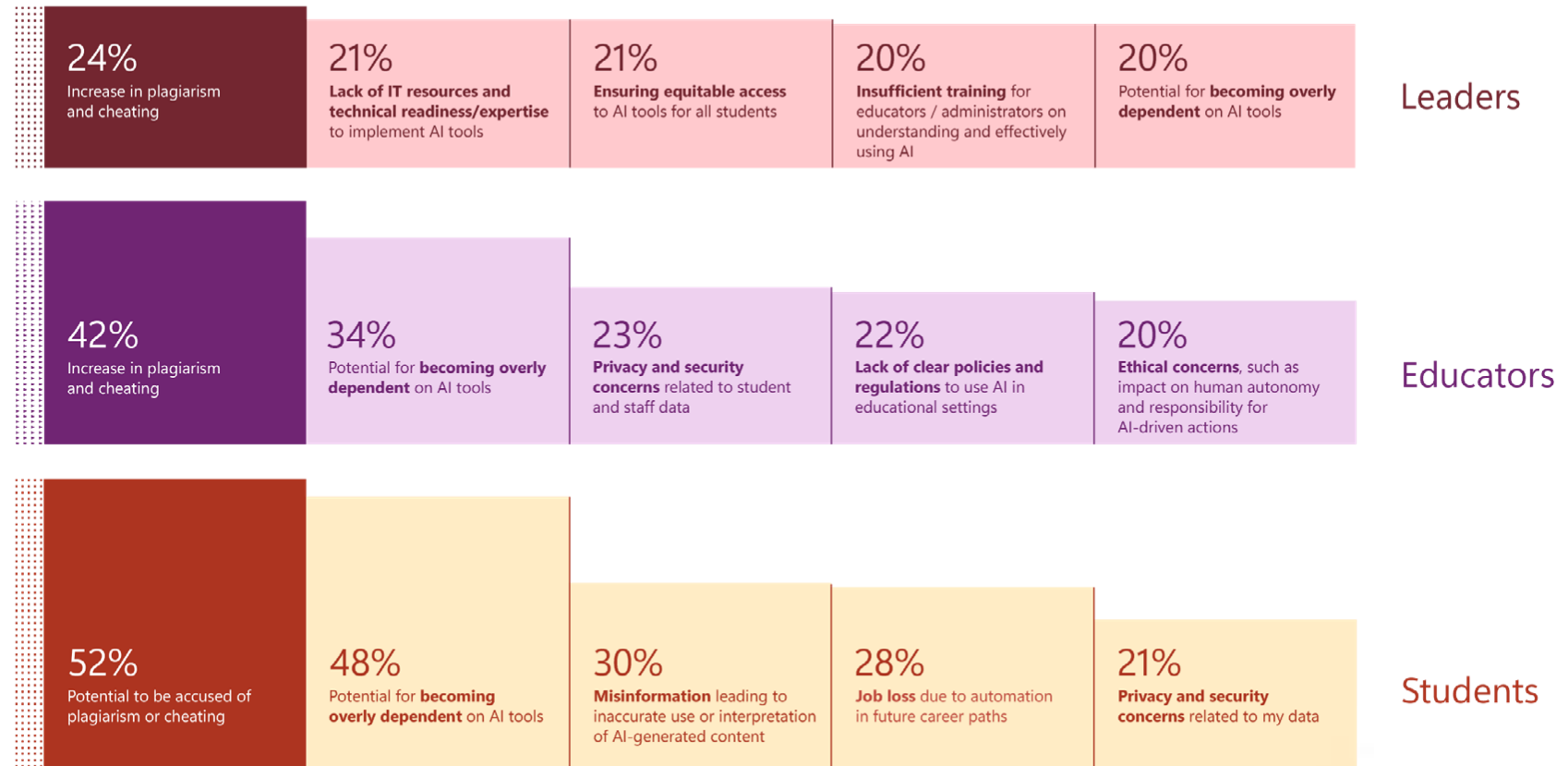
Survey questions: For which of the following tasks are you using AI tools in your role?
For which of the following tasks are you using AI tools as a student?

Challenges

Top concerns highlight important challenges to overcome, including data privacy and security, equitable access to AI tools, and the need to offer training and mitigate overreliance on AI.

What Are the Main Concerns around AI in Education?

Concerns around cheating and plagiarism call for rethinking of academic integrity policy and assessment in a world without reliable AI detection tools.



Source: AI in Education Microsoft Study (November 2023)

Survey question: Please select the top 3 reasons why you may be concerned about AI usage within your school/district/university.

Engage with Educators and Students

Microsoft Research conducted interviews with undergraduate students and educators in the UK,¹ and we learned that educators often simply ask students not to use AI at all, because university guidelines on AI use are often unclear and instructors fear they won't be able to tell if work is plagiarized.

Students, however, said they want AI to support their learning—not supplant it. They still want to do their own thinking, learning, and writing. They're concerned about overreliance on AI, and they double-check the outputs of AI tools for inaccurate or untrustworthy information. Students said using AI for things like summarizing articles, finding source material, checking grammar, receiving feedback, and challenging their ideas made their school work easier, more efficient, and more enjoyable, but they're anxious about using AI or discussing it with educators for fear of being accused of cheating or to be seen as unwilling to do the work.

Ultimately, both students and educators said that students should be taught how to use AI effectively and responsibly, but educators worry that providing this information will encourage academic dishonesty. In fact, educators said they even avoid discussing AI with their colleagues for fear they'll be judged. As a result, educators may be unsure of both how they can use AI for teaching and how to communicate with students about using it.

A recent survey from the National 4-H Council, Hart Research, and Microsoft found similar needs for additional guidance in K-12 education. 72% of young people aged 9-17 say they are seeking support from adults in learning how to use AI correctly and confidently.

Recommendations

1

Engage with students about how they can use AI to enhance learning without compromising academic integrity, and hear their concerns and hopes for AI firsthand.

2

Create clear guidelines and policies for the use of AI at your organization. Microsoft Research has found that students and educators alike are often unclear on what guidelines are in place around the use of AI at their institutions.

3

Incorporate AI literacy into classroom instruction and staff training to make sure that students, teachers, and leaders understand what AI is, how it works, and what the risks and benefits are for both teaching and learning.



2

Learn
How AI
Can Help

Learn How AI Can Help

AI can lighten workloads and act as a copilot to boost productivity, and the need for these benefits is particularly acute in education.



Learn How AI Can Help

Each month, the heaviest Microsoft 365 education users are receiving more than 500 emails and sending and reading more than 800 chats to get things done.

And Microsoft found that compared to peers in other industries, education professionals are more likely to:

- Have negative feelings about the meetings they attend
- Spend more time than they want checking and responding to chats and emails
- Struggle with not having enough focus time

Despite facing these significant challenges, education respondents also demonstrated ambition, innovation, and adaptability. They are more likely to:

- Prioritize making team and individual work processes more efficient
- Maximize the performance of their creative content
- Benefit from identifying recent trends related to their jobs

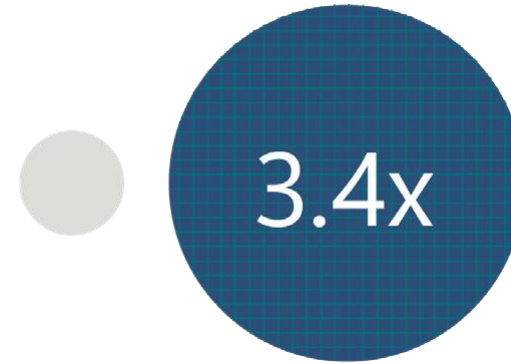
AI tools can help education professionals ease pain points and make better use of opportunities. The [2023 LinkedIn Future of Work Report](#) found that while more than half of an educator's job involves specialized people skills best performed by humans, like classroom management and instruction, AI can enable greater productivity in tasks like lesson planning and curriculum development, which make up 45% of teachers' responsibilities. That frees up time for educators to do the things only humans can do—like connect with students.

Learn How AI Can Help

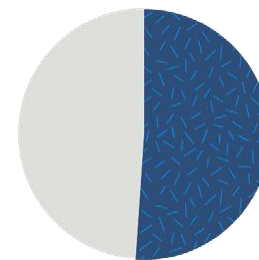
An [IDC Study](#) on the opportunity of AI in education found that, while it is still early for many institutions, education respondents believe that they are getting an average of 3.4x return on their investment for AI initiatives, citing benefits including faster innovation, reduced institutional risk, and faster time to market for new education services and experiences.

An Outsized ROI

Educational institutions that have adopted AI achieved a significant return on investment over a relatively short time—important factors in a sector where budgets and timelines are typically tight.

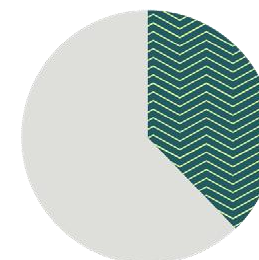


Education respondents believe they are getting an average of 3.4x return on their investment for AI initiatives just 15 months after implementation.



52%

of education respondents reported average AI timelines of 6 months or less



40%

of respondents across all other industries reported timelines of 6 months or less

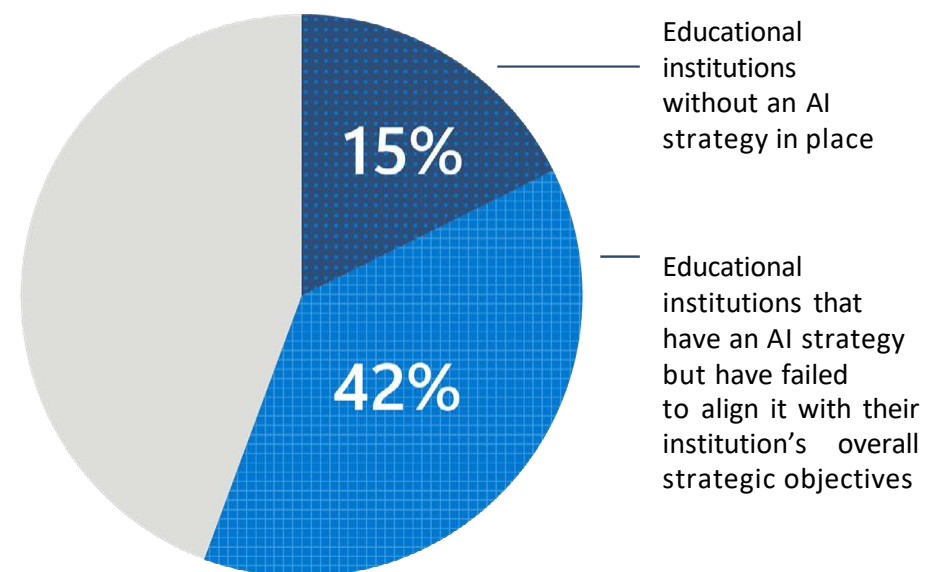
The Preparedness Paradox

Educational institutions are moving fast when it comes to AI, and they're seeing significant returns on their investment. However, IDC's research found that education leaders feel less prepared for AI-driven change than their peers in other industries.

This is likely due to two key factors: lack of skilled talent and lack of strategy. In fact, 60% of education respondents in IDC's survey noted that "lack of skilled talent" was the most significant challenge they face when it comes to implementing AI. That survey also showed that 57% of educational institutions either do not have an AI strategy in place at all, or they have an AI strategy but have failed to align that strategy with their institution's overall strategic objectives—compared to just 36% of organizations across industries.

The Need for AI Strategy

The majority of educational institutions lack an integrated AI strategy, which is key to safely and effectively capturing the opportunities presented by new technologies.



Recommendations

- 1 Establish an oversight committee or governing body to define and steer AI strategy, responsible use policies, governance models, and priorities.
- 2 Prepare for change by building a centralized, cross-functional AI team that can connect AI initiatives to the organization's existing priorities and create training opportunities.
- 3 Prioritize high-value, low-complexity AI use cases. Start small, collect and respond to feedback, and plan for scalable and impactful solutions.



3

Explore
New Ways
to Learn

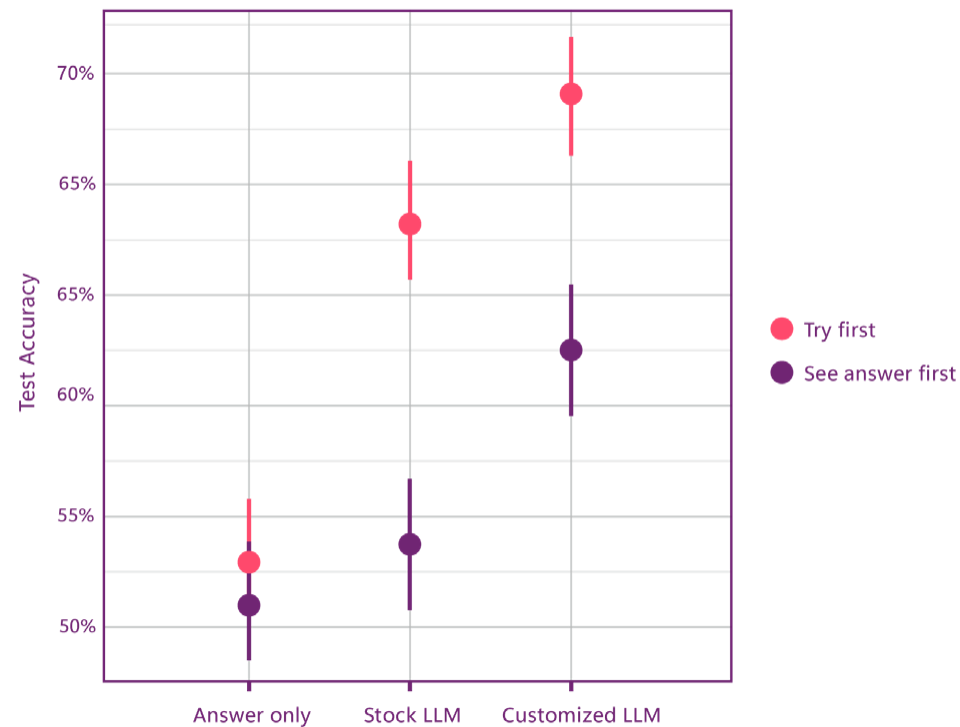
Explore New Ways to Learn

One of the most important questions yet to be answered about generative AI is if it can truly improve student learning at scale. Research to date indicates that it can, particularly when AI is intentionally designed to act as a personalized tutor.

Recent studies point toward the importance of designing tools to act as coaches that encourage learning and engagement rather than simply giving responses. In one of the first randomized experiments on large language models (LLMs) and education, [Microsoft Research and Harsh Kumar from the University of Toronto](#) found that LLM-based explanations positively impacted learning relative to seeing only correct answers, but the benefits were largest for students who attempted problems on their own before consulting the LLM.

How AI Helps Students Learn

AI has the most positive impact on learning when students first try to solve problems on their own, with AI providing explanations along with correct answers.



Source: Kumar, Harsh and Rothschild, David M. and Goldstein, Daniel G. and Hofman, Jake M., *Math Education with Large Language Models: Peril or Promise?* (November 22, 2023)
Error bars show one standard error above and below average accuracy in each condition.

Embracing AI to Empower Students

Educational institutions worldwide are exploring opportunities to empower students by embracing AI that is intentionally designed to act as an educational coach.

- New York City Public Schools created an AI-powered teaching assistant that answers questions and provides real-time feedback. Over a two-week period, nearly 100 students in three classes asked the AI assistant more than 2,000 questions, far more than the three teachers could have answered. The chatbot responds to questions by offering hints in order to push students and keep them thinking rather than giving an answer right away.
- The South Australia Department for Education built EdChat to offer 24/7 access to a safe source of instantaneous information. EdChat ensures that students can get quick answers before discussing more complex and nuanced questions with teachers. So far, educators say EdChat is also helping with metacognition—students’ understanding of how they learn, ask the right questions to get the information they need, and evaluate the outputs of AI models.



Increasing Access to Coaching

A [2023 study by Harvard University and Yale University professors](#) found that AI has the potential to give students in very large classes an experience that approximates an ideal one-to-one relationship between educator and student. Harvard University's CS50: Introduction to Computer Science is a massive open online course (MOOC) that has more than 5 million registrants—needless to say, many of those students never have the chance to speak with an instructor. Harvard created course-specific AI tools to give students customized, 24/7 support that guides them toward solutions rather than offer answers. Students in the study said they appreciated the always-available coaching, but perhaps more importantly, they asked the AI questions they may not have felt comfortable asking an instructor.

One student noted that it “felt like having a personal tutor...I love how AI bots will answer questions without ego and without judgment, generally entertaining even the stupidest of questions without treating them like they’re stupid.”

3
4

Recommendations

1

Encourage a growth mindset. Lead by example to develop a culture of learning, iteration, and curiosity.

2

Learn from others. Explore the growing list of resources focused on AI in education, learn about examples of innovation, ask questions, and talk to your peers about their experiences with AI.

3

Be intentional in your design of new AI experiences. Focus on the desired outcome: what is your goal and how might AI help you achieve it?



3
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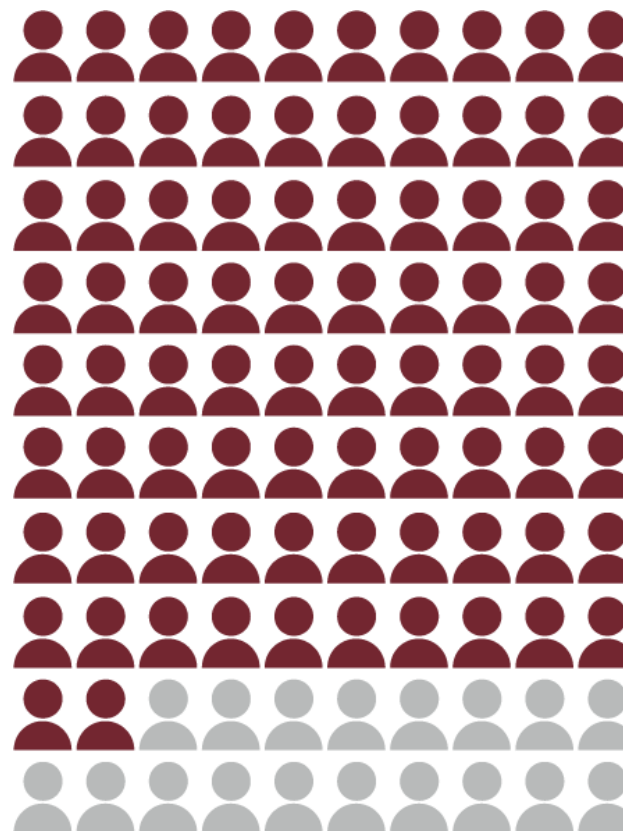
Prepare for
the Future

Prepare for the Future

Just as the future of education is evolving, so are the career skills students need for the AI-powered future of work. The ability to work effectively and iteratively with AI using natural language will be essential for every employee. 82% of leaders surveyed for Microsoft's 2023 Work Trend Index say employees will need new skills to be prepared for the growth of AI.

New Skills for an Evolving Future

The jobs of the future will demand capabilities that students need to develop now.



82%

of business leaders say employees will need new skills to prepare for AI

Source: Microsoft Work Trend Index: Annual Report (May 9, 2023)

Survey question: Based on your current understanding of artificial intelligence (AI), how much do you agree or disagree with the following statements? I anticipate my employees will need to learn new skills or upskill to be prepared for the growth of AI.

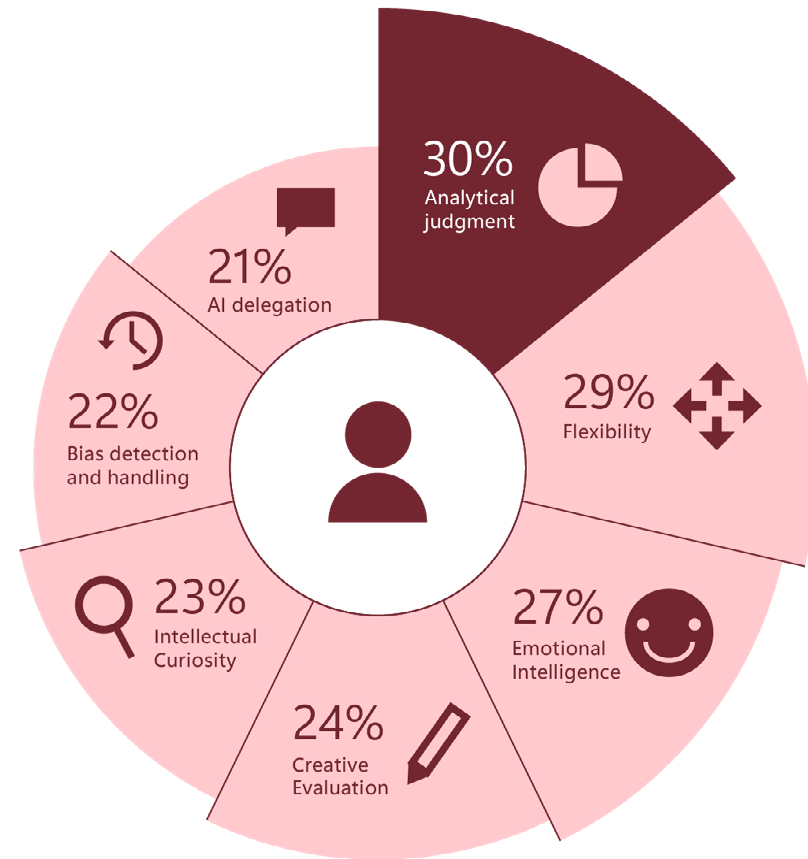
Prepare for the Future

The most important skills for the future include analytical judgment, flexibility, emotional intelligence, creative evaluation, and directing and evaluating AI.

Indeed, the [Microsoft New Future of Work Report](#) notes that as AI is increasingly used to find, summarize, and generate content, the skills that are most important for employees will be focused on analyzing and integrating AI outputs rather than searching for information and creating content from scratch.

The Capabilities Needed for the AI Era

Learning to work alongside AI is not just about technical skills. It will be necessary to develop new analytical, emotional, and critical thinking skills.



Source: Microsoft Work Trend Index: Annual Report (May 9, 2023)

Survey question: Some believe that it is likely that artificial intelligence (AI) will usher in a new era of technological advancements. Which of the following skills do you think will be most essential for your employees to learn to evolve with these potential changes?

Prioritizing People

Skills
In an AI-augmented world, employers are prioritizing capabilities that are uniquely human. Since the launch of ChatGPT, some of the fastest-growing skills in job postings in the US are people skills. According to the [2023 LinkedIn Future of Work Report](#), 92% of US executives agree that people skills are more important than ever. Communication is an in-demand skill, and employers are increasingly looking for capabilities such as flexibility, professional ethics, social perceptiveness, and self-management.

New [IDC research sponsored by Microsoft](#) confirms that business leaders are seeking new hires with soft skills like flexibility and creative problem-solving. And when evaluating technical skills, they rank effective use of Microsoft Office, data management and analysis, project management, and business intelligence at the top. This points to the need for educators to develop a new mix of skills to prepare for future careers.



Recommendations

1

Teach students metacognitive skills, or the ability to analyze, understand, and control their own thought processes. For example, educators might prompt students to explain why they agree or disagree with an AI-generated output.

2

Use AI tools as “provocateurs” that spark discussion, challenge assumptions, and encourage evaluation rather than provide answers. For example, when using AI to summarize an article, teach students to follow up with queries like, “what further questions should I ask?”

3

Don’t over-index on tech skills. While technological expertise is important, it’s crucial to develop the human-centered skills that will be prized in a technology-augmented future.

