

Generative Artificial Intelligence and the Schools



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AI vs. Generative AI

- AI – what we do with Siri, Alexa, Google
 - “Machine learning” - AI machines learn from data sets, identify patterns, and make predictions and/or decisions accordingly
 - It’s static
 - Searches for and retrieves information
 - Like a helpful librarian
- Generative AI
 - More like a competent intern
 - Receives and interprets instructions
 - Thinks about the best way to carry them out
 - Produces something original or performs a task
 - The results are not pre-made or stored somewhere – they are created



Generative Artificial Intelligence

- Superintelligence – Deeply immersive
 - It can converse
 - It can answer questions
 - It can personalize content
 - Its responses are creative
- Sophisticated analysis through human-like dialogue generating
 - Text
 - Images
 - Music
 - Video
- In response to instructions given in natural language



What Some Have Said About Generative AI

- "... more profound than fire or electricity or anything we have done in the past."
-- Sundar Pichai, CEO, Google
- "The power to make positive change in the world is about to get the biggest boost it's ever had."
-- Reid Hoffman, Founder, LinkedIn
- "... this new wave of AI is as fundamental as the creation of the microprocessor, the personal computer, the Internet and the mobile phone."
-- Bill Gates



Going Forward

- Generative AI will influence how students learn, how teachers work and the structure of the education system
- There are, however, ethical questions around bias, appropriate use and plagiarism
 - AI's inherent risk of bias
 - The "black box" of AI
 - Academic honesty and integrity
 - Fears around student over-reliance on AI
 - Impact on social and emotional learning
 - Data privacy and security



How is AI Being Used in Schools?



- Teachers are using it to:
 - Personalize learning for students at different levels
 - Improve student engagement
 - Create lesson plans
 - Automate administrative tasks like grading assignments
 - Engage in professional development
- Administrators are using it to:
 - Identify students at risk through predictive analytics
 - Enhance school surveillance systems
 - Assist with onboarding and answering questions about policies and procedures
 - Streamlining bus schedules and cafeteria menus



Student Use of AI

- Research projects and assignments
- Adjust instruction to individual learning pace and style
- Engage in interactive simulations and scenarios – experiential learning
- Practice skills; e.g., real-time feedback on grammar or learning new vocabulary words
- Language translation and interpretation



Other Potential Roles for AI in Education

- Instructional Assistants – provide adaptive tutoring to help explain difficult concepts to students, offer constructive critiques of writing, help students generate more fruitful questions about learning, customize learning for students with disabilities and provide translation for English language learners
- Teaching Assistants – create differentiated materials, design worksheets, develop quizzes, explain complicated academic materials, provide recommendations to meet student needs and help teachers reflect, plan and improve their practice

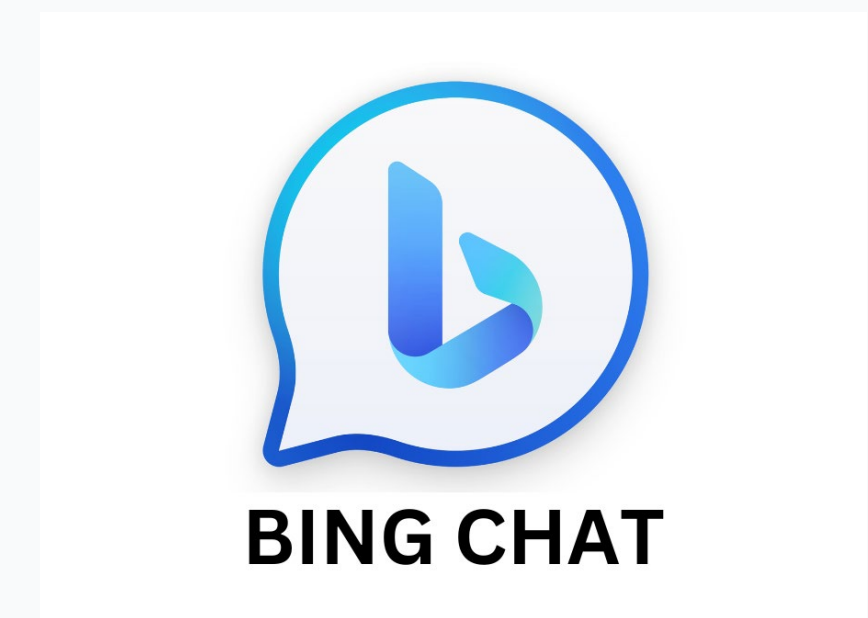
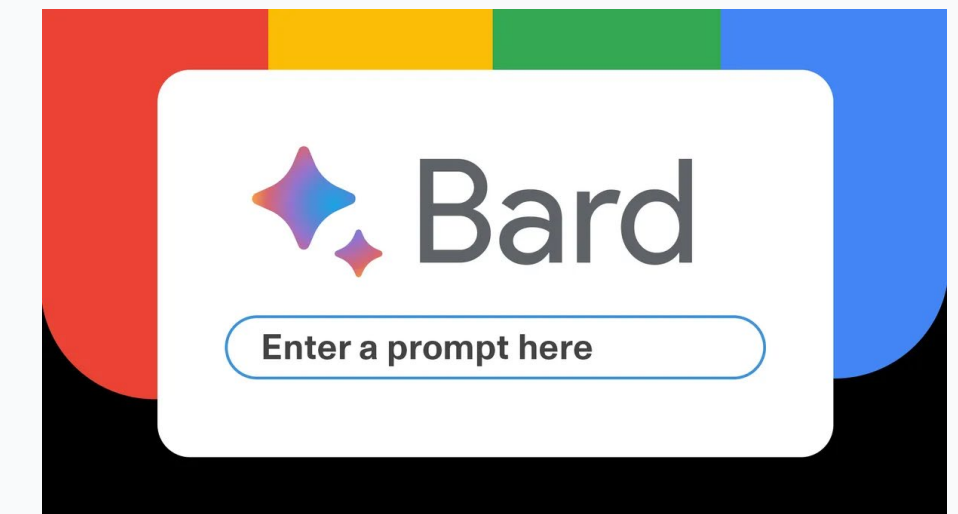


Uses of AI Beyond the Classroom

- Parent Assistants – generate letters requesting individualized education plan services, request a child be evaluated for gifted and talented programs, mapping school options within driving distance, generate application timelines, compile contact information, and even create bedtime stories with evolving plots tailored to a child's interests
- Administrator Assistants – draft various communications, including materials for parents, newsletters and other community-engagement documents, organize class schedules, analyze complex data to identify patterns or needs and perform sentiment analysis to measure school-climate

Some of the Best-Known Apps for Educators

- ChatGPT 3.5 – free version of Chat GPT
 - Trained on data up to 2021
 - Very fast
 - But prone to inaccuracies
- ChatGPT 4.0 – requires paid account
 - More powerful than 3.5
 - But slower
 - Compatible with “plug-ins”
- Microsoft Bing Chat – offers source citations
- Google Bard – translates languages and provides differing tones and styles
- Anthropic Claude 2 – “constitution” – aims to make it more helpful and honest





Concerns About Student Use of AI

- The primary concern is about academic integrity
 - Plagiarism temptation
 - Lack of reliability – tendency to “hallucinate”
 - E.g., OpenAI warns that ChatGPT “may in some situations result in incorrect Output that does not accurately reflect real people, places or facts”.
- Accounting for the “black box” of AI
- Over reliance on AI – potentially leading to lack of critical thinking and independent problem-solving skills
- Stunting emotional and social development
- AI may exhibit biases, such as racial and gender stereotypes
- Economic disparities limiting access to some students
- Widening the gap between well-resourced schools and those lacking in funds



How Some Teachers are Figuring Out Creative Uses of AI

- Facebook groups like:
 - ChatGPT for Teachers (about 300,000 members)
 - The AI Classroom (over 20,000 members)
- Photomath – students upload a picture of a math problem and get detailed instructions on how to solve it
- Tome – can turn notes into a narrative
- Readwise – can highlight key parts of PDFs to help students get through readings faster
- ChatGPT – can help students translate classic literature into modern English to help them understand the text, and fact-check essays bulk generated by the program



Additional Ethical Concerns

- Even if certain data sharing or collection is technically legal, is it ethically right?
- How would parents, guardians, or the students themselves feel knowing their data is being used in certain ways?
- Schools have a responsibility to maintain the trust of their communities
- This trust can be easily eroded if stakeholders feel that their data is being used without their explicit consent or in ways they find objectionable
- While AI can aid in decision-making, it should complement human judgment, not replace it



Policy Challenges With AI

- Striking a balance between supporting innovation and protecting the public interest
- The U.S. Department of Education has only issued guidance to date
- There is a Presidential Executive Order on the “Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence” directing development of policies and guidance on AI in education within one year, including:
 - Transparency requirements for AI developers
 - Resources to help teachers implement AI in the classroom
 - Requirements for watermarking/flagging AI-generated content
- Congress is drafting legislation, but timely adoption is questionable
- NYS has yet to produce regulations covering the schools, though there is a bill in the Legislature on use of electronic monitoring tools to surveil employees and make employment decisions

What Are Schools Doing About Use of AI

- Variety of approaches
 - Prohibit use of AI altogether
 - This could be an exercise in futility
 - E.g., NYC first banned ChatGPT, then withdrew its ban when faced with public criticism
 - Cautious embrace of AI
 - Allowing it for some assignments but not others
 - Ban use for producing original content
 - But allow creative usage, such as writing prompts, brainstorming on projects, time management and organization, aiding in data analysis, generating statistical models and simulating historical events
 - Use with no restrictions
- There's no one-size-fits-all answer



What Should Your School Do?

- Gather information from various community stakeholders before laying down any rules or policies
- Collaborate with other institutions about AI usage
- Consider adopting a policy tailored to your school community
- Consider annual workshops or seminars to educate staff and students about the ethical, academic, and practical implications of AI



Elements to Include in Your Policy

- Acceptable Use
- Rules and guidance for the use of AI in classroom and administrative settings
- Academic Honesty
- Non-Discrimination
 - Bias
 - Equity
- Training requirements for students and staff
- Data Privacy
 - FERPA
 - Education Law § 2-D
- Procedure mandating human verification of AI-generated decisions



Let's Ask Claude 2

- Write a Board of Education policy applicable to New York students, teachers and administrators on the use of generative AI in the schools
- Claude
- Follow-up prompt: Modify this policy to account for privacy concerns, overreliance on technology and equity issues





Key Takeaways

- Generative AI models are here to stay – they are getting more powerful and are improving rapidly
- The question, then, is how to use these emerging capabilities responsibly to improve teaching and learning
- There currently is a policy vacuum in this regard
- The responsibility rests with human intervention – with educators, policymakers and parents to incorporate this technology thoughtfully
- This is just the start

Questions?



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