AI: Equity, Access and Effectiveness

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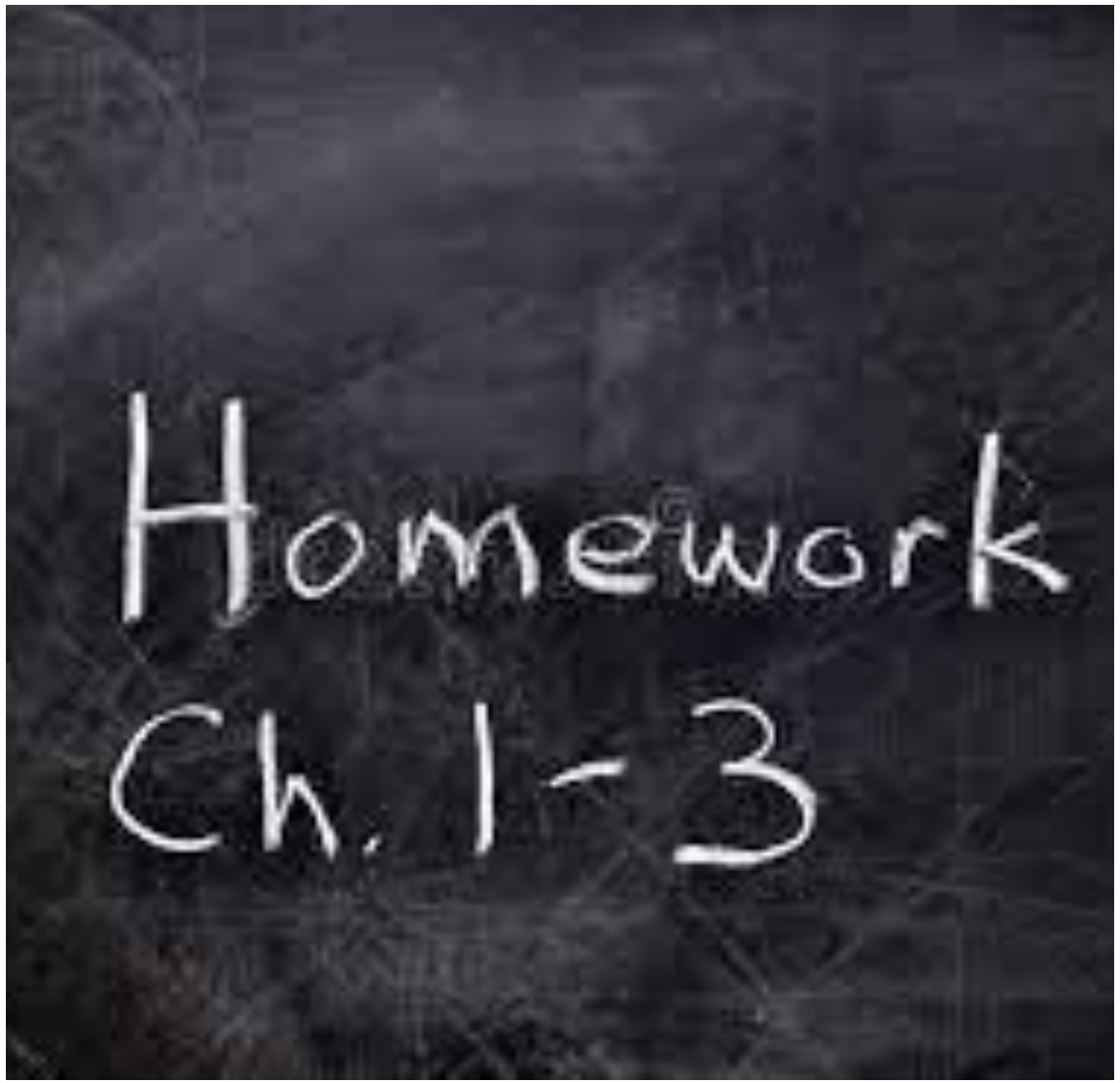
Considerations

- Technology Integration in Education
- AI terms to know
- Problematizing AI
- Using AI
- Questions and Answers

Technology Integration Continuum

Historically, the integration of technology into teaching and learning environments, known as techno-pedagogy, has occurred fitfully, often in unpredictable ways.



Techno-pedagogy is concerned with harnessing the potential of technology to create meaningful learning experiences and improve educational outcomes for learners in various educational settings

An ***emerging technology*** is one that is not in common use currently in education, but which has the potential to be more widely adopted to support improvements in teaching, learning and research. Many of these technologies have been emerging for a number of years. Many continue to evolve and will be in a state of continuous emergence.

It is helpful to connect ***emerging technologies*** with ***emerging practices.***

The chaotic nature of technological adaptation is the result of many **barriers** to innovation.

Cultural Barriers – the hermetic nature of schools which are often slow to respond to innovation.

Financial Barriers – the cost of technology acquisition and training to both educational institutions and their constituencies.

Political Barriers – the bureaucratic nature of education and the attendant regulations, policies and procedures.

Methodological Barriers – the time-consuming nature of identifying evidence-based instructional practices.

Despite these obstacles, schools have gradually transformed into technologically integrated environments.

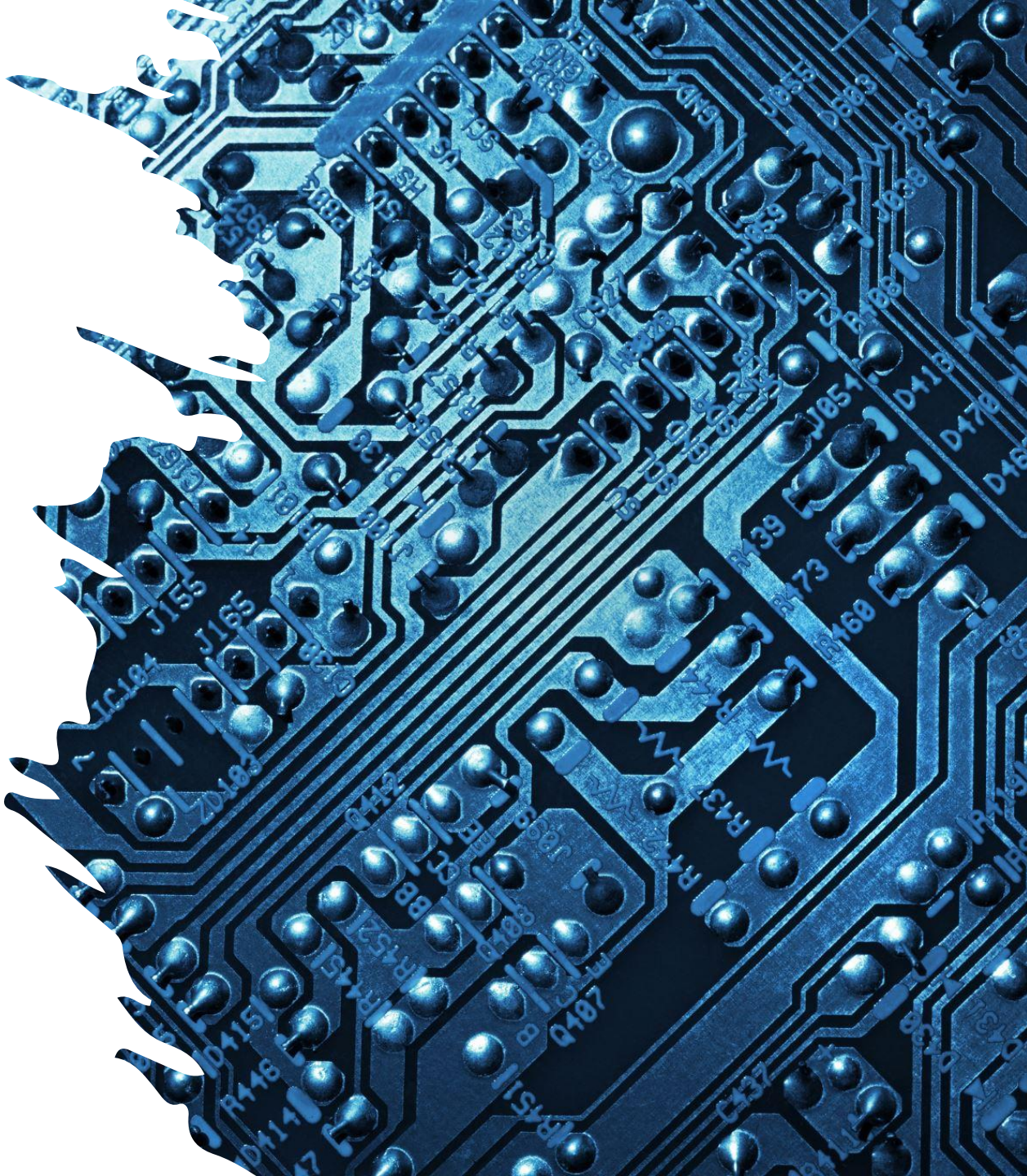
Let’s try to categorize the methods of technological transformation in education.

Before the COVID-19 pandemic, technology integration generally happened in two ways:

intentional and ***accidental***.

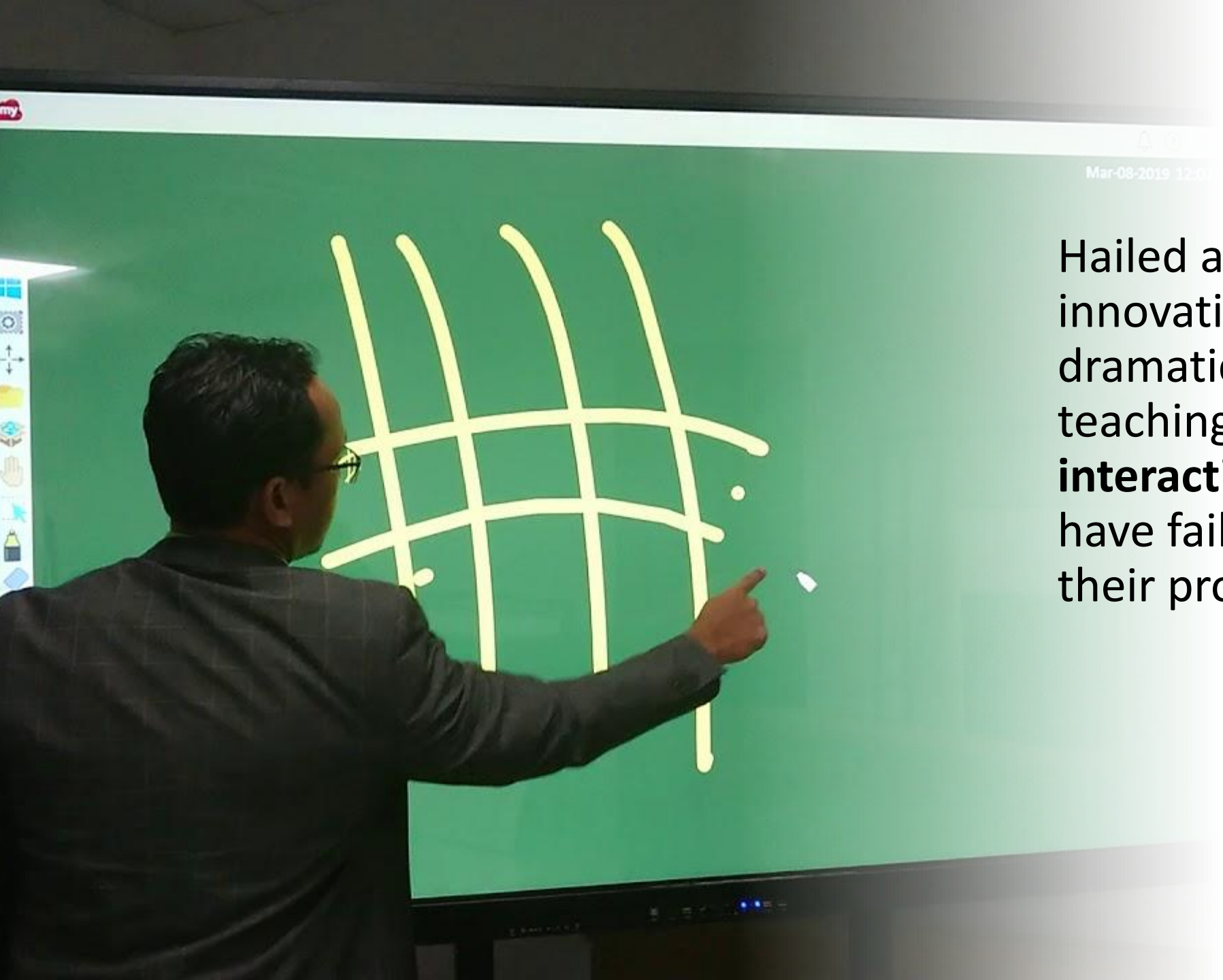
The institutions of education (universities, school districts) and the rapidly developing educational technology sector responded shifting cultural expectations by developing **technological solutions** to address **instructional needs**.

These solutions (in the form of hardware, software, virtual resources) could be classified as ***intentional***.



These solutions were ***intentionally*** designed for use in instructional environments.

Intentionally designed educational technology has a mixed record of success as measured by broad adoption coupled with a positive and measurable impact on student learning outcomes.



Hailed as a remarkable innovation that would dramatically change teaching and learning, **interactive whiteboards** have failed to deliver on their promise.

Why did they fail?

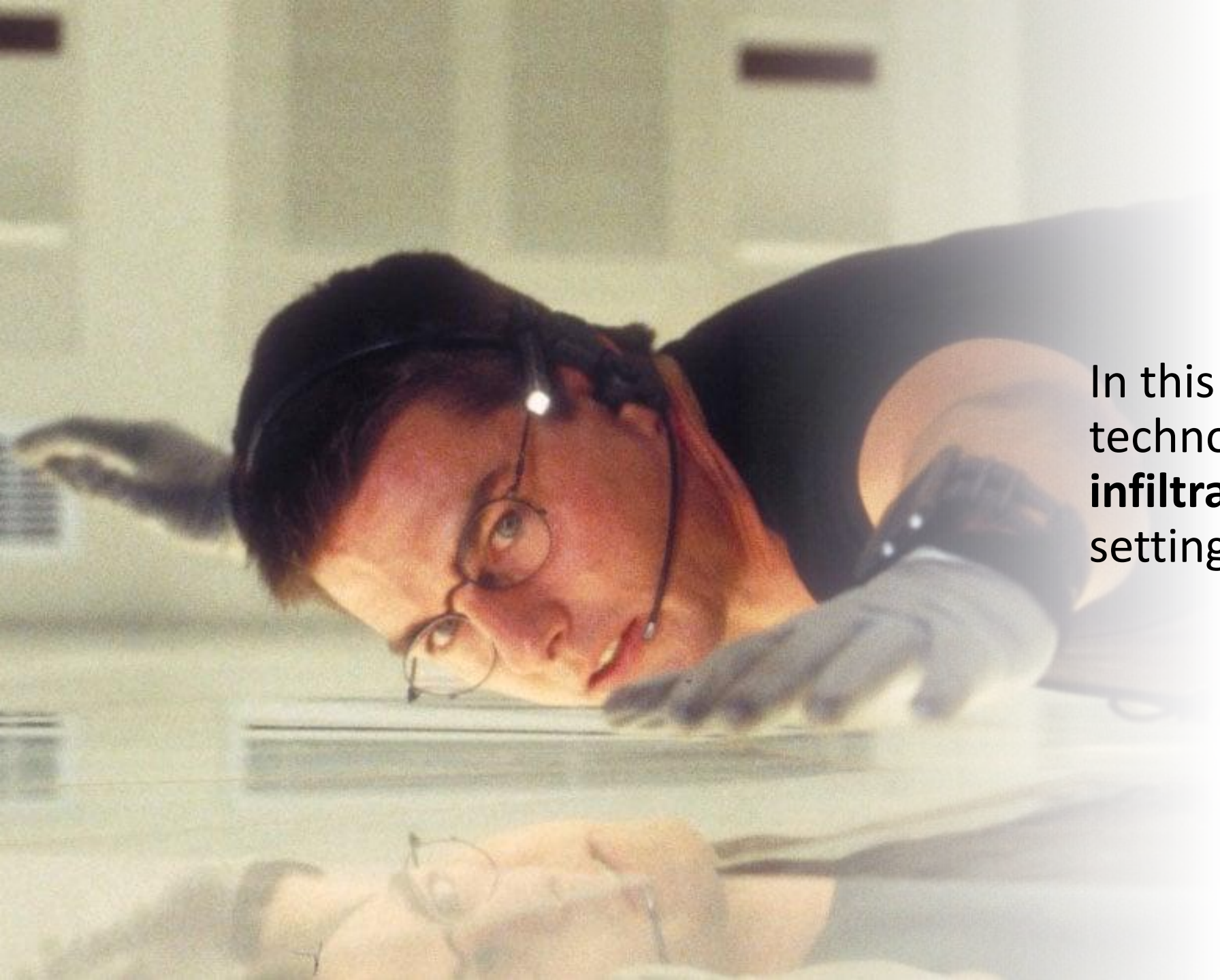
These failures may be attributable to who developed the solution and their **beliefs** about school.

Bias in technology can arise when datasets used to design or train a product lack diversity. This can lead to products that work less effectively, or not at all, for certain demographic groups.

Bias can often be found in the **built environment.**

*Just because it was **designed** for use in schools doesn't mean that it will **work** in schools.*

The second type of integration is ***accidental***.



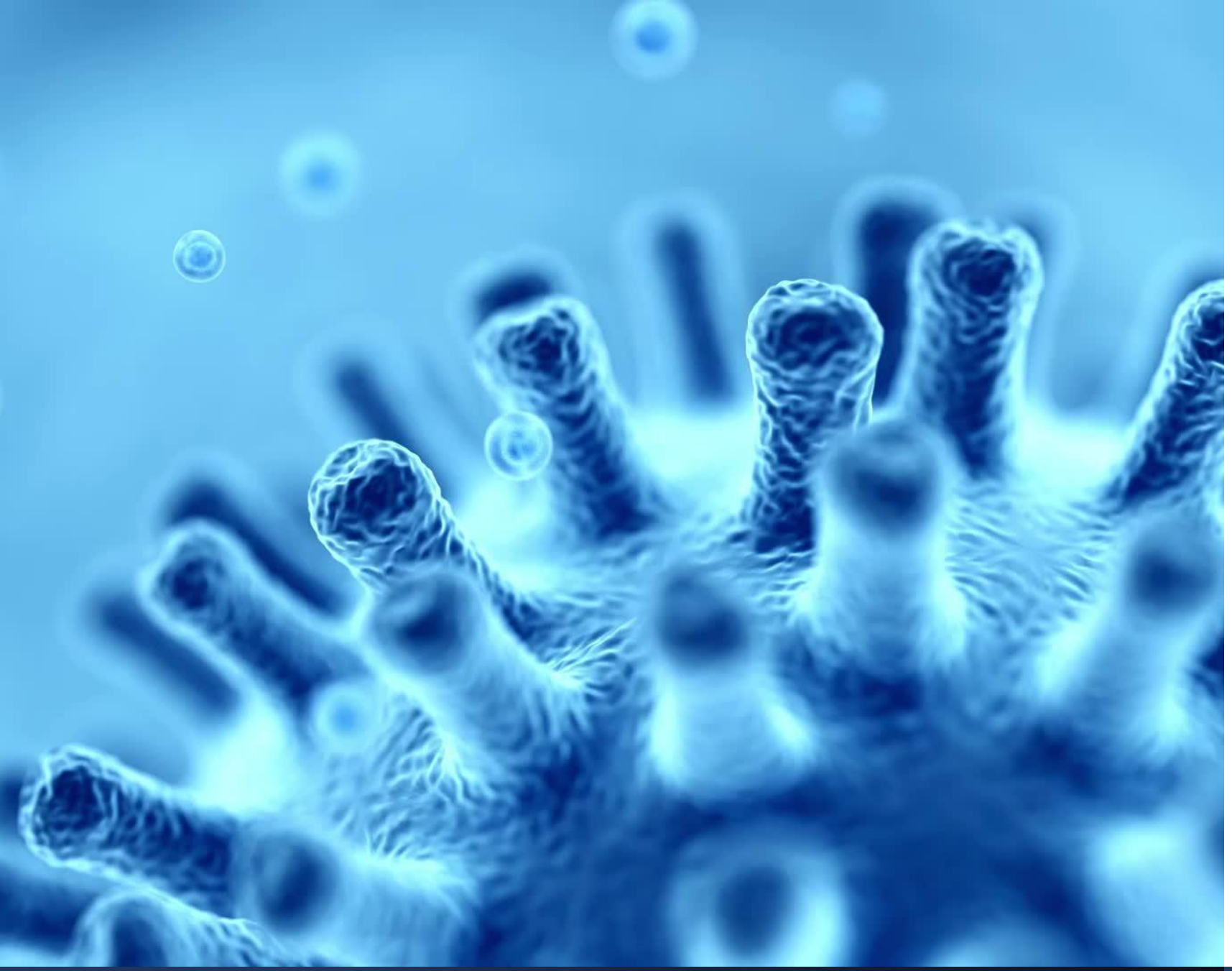
In this scenario, technology adaptations **infiltrate** educational settings in several ways.

One way is ***covertly;*** students bring technology tools and practices with them to school. Schools often respond by banning these tools. Examples are laptop bans in higher education and smartphone bans in K-12.

In some instances, educators have responded to this covert infiltration by adapting their practice to accommodate the technological habits of their students, resulting in ***accidental integration***. In other cases, schools are convinced by broad societal adoption of technical habits.

TikTok

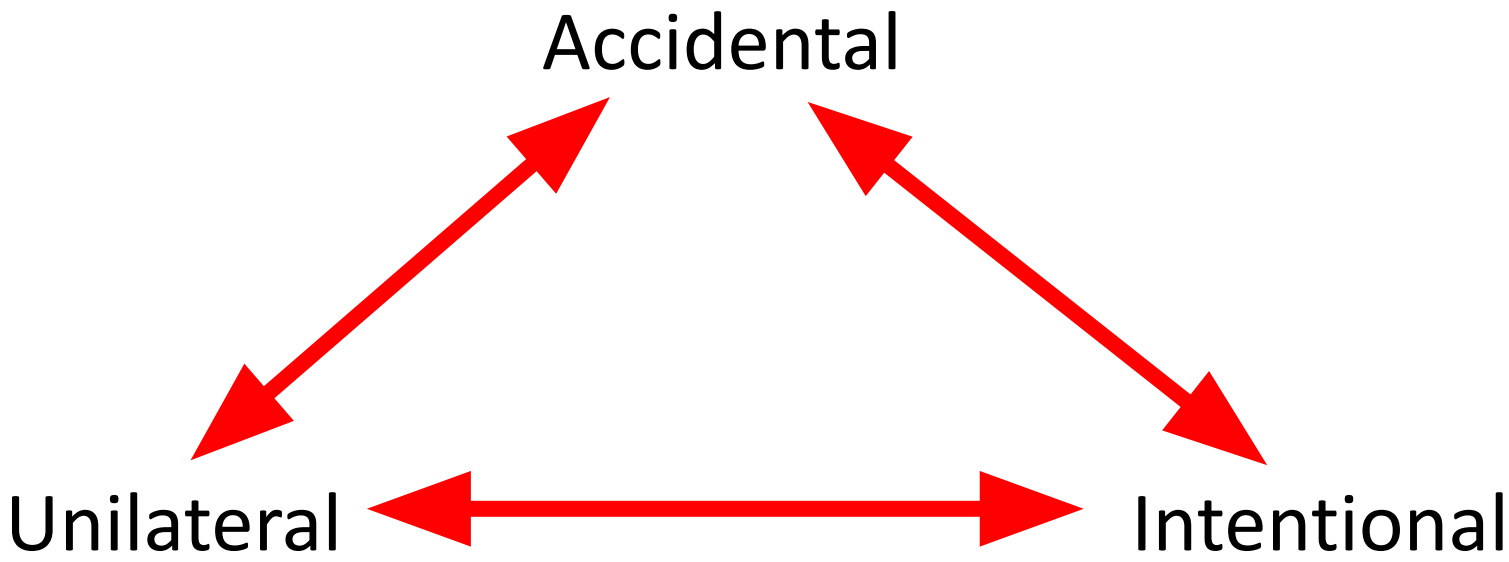
Using tools not specifically designed for classrooms (podcasting, X, and TikTok for example) – is also an example of ***accidental integration.***



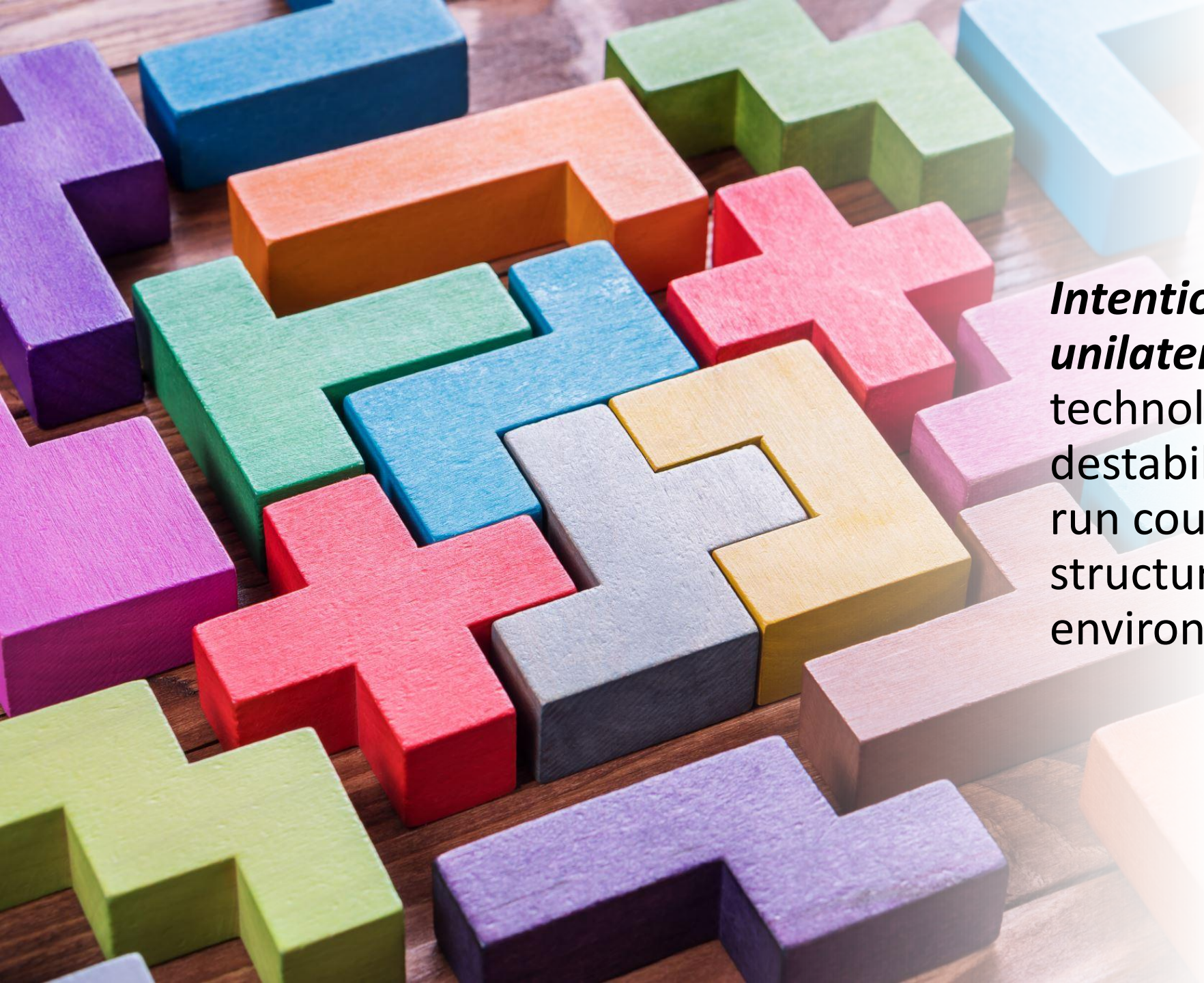
The pandemic resulted in a novel type of technological adoption. This type might be called ***unilateral***.

Unilateral integration
means you have no choice.

Types of Technology Adoption



The persistent stability of education is at already under threat.



Intentional, ***accidental*** and ***unilateral*** types of technology integration are all destabilizing as innovations run counter to the persistent structures of educational environments.

Innovations are disruptive.

Education privileges stability.

Historic and persistent structures and practices can often be ***inequitable***.

The deployment and readily available access to ***Artificial Intelligence*** presents another disruption in the teaching and learning environment.

In 1950, Alan Turing wrote:

I propose to consider the question:

"Can machines think?"

Artificial intelligence is the capability of a computer system to mimic human cognitive functions such as learning and problem-solving.

Machine learning (ML) is the process of using mathematical models of data to help a computer learn without direct instruction. It's considered a subset of artificial intelligence (AI).

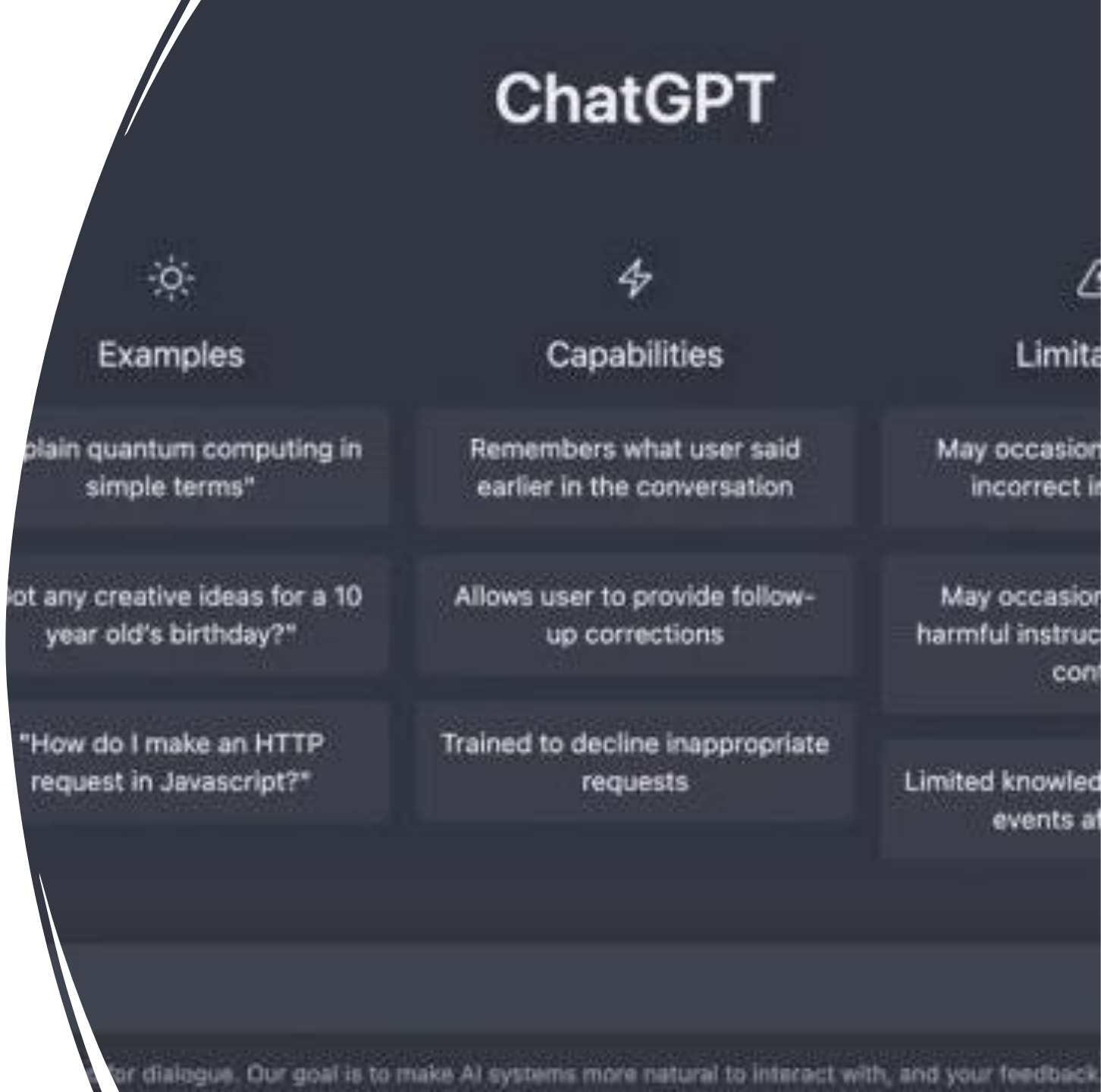
Natural language processing (NLP) refers to giving computers the ability to understand text and spoken words in much the same way human beings can.

A ***chatbot*** is a software application used to conduct an online chat conversation via text or text-to-speech, instead of providing direct contact with a person.

A ***virtual assistant*** is an advanced type of chatbot.

Most of the chatbots you have used are ML-based.

ChatGPT (Chat Generative Pre-trained Transformer) is a chatbot launched by OpenAI in November 2022.



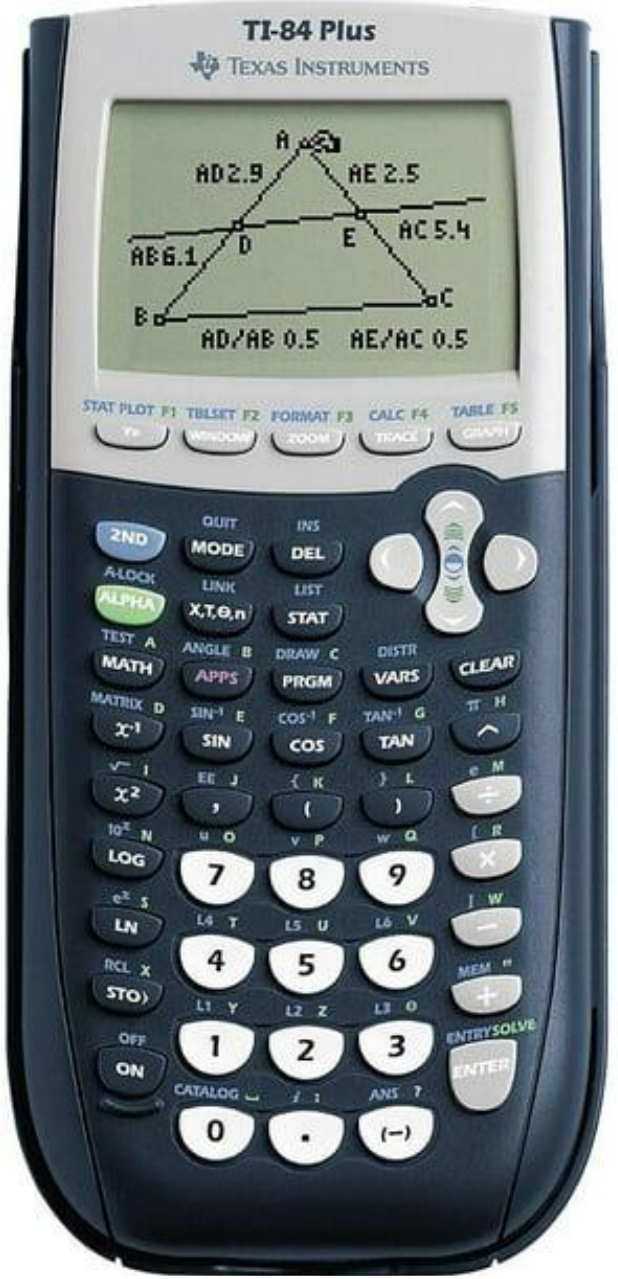
ChatGPT represents a significant advancement in the field of NLP.

It can process large amounts and types of data. This allows it to learn much more about language and its nuances, resulting in a more human-like ability to understand and generate text.

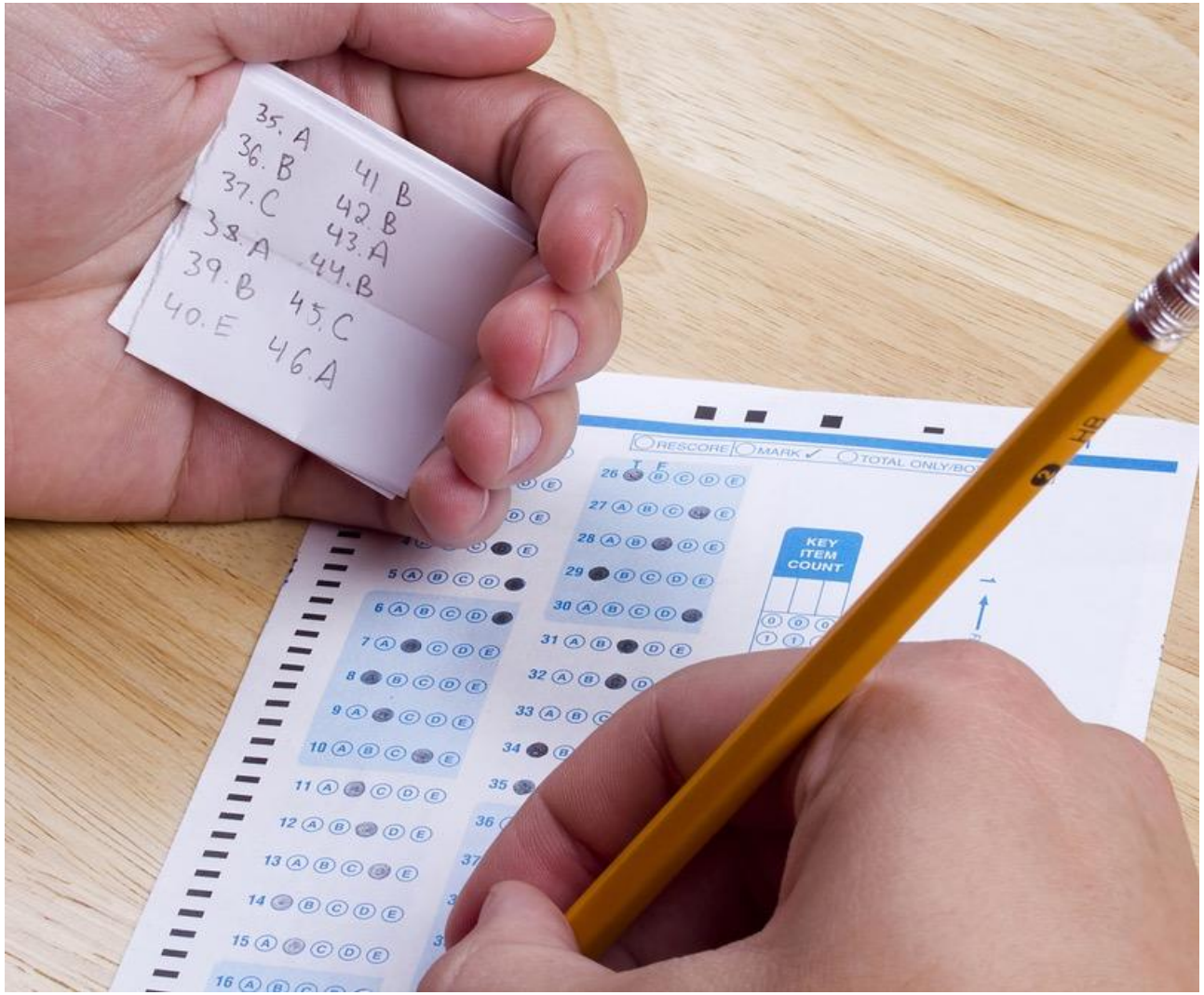
Unlike traditional chatbots, ChatGPT isn't connected to the Internet and does not have access to external information. Instead, it relies on the data it has been trained on to generate responses. This data includes a vast array of texts from various sources, including books, articles, and websites.

It continues to gather data from ChatGPT users that could be used to further train and fine-tune ChatGPT

Conversations have centered around cheating, plagiarism and the inability to assess student learning accurately. The use of AI has been presented as unlike anything schools have ever faced before. But it might be helpful to consider an earlier case of technological disruption.

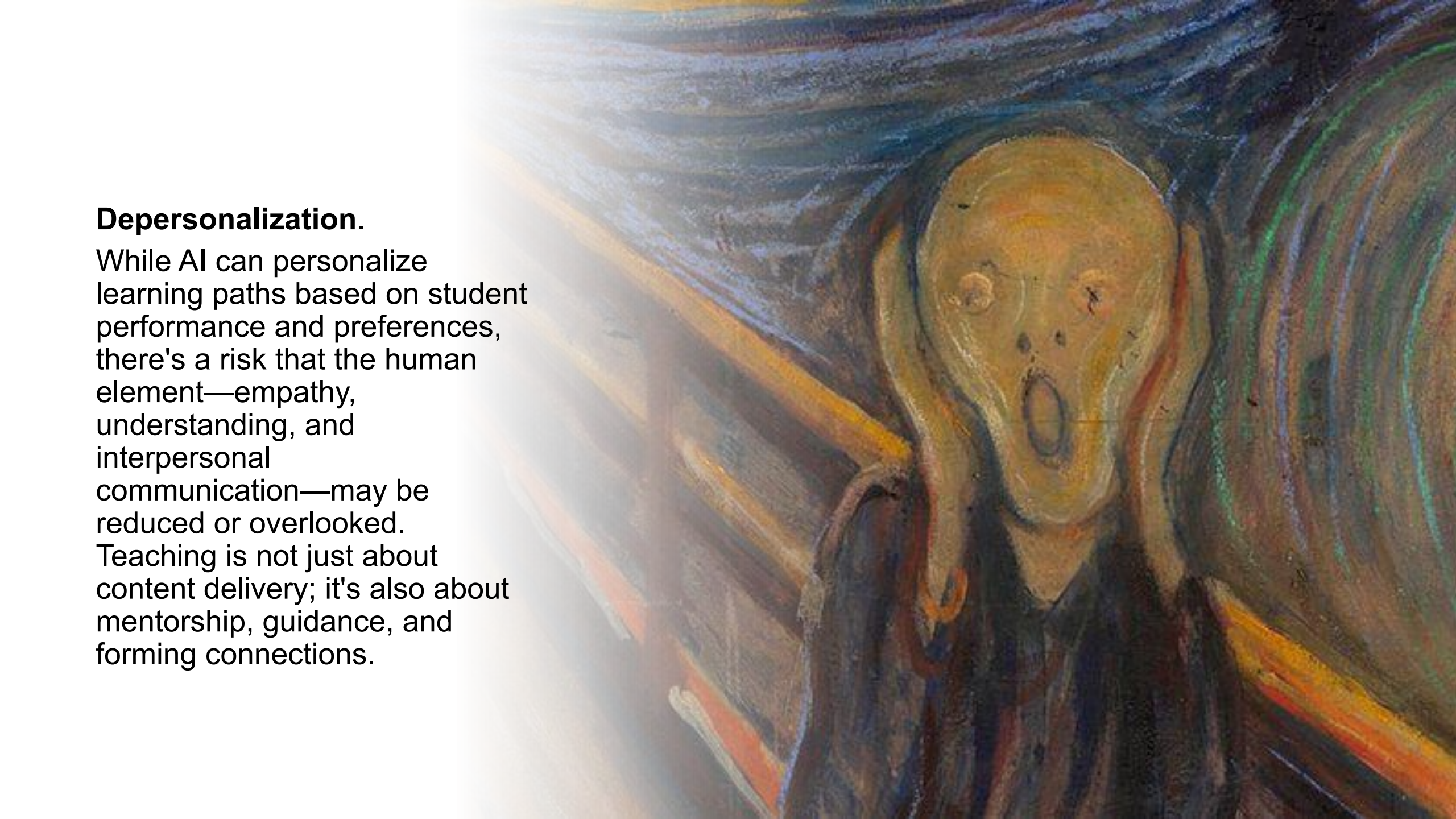


What are the implications of ChatGPT for teaching, learning and research?



Depersonalization.

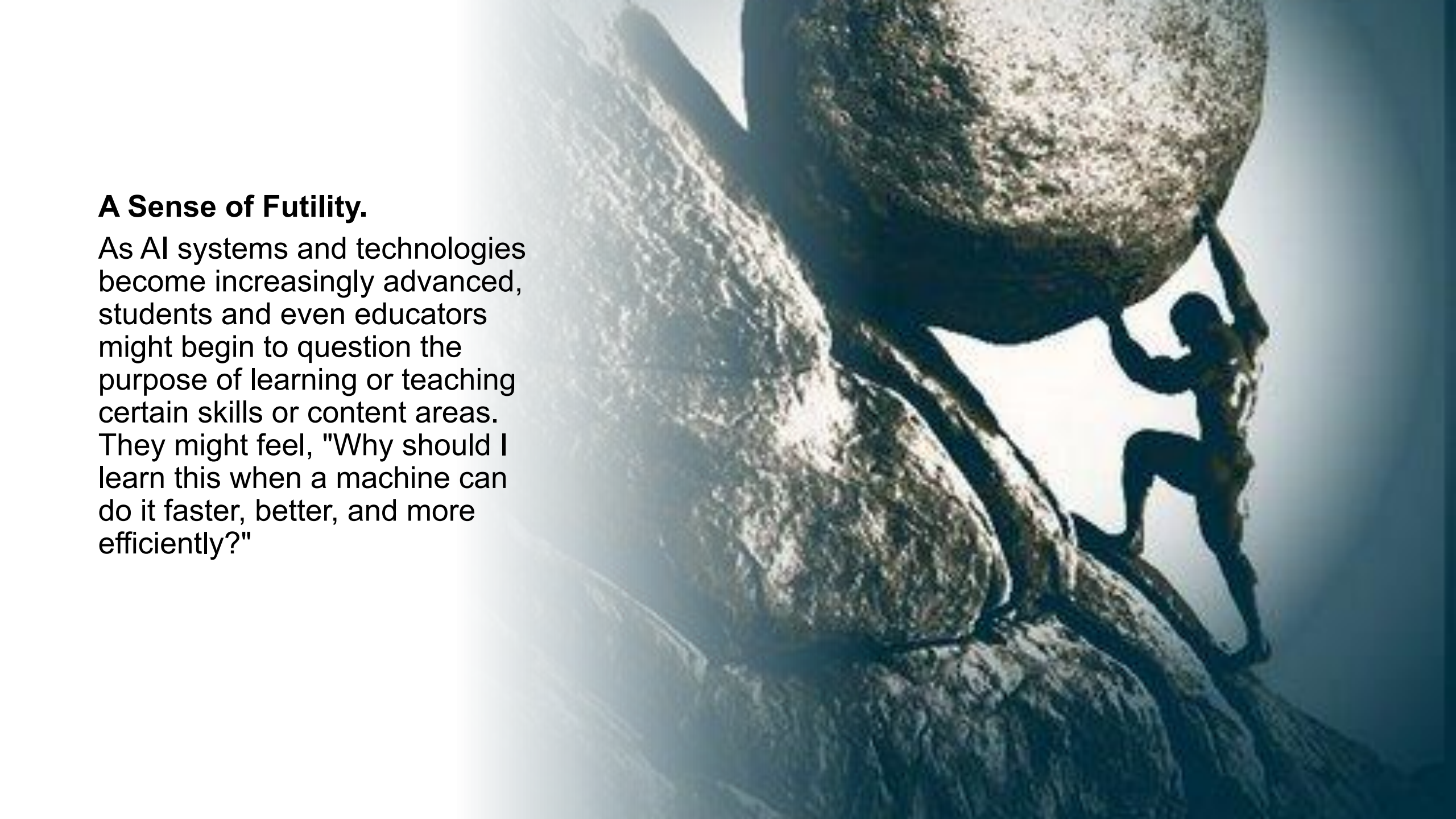
While AI can personalize learning paths based on student performance and preferences, there's a risk that the human element—empathy, understanding, and interpersonal communication—may be reduced or overlooked. Teaching is not just about content delivery; it's also about mentorship, guidance, and forming connections.



Cognitive de-skilling refers to the decline in human cognitive abilities and skills due to over-reliance on technology. As we increasingly rely on technology to perform tasks for us, our own abilities in those areas might diminish. Just as muscles can atrophy without exercise, cognitive skills can degrade without use.

A Sense of Futility.

As AI systems and technologies become increasingly advanced, students and even educators might begin to question the purpose of learning or teaching certain skills or content areas. They might feel, "Why should I learn this when a machine can do it faster, better, and more efficiently?"



Four Essential Tasks

- **Curating**
- Contextualizing
- Creating
- Communicating

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- Curating
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- **Communicating**

Final Points:

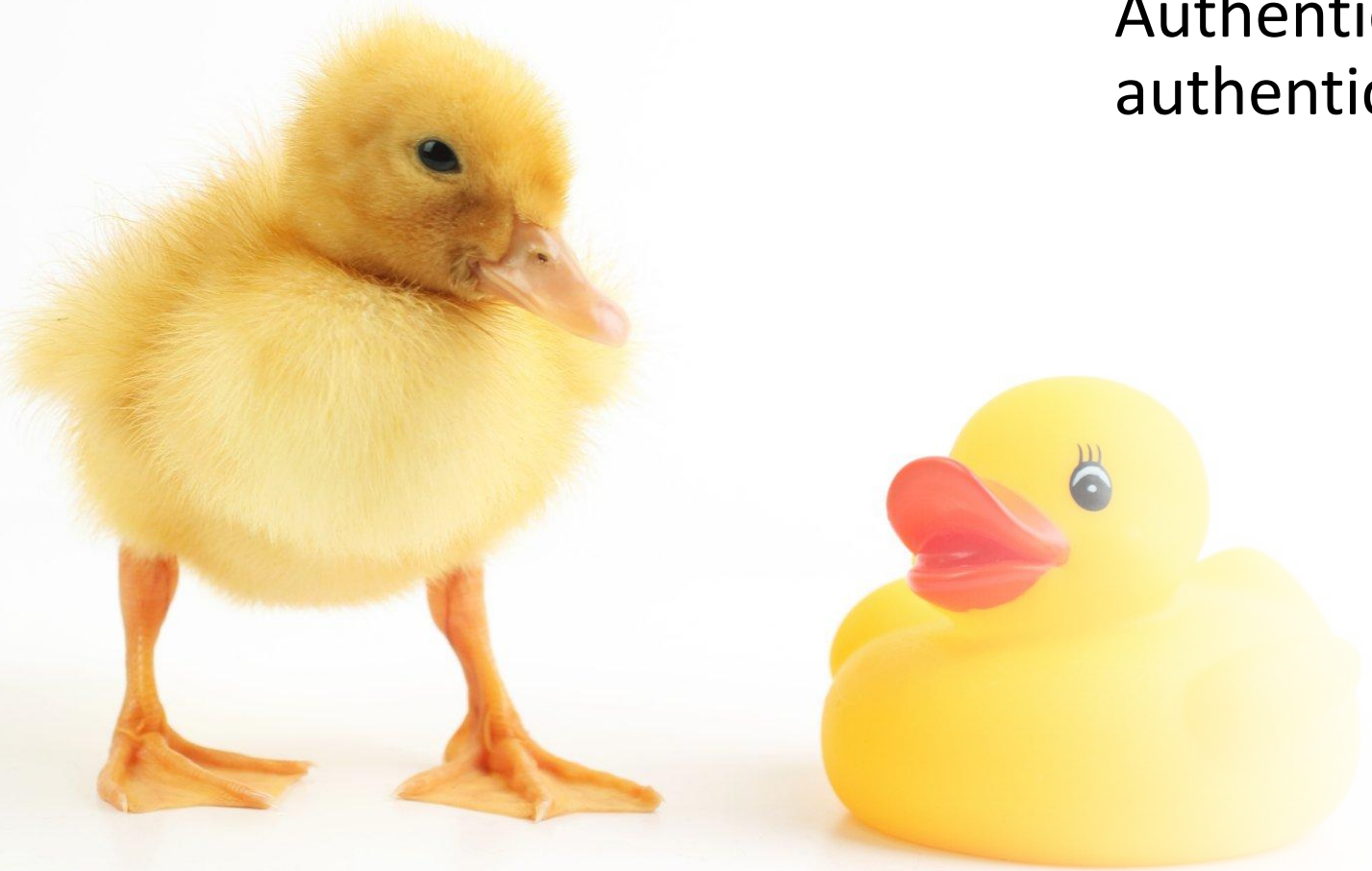
- Equity
- Re-imagination

Informational equity: students who do not have access to AI in schools may be at a disadvantage compared to those who do in terms of easily accessing information.

Technological equity: in today's digital age, access to technology and online resources has become a necessity for learning and success. Students who do not have access to the tool outside of school may be at a disadvantage compared to those who do.

Cultural Equity: AI can provide access to diverse perspectives and experiences that may not be available within the classroom or the students' immediate community. Students will also be denied the opportunity to provide feedback on the use of these tools, potentially denying the chance to be a part of their improvement.

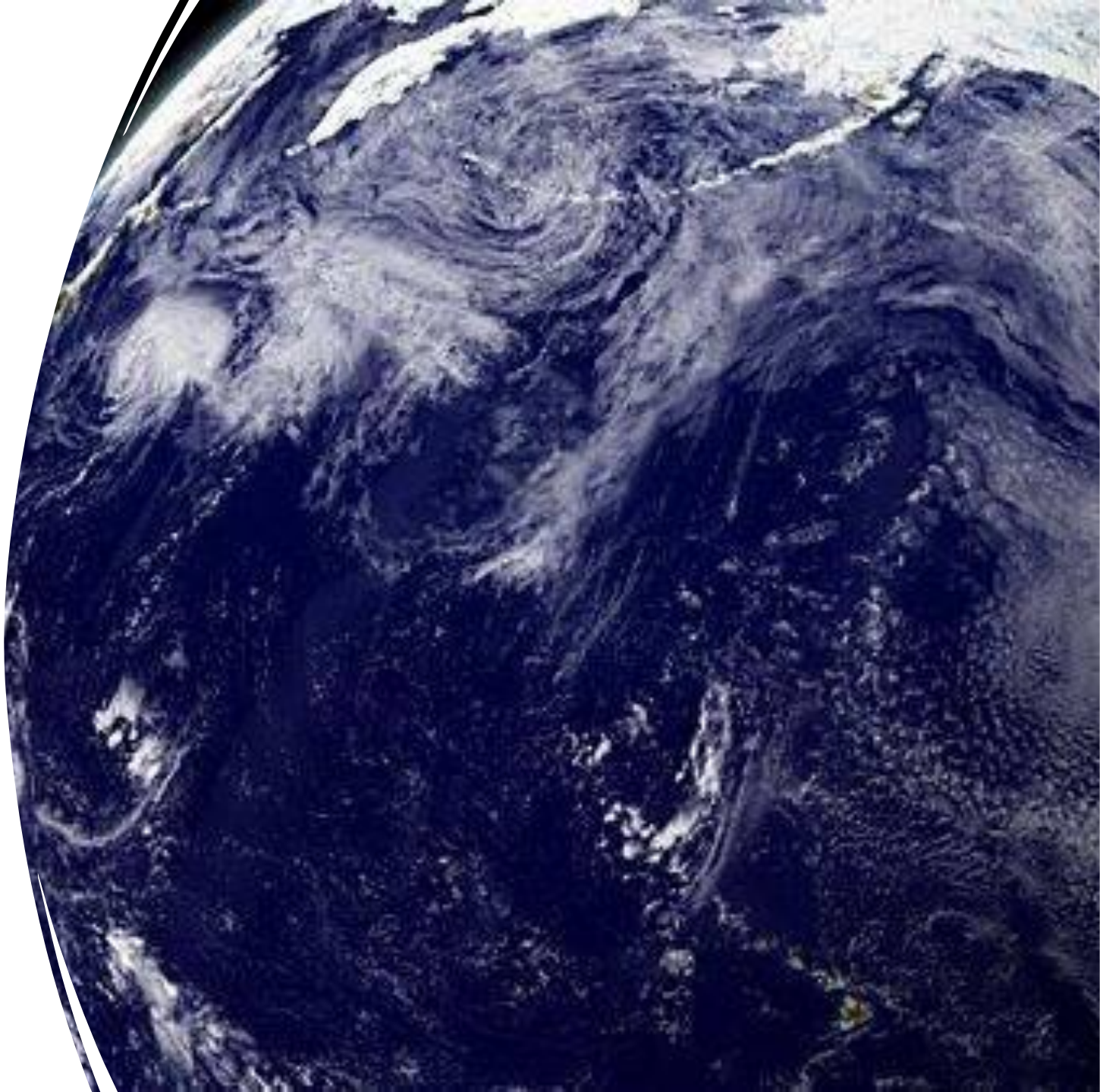
Educators cannot expect **artisanal** responses in **industrialized** environments.

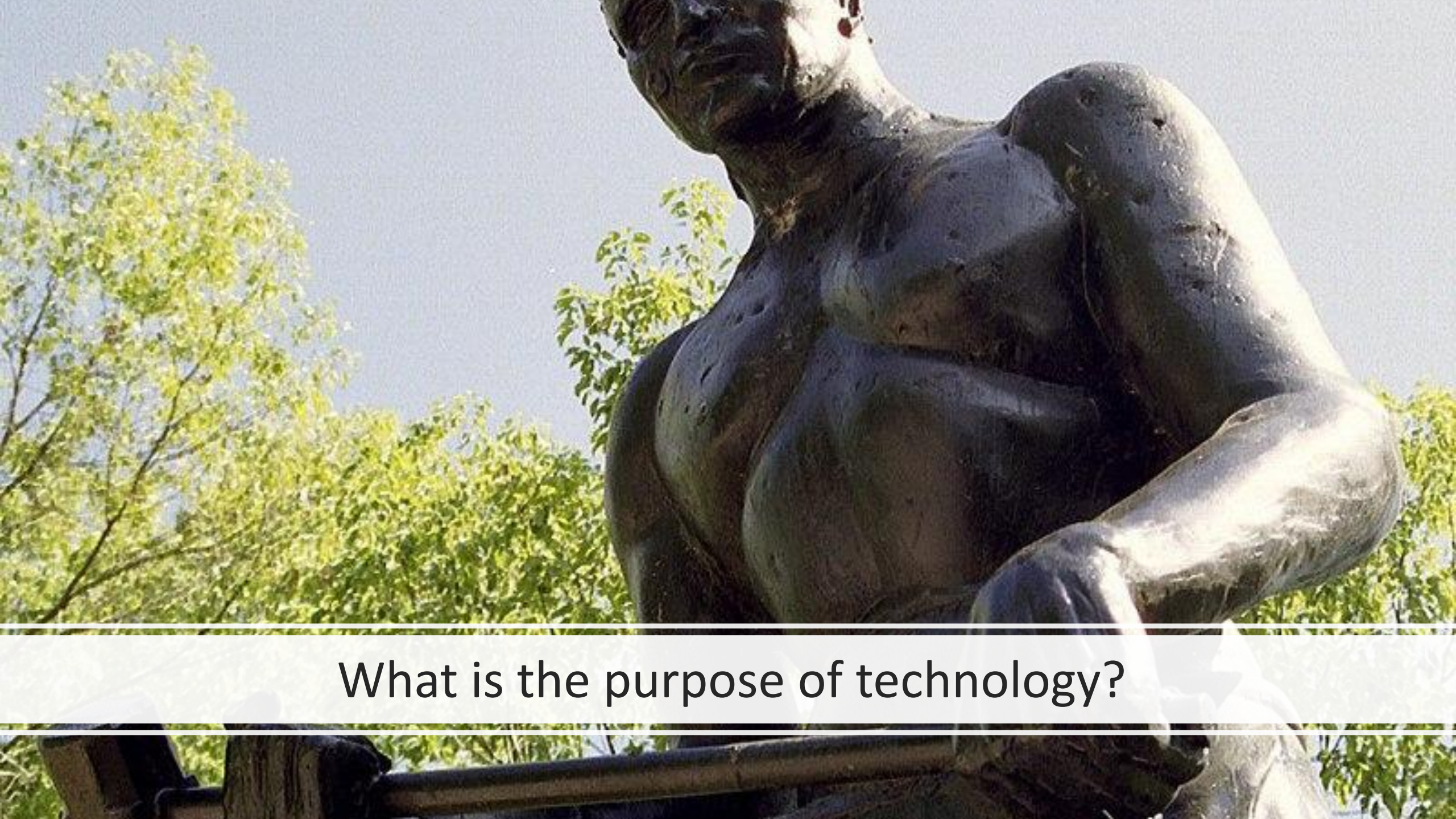


Authentic **responses** require authentic **assessments**.

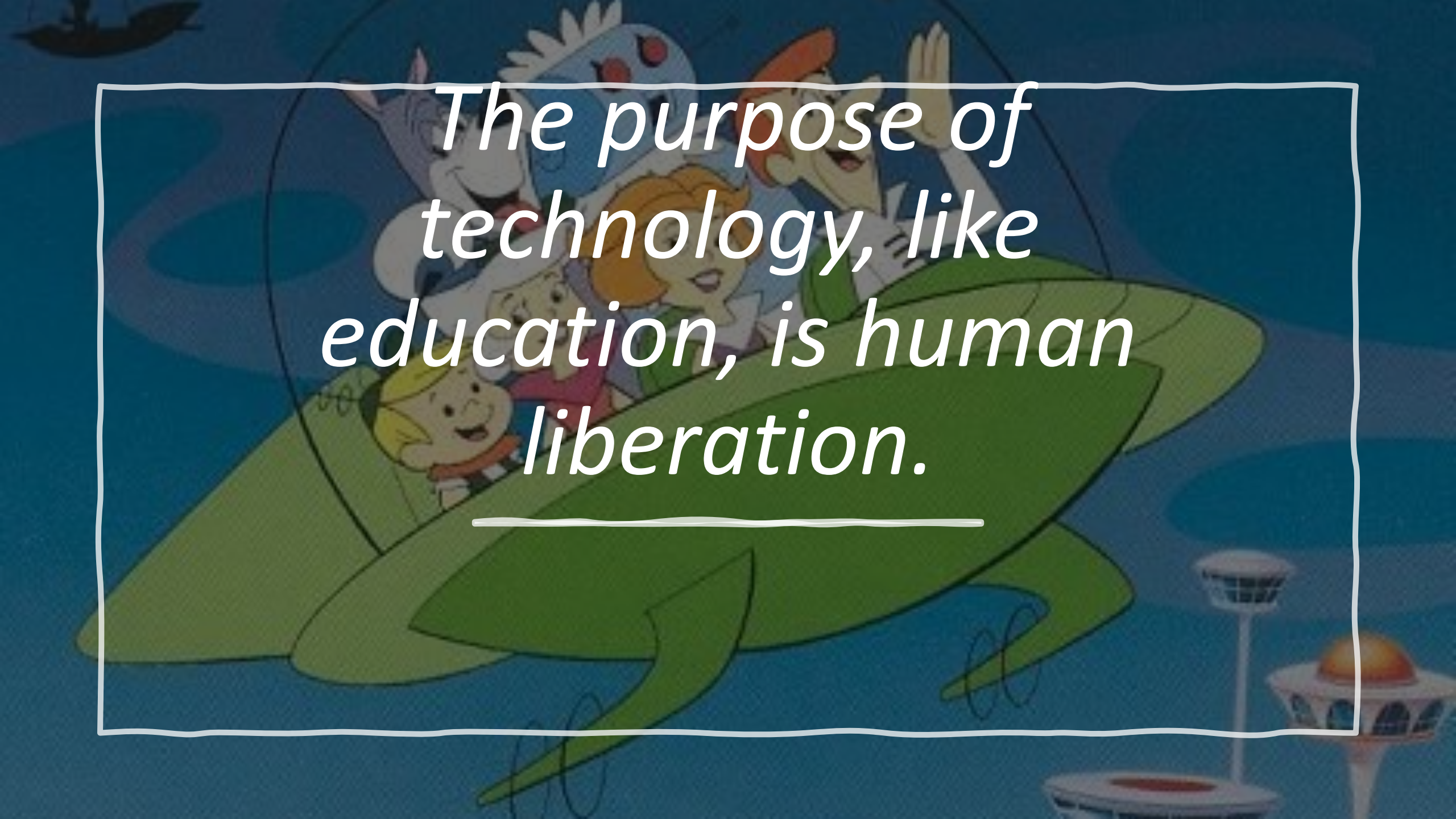
We must prepare learners for the world that will be, not the one that was.

Or the one we wish for.





What is the purpose of technology?


The purpose of technology, like education, is human liberation.

Educators should respond to the use of Artificial Intelligence the way they have in the past: with a focus on how all students can benefit from technology if used in deliberate, effective and equitable ways for humanistic ends.


THANK YOU!