



# AI in Education: Humanizing Technological Advancements

## Creating a Better Learning Environment

THE 41ST ANNUAL CONFERENCE OF THE ARAB ORGANIZATION

DATE : 15 December 2024

VENUE: National University for Science and Technology, Muscat, Oman.

*By: Prof. Sr Ts. Dr. Adi Irfan Che Ani*



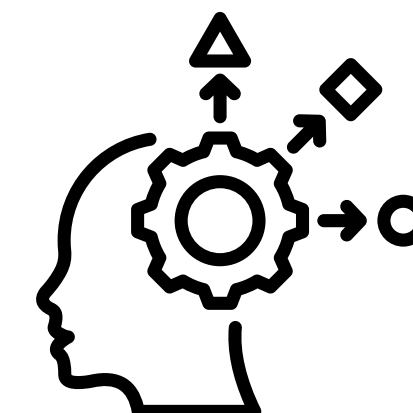
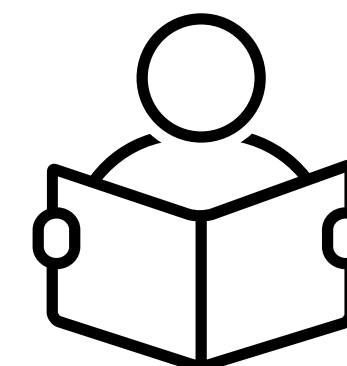
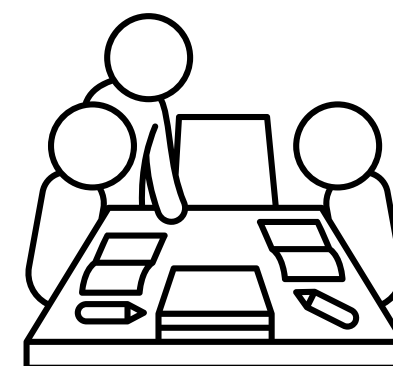
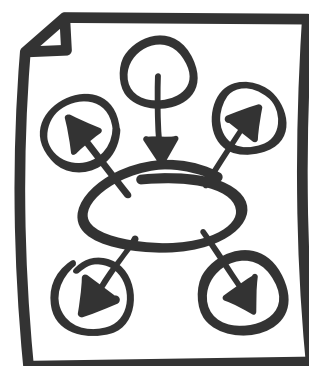




# Introduction

## How AI is reshaping education?

To explore ways AI enhances and humanizes learning environment

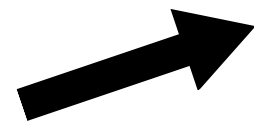




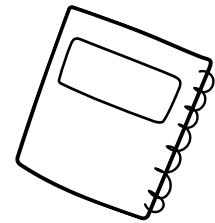
# The Role of AI in Education



What is AI in education?



**ADAPTIVE LEARNING**



**VIRTUAL CLASSROOMS**



**INTELLIGENT TUTORING**





# The Need for Humanizing AI in Education

Challenges in Tech-Centric Education:

Loss of personal connection



Focus on data over people



Leverage AI

Not Replace

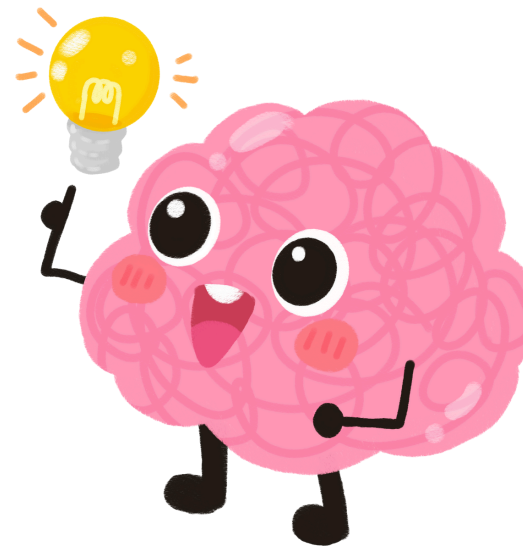
Human Element





# Personalized Learning Paths

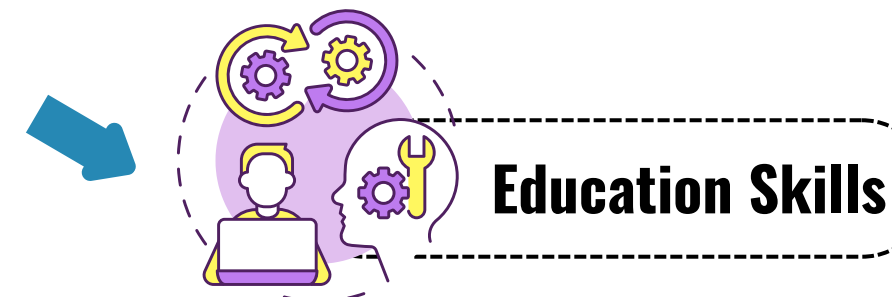
Customizing learning to each student's pace and style



Keeps learners motivated by tailoring challenges to skill level



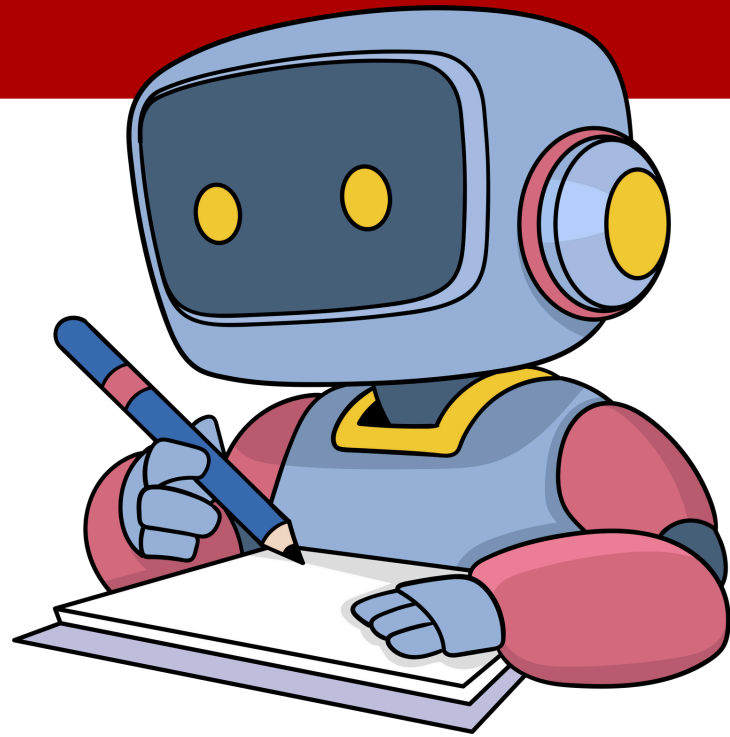
Encourages mastery of concepts at an individual pace before progressing



Supports diverse learners by offering the right level of challenge, promoting deeper understanding of education skills concepts







# Interactive Idea Generation

 Claude

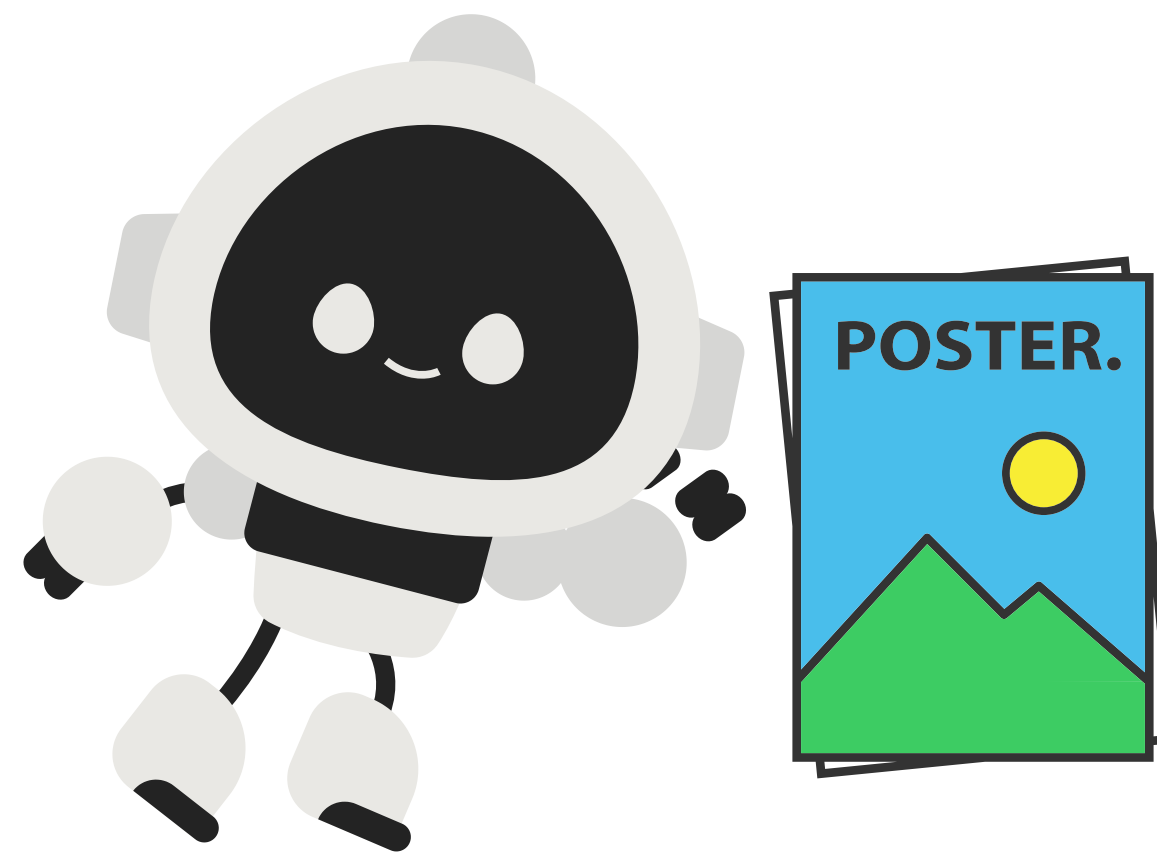
 ChatGPT

 Sider

 perplexity

 jenni

 Elicit  
scite\_



Canva

 Adobe Express

 postermywall



<https://drive.google.com/file/d/1InvZO5VsOOC1pMDPAjZWm dYH4CrJnK7V/view?usp=sharing>

## YOUR AI Research Assistant

Get cited answers supported by real research

Create a literature



⚙ Settings ⊕ Sources  Use Table Mode

Create a literature review of weight loss related GLP-1 research →

scite.ai



Done

"literatur"

literature

literatür

q w e r t y u i o p

a s d f g h j k l

↑ z x c v b n m ↵

**EXAMPLE**



# How to input humanize experience in Ai?



## DESIGN FOR EMPATHY AND EMOTIONAL INTELLIGENCE

- Incorporate Emotional Recognition: Use AI algorithms that can detect and interpret emotions from facial expressions, voice tones, or written inputs to respond empathetically (**Morana et al., 2020**).
- Simulate Natural Conversations: Train AI with datasets that reflect human nuances, such as casual phrasing, politeness, and emotional cues, to make interactions feel natural (**Momand et al., 2023**).
- Contextual Understanding: Enable AI to consider the context of a learner's situation (e.g., stress levels, learning challenges) to offer tailored and supportive responses (**García-Martínez et al., 2023**).



## FOCUS ON PERSONALIZATION

- Adaptive Learning Paths: Develop algorithms that adjust to the user's progress, learning pace, and style to make education feel individualized (**Gligorea et al., 2023**).
- Dynamic Feedback: Provide feedback in a constructive and supportive tone, similar to how a teacher would encourage and guide a student (**Xie et al., 2019**).
- Cultural Sensitivity: Train AI to recognize and respect cultural differences, ensuring inclusive and respectful interactions (**Holstein et al., 2019**).



## ENHANCE ACCESSIBILITY

- Assistive Technologies: Incorporate tools like text-to-speech, speech-to-text, and screen readers to support learners with disabilities (**Kazimzade et al., 2019**).
- Language Localization: Support multiple languages and dialects for broader inclusivity and accessibility (**Fan et al., 2020**).
- Customizable Features: Allow users to modify AI settings (e.g., tone, pace, difficulty) to suit their comfort and needs (**Jia et al., 2022**).



## BUILD TRUST THROUGH TRANSPARENCY

- Explainable AI: Make decisions and recommendations understandable to users by explaining the rationale behind them (**Mendes & Rios, 2023**).
- Data Privacy and Ethics: Prioritize the ethical use of data, ensuring that users' privacy is protected and that data is used responsibly (**Liao & Sundar, 2022**).



## PROMOTE COLLABORATIVE LEARNING

- Virtual Peer Interaction: Simulate group discussions or collaborative tasks where AI moderates or participates as a peer (**Chan & Tsi, 2023**).
- Human-AI Collaboration: Allow AI to support teachers by automating repetitive tasks while leaving creative and relational responsibilities to humans (**Holstein & Alevan, 2021**).



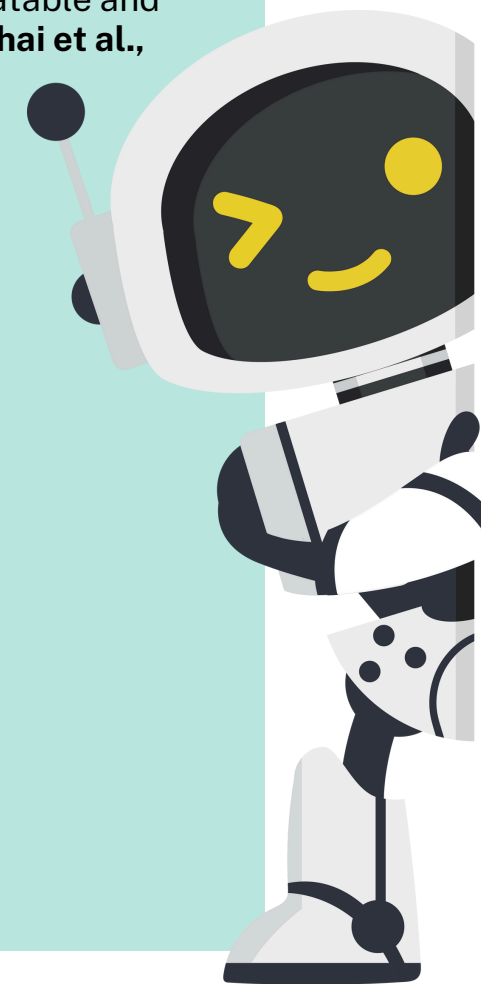
## INCORPORATE REAL-WORLD EXAMPLES

- Use AI to simulate real-life scenarios or case studies, encouraging problem-solving, critical thinking, and emotional engagement (**Mello et al., 2023**).
- Leverage gamification to make learning experiences interactive, fun, and human-like (**Long & Magerko, 2020**).



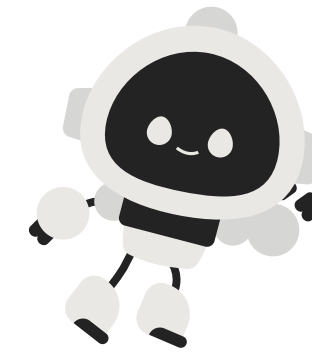
## REGULARLY UPDATE AI SYSTEMS

Continuously improve AI by learning from user feedback and evolving human behaviors, ensuring the system remains relatable and effective (**Zhai et al., 2021**).

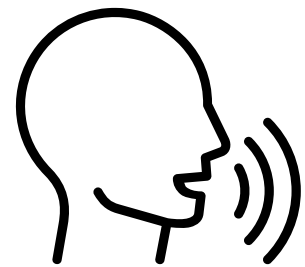




# Enhancing Inclusivity Through AI



AI for students with disabilities



Voice Recognition



speech-to-text

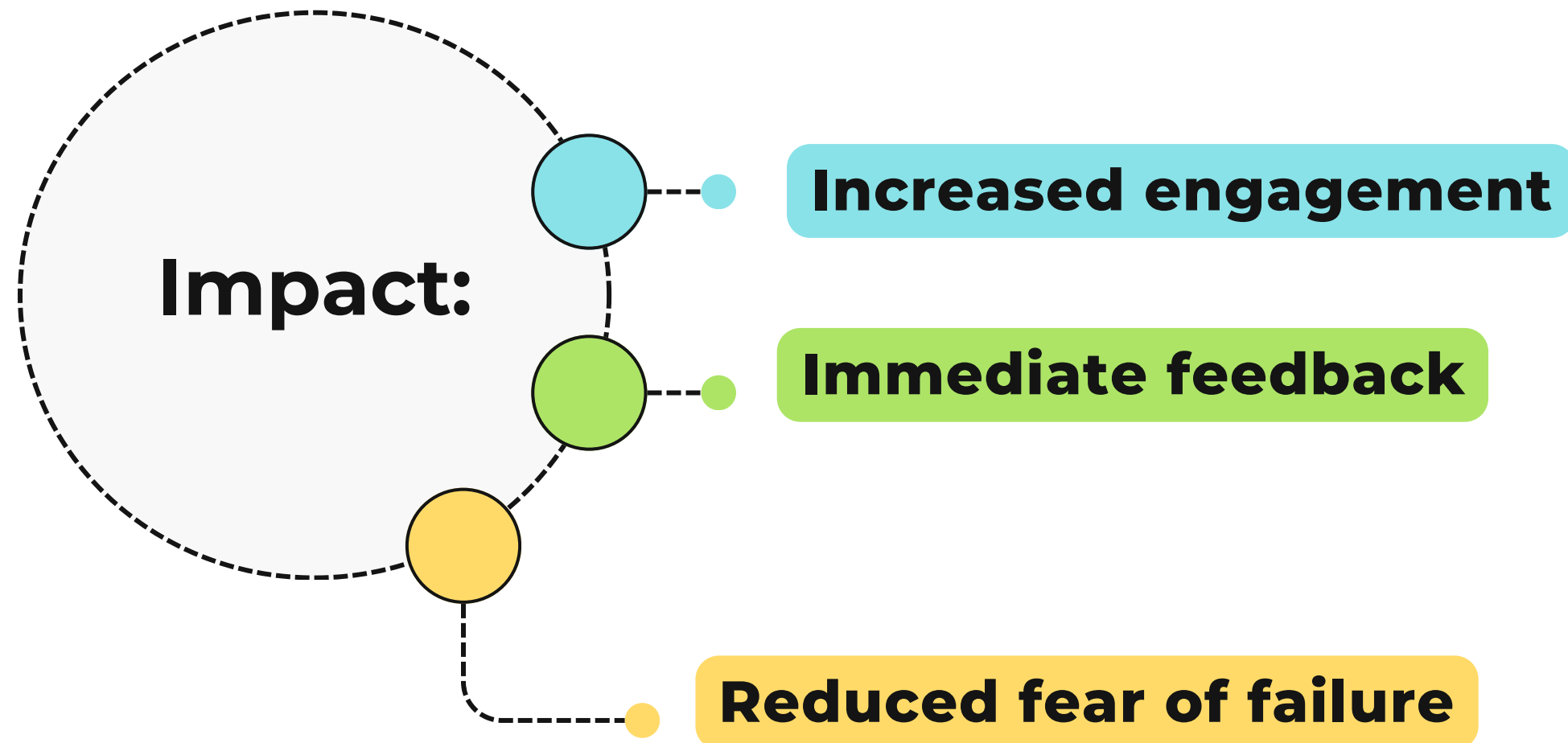
**Equity in Learning Opportunities:**  
AI as a tool to support diverse learning needs





# AI in Intelligent Tutoring Systems (ITS)

How ITS provides personalized guidance similar to a human tutor?





# Real-Time Feedback and Continuous Assessment

## BENEFITS

Immediate insights into strengths and weaknesses

## EXAMPLE

Automated grading and analytics that support formative assessment



# Virtual Classrooms with Humanized Interactions



## Concept

Using AI-driven virtual assistants for more interactive online learning

## Benefit

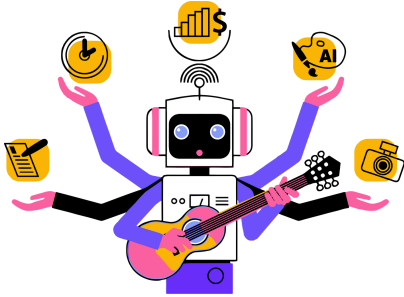
Mimics in-person interaction, increasing student engagement





# Supporting Educators and Reducing Administrative Tasks

Automation:



AI handling grading

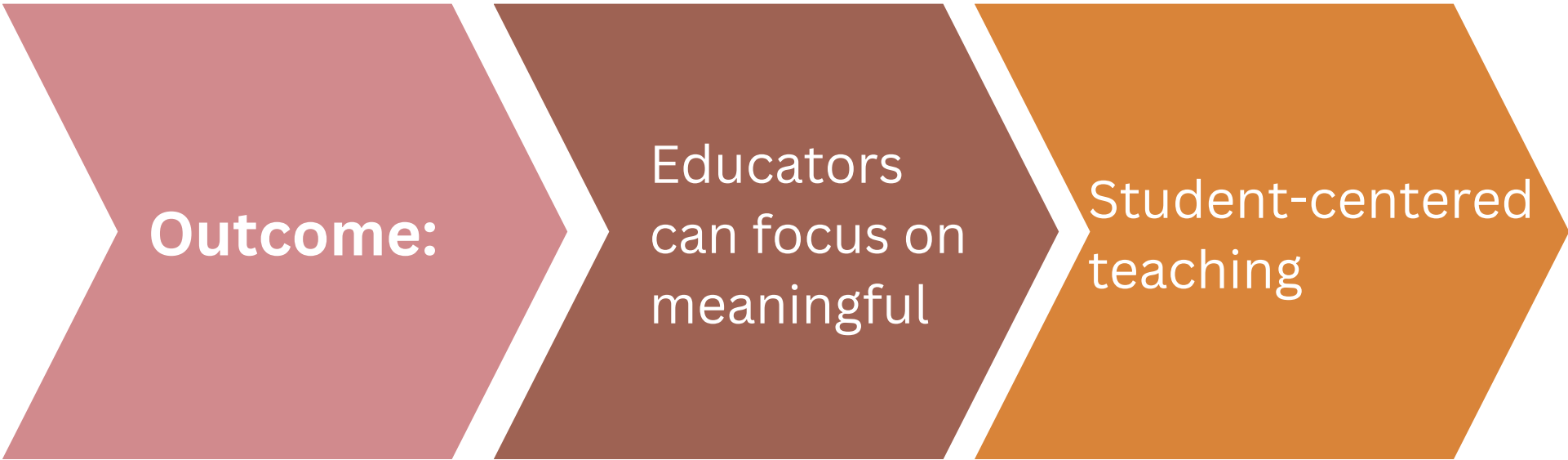


ATTENDANCE



Attendance

Administrative duties





# Data-Driven Insights for Educators

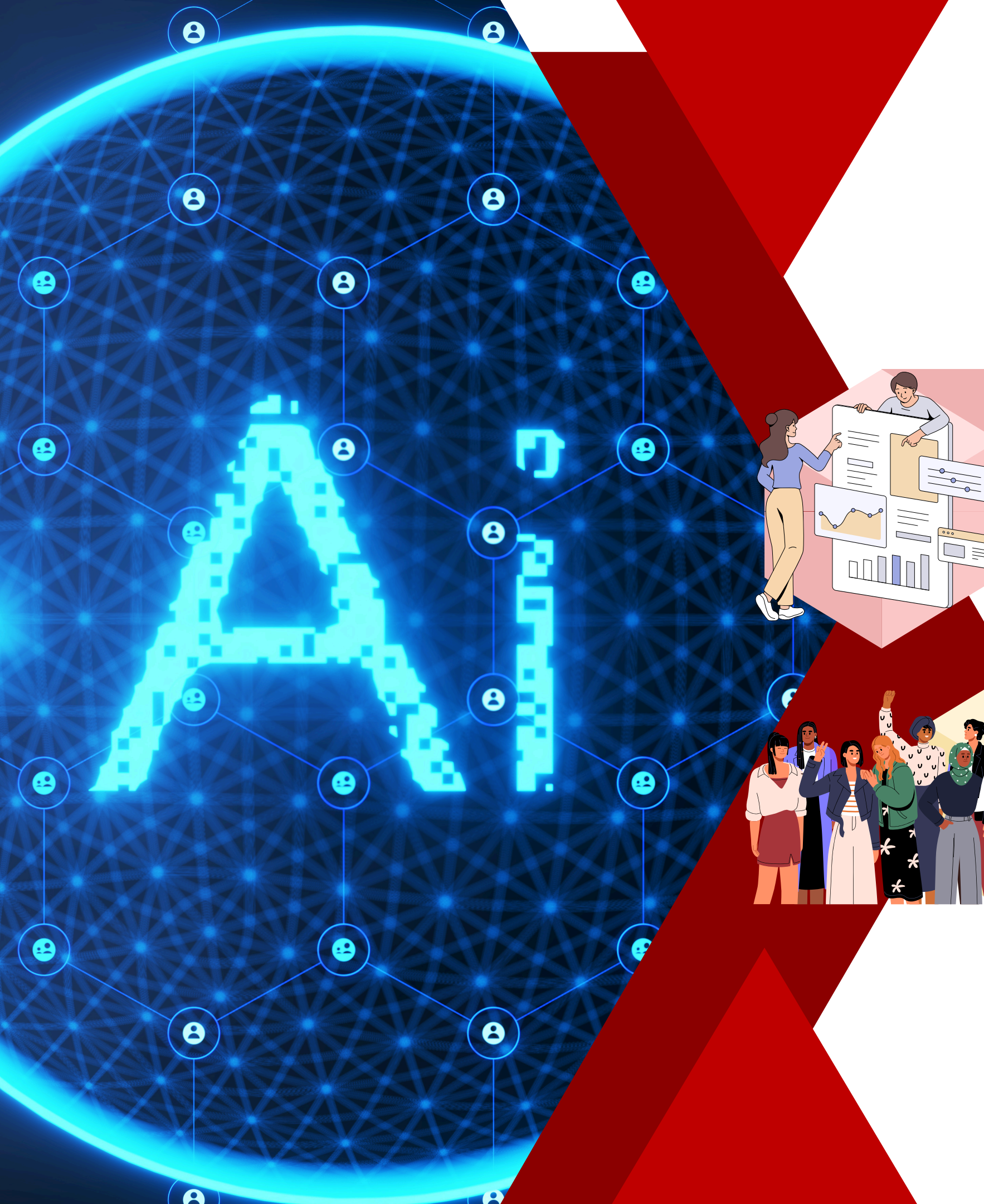
## Personalized Analytics:

- AI analyzes data to provide tailored support for each student



## Teacher Empowerment

- Helps teachers make informed instructional decisions





# Promoting Emotional Intelligence and Social Skills

## Simulations and VR

- AI tools that simulate real-world scenarios to teach empathy

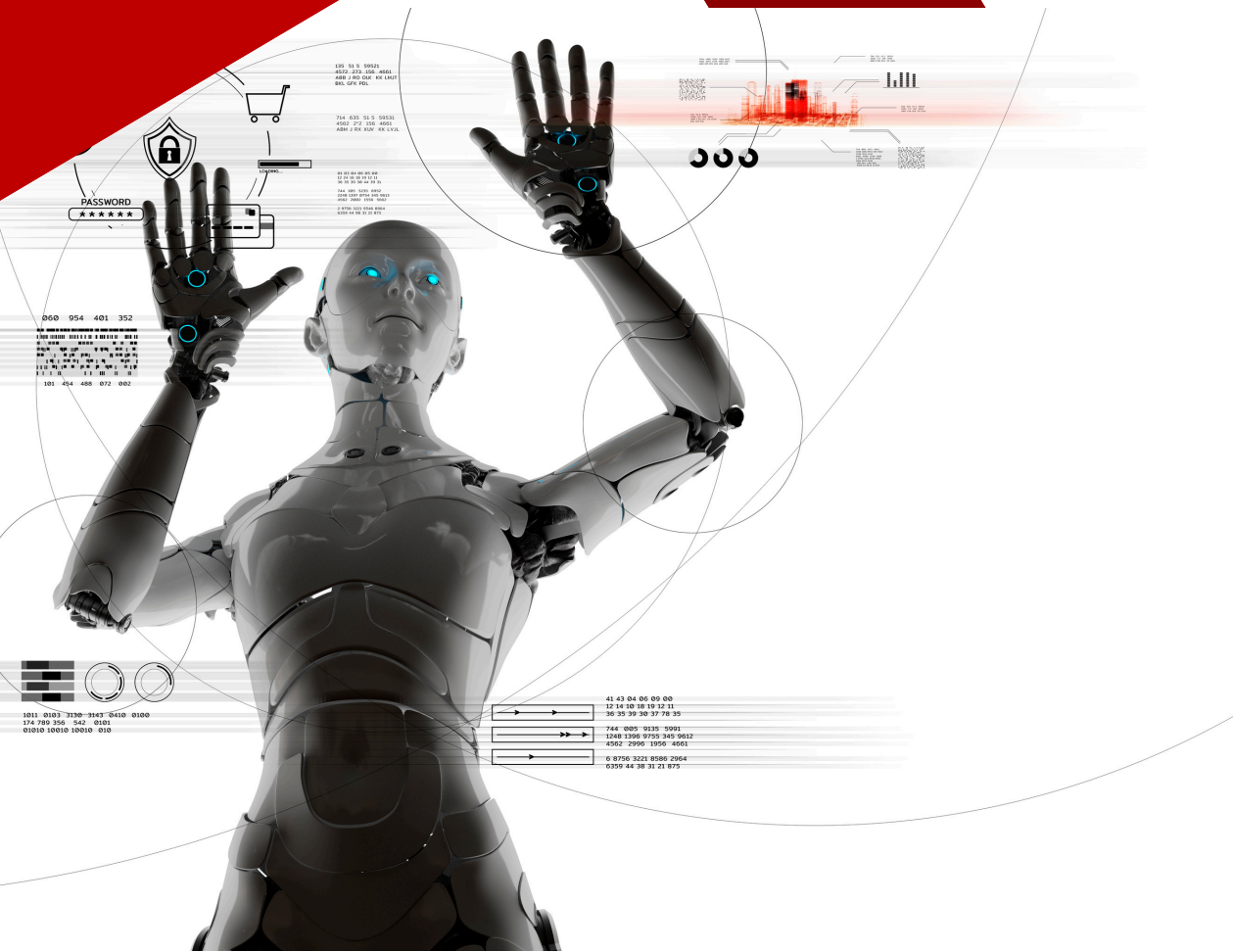


## Outcome:

- Students develop collaborative and social skills in safe environments



# AI-Enabled Tools for Student Wellbeing



## Mental Health Support

- AI-powered chatbots for anonymous mental health support

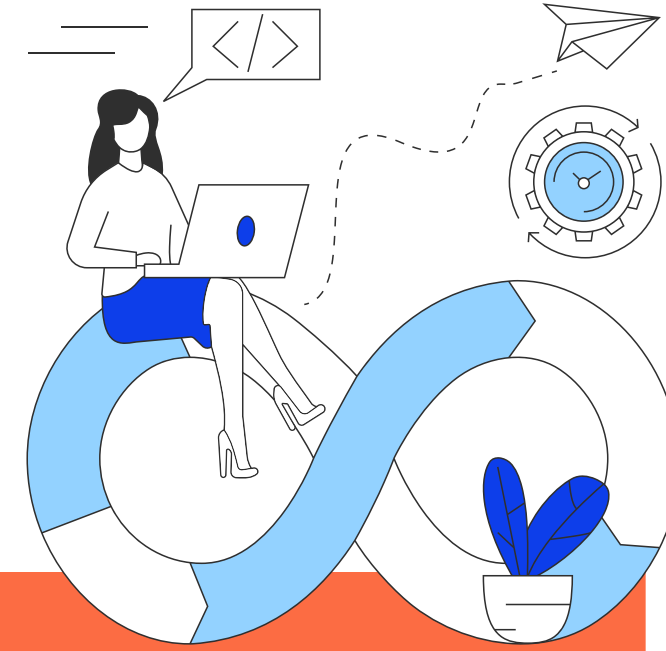


## Outcomes:

- A supportive learning environment that considers emotional needs



# Fostering Lifelong Learning



## CONTINUOUS LEARNING

AI adapts as learners' needs evolve

promoting lifelong skills

### EXAMPLE

AI-based platforms for skills development and career readiness

# Case Studies or Success Stories



## Real-World Applications:

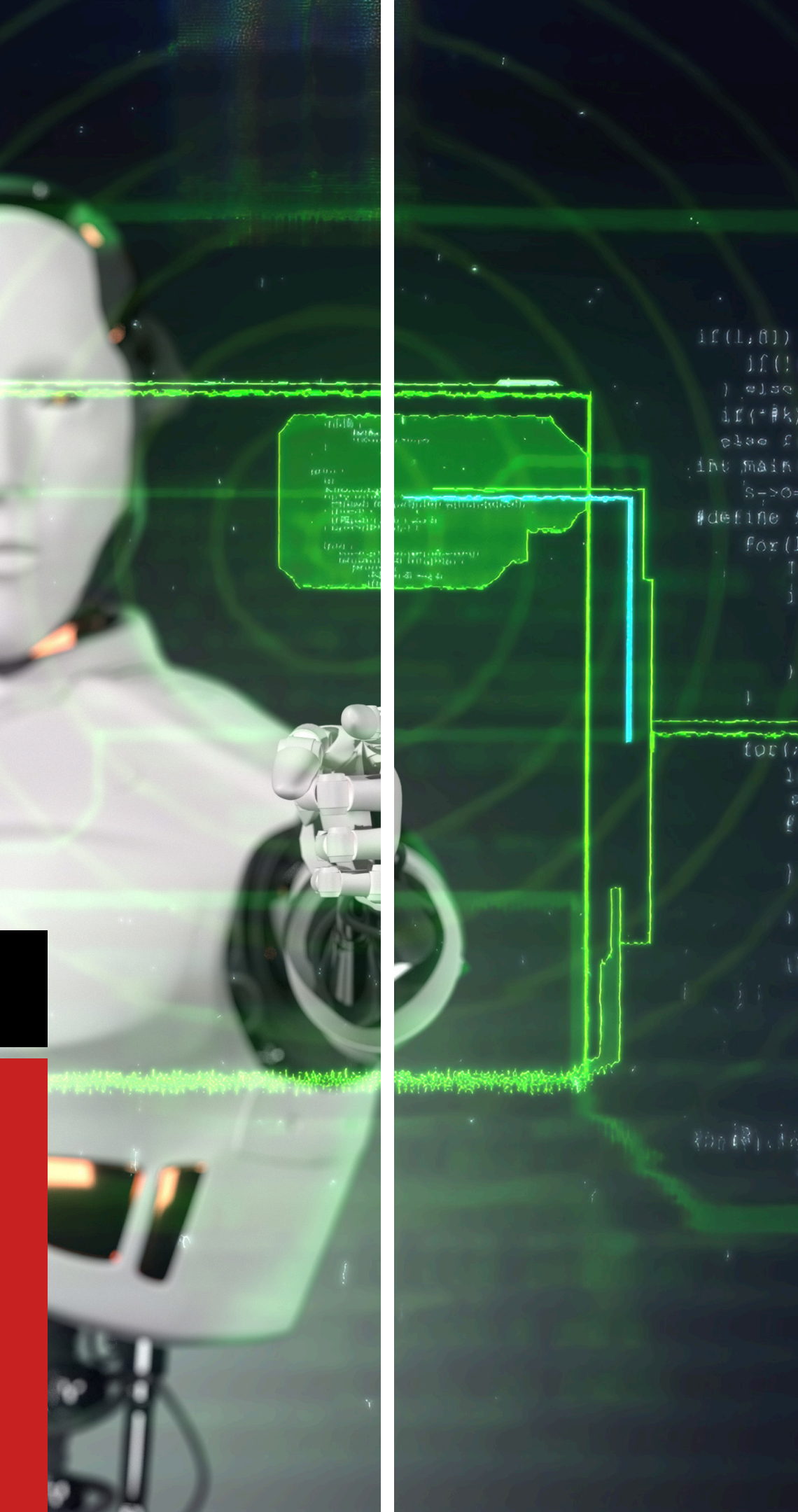
Highlight examples from specific schools or institutions



## Impact:

Evidence of AI making learning more personal and effective





# Ethical Considerations in AI for Education

## Privacy and Security

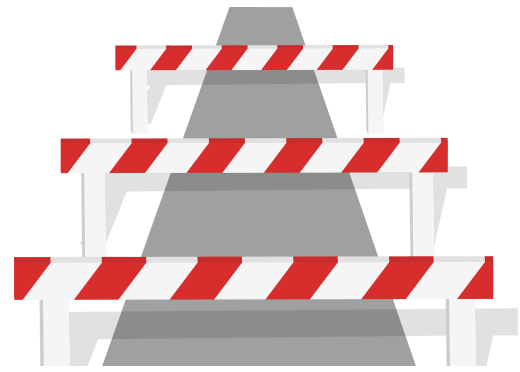
- Ensuring data protection and transparency

## Trust in Technology

- Building student and parent confidence in AI



# Challenges of Implementing AI in Education



Barriers:

Cost

Technical limitations

Resistance to change

## SOLUTION

Strategies to overcome these challenges and build acceptance

1.



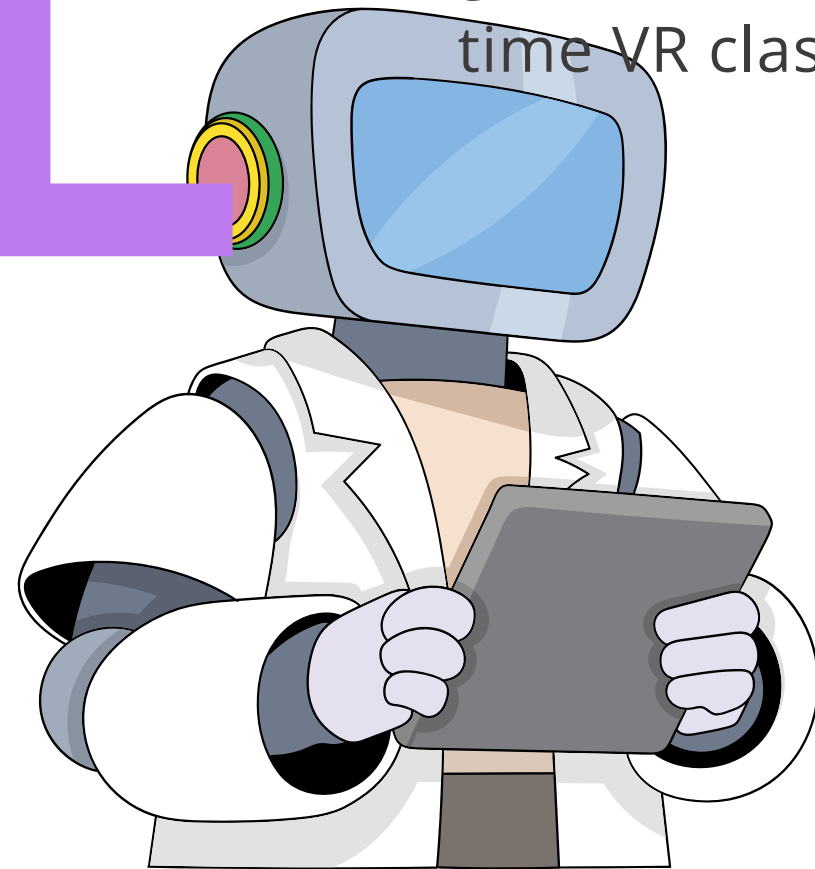


# The Future of AI in Education

# E

## EMERGING TRENDS

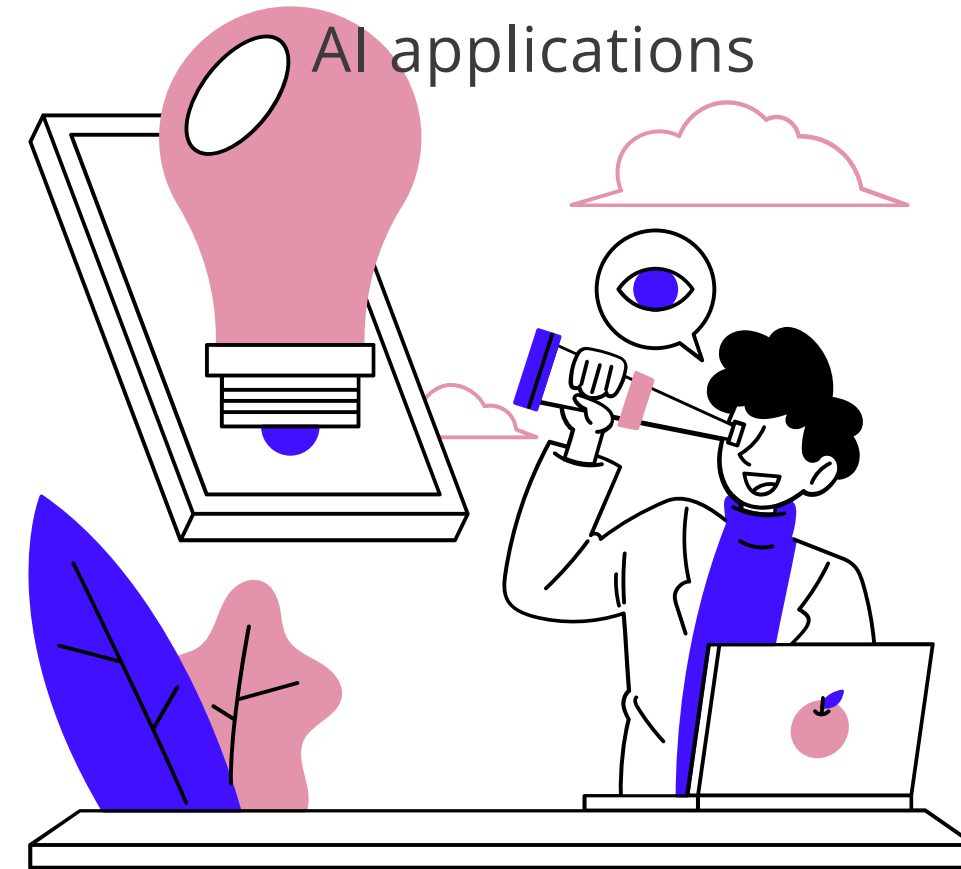
- New developments like generative AI and real-time VR classrooms



# V

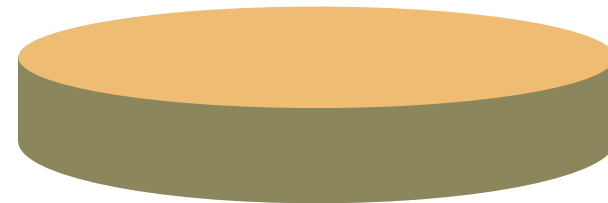
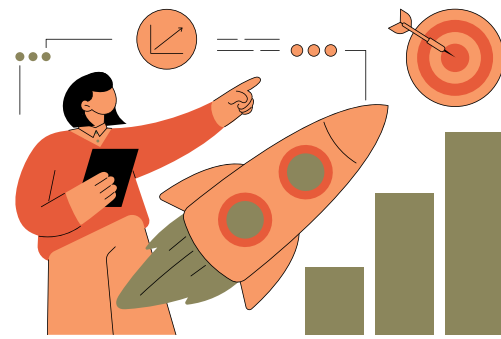
## VISION

- The potential for even more human-centered AI applications



# Key Takeaways

AI AS A TOOL  
TO ENHANCE



NOT REPLACE



HUMAN  
CONNECTIONS  
IN EDUCATION









# Thank You

For Your Attention



## REFERENCES:

- Chan, C. K. Y., & Tsi, L. H. Y. (2023). The AI Revolution in Education: Will AI Replace or Assist Teachers in Higher Education? In C. K. Y. Chan & L. H. Y. Tsi, arXiv (Cornell University). Cornell University. <https://doi.org/10.48550/arXiv.2305>.
- Fan, M., Antle, A. N., & Warren, J. L. (2020). Augmented Reality for Early Language Learning: A Systematic Review of Augmented Reality Application Design, Instructional Strategies, and Evaluation Outcomes [Review of Augmented Reality for Early Language Learning: A Systematic Review of Augmented Reality Application Design, Instructional Strategies, and Evaluation Outcomes]. *Journal of Educational Computing Research*, 58(6), 1059. SAGE Publishing. <https://doi.org/10.1177/0735633120927489>
- García-Martínez, I., Batanero, J. M. F., Cerero, J. F., & León, S. P. (2023). Analysing the Impact of Artificial Intelligence and Computational Sciences on Student Performance: Systematic Review and Meta-analysis. In I. García-Martínez, J. M. F. Batanero, J. F. Cerero, & S. P. León, *Journal of New Approaches in Educational Research* (Vol. 12, Issue 1, p. 171). University of Alicante. <https://doi.org/10.7821/naer.2023.1.1240>
- Gligorea, I., Cioca, M., Oancea, R., Gorski, A.-T., Gorski, H., & Tudorache, P. (2023). Adaptive Learning Using Artificial Intelligence in e-Learning: A Literature Review [Review of Adaptive Learning Using Artificial Intelligence in e-Learning: A Literature Review]. *Education Sciences*, 13(12), 1216. Multidisciplinary Digital Publishing Institute. <https://doi.org/10.3390/educsci13121216>
- Holstein, K., & Aleven, V. (2021). Designing for human-AI complementarity in K-12 education. In K. Holstein & V. Aleven, arXiv (Cornell University). Cornell University. <https://doi.org/10.48550/arXiv.2104>.
- Holstein, K., McLaren, B. M., & Aleven, V. (2019). Designing for Complementarity: Teacher and Student Needs for Orchestration Support in AI-Enhanced Classrooms. In K. Holstein, B. M. McLaren, & V. Aleven, *Lecture notes in computer science* (p. 157). Springer Science+Business Media. [https://doi.org/10.1007/978-3-030-23204-7\\_14](https://doi.org/10.1007/978-3-030-23204-7_14)
- Jia, F., Sun, D., Ma, Q., & Looi, C. (2022). Developing an AI-Based Learning System for L2 Learners' Authentic and Ubiquitous Learning in English Language. In F. Jia, D. Sun, Q. Ma, & C. Looi, *Sustainability* (Vol. 14, Issue 23, p. 15527). Multidisciplinary Digital Publishing Institute. <https://doi.org/10.3390/su142315527>
- Kazimzade, G., Patzer, Y., & Pinkwart, N. (2019). Artificial Intelligence in Education Meets Inclusive Educational Technology—The Technical State-of-the-Art and Possible Directions. In G. Kazimzade, Y. Patzer, & N. Pinkwart, *Perspectives on rethinking and reforming education* (p. 61). Springer Nature. [https://doi.org/10.1007/978-981-13-8161-4\\_4](https://doi.org/10.1007/978-981-13-8161-4_4)
- Liao, Q. V., & Sundar, S. S. (2022). Designing for Responsible Trust in AI Systems: A Communication Perspective. In Q. V. Liao & S. S. Sundar, *2022 ACM Conference on Fairness, Accountability, and Transparency*. <https://doi.org/10.1145/3531146.3533182>
- Long, D., & Magerko, B. (2020). What is AI Literacy? Competencies and Design Considerations. <https://doi.org/10.1145/3313831.3376727>
- Mendes, C. R. B., & Rios, T. N. (2023). Explainable Artificial Intelligence and Cybersecurity: A Systematic Literature Review. In C. R. B. Mendes & T. N. Rios, arXiv (Cornell University). Cornell University. <https://doi.org/10.48550/arXiv.2303>.
- Momand, Z., Chan, J. H., & Mongkolnam, P. (2023). Immersive Technologies in Virtual Companions: A Systematic Literature Review. In Z. Momand, J. H. Chan, & P. Mongkolnam, arXiv (Cornell University). Cornell University. <https://doi.org/10.48550/arXiv.2309>.
- Morana, S., Pfeiffer, J., & Adam, M. T. P. (2020). User Assistance for Intelligent Systems. In S. Morana, J. Pfeiffer, & M. T. P. Adam, *Business & Information Systems Engineering* (Vol. 62, Issue 3, p. 189). Springer Nature. <https://doi.org/10.1007/s12599-020-00640-5>
- Xie, H., Chu, H., Hwang, G., & Wang, C. (2019). Trends and development in technology-enhanced adaptive/personalized learning: A systematic review of journal publications from 2007 to 2017 [Review of Trends and development in technology-enhanced adaptive/personalized learning: A systematic review of journal publications from 2007 to 2017]. *Computers & Education*, 140, 103599. Elsevier BV. <https://doi.org/10.1016/j.compedu.2019.103599>
- Zhai, X., Chu, X., Chai, C. S., Jong, M. S., Starčič, A. I., Spector, M., Liu, J., Jing, Y., & Li, Y. (2021). A Review of Artificial Intelligence (AI) in Education from 2010 to 2020 [Review of A Review of Artificial Intelligence (AI) in Education from 2010 to 2020]. *Complexity*, 2021, 1. Hindawi Publishing Corporation. <https://doi.org/10.1155/2021/8812542>