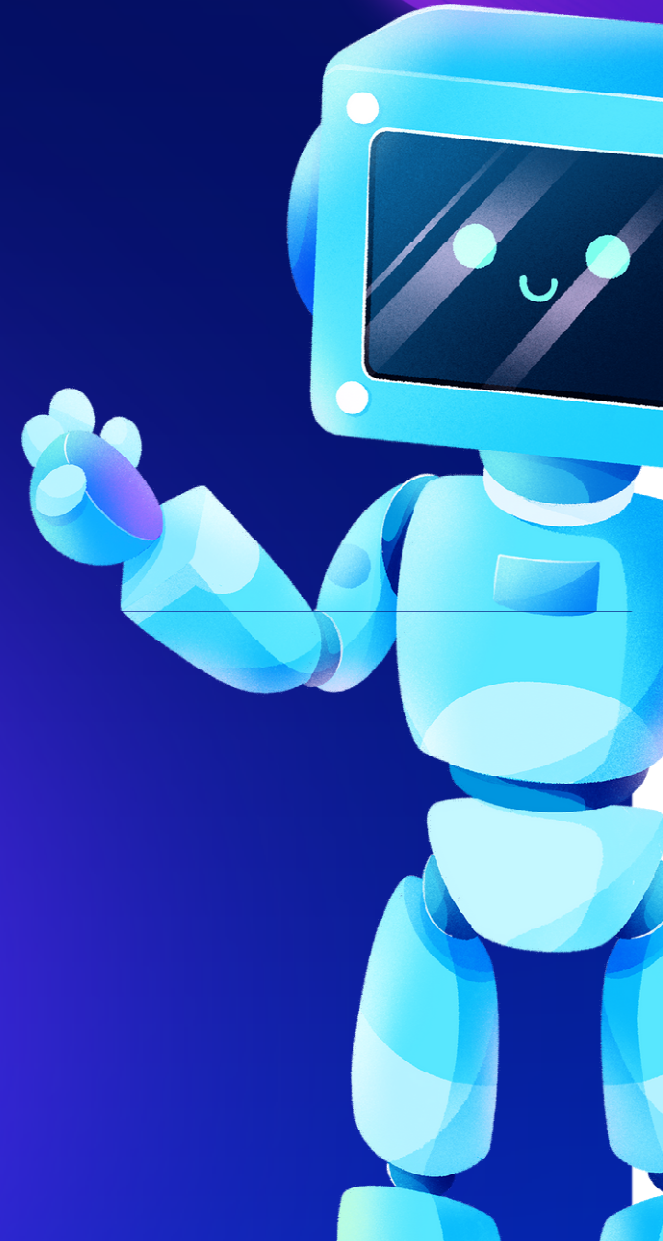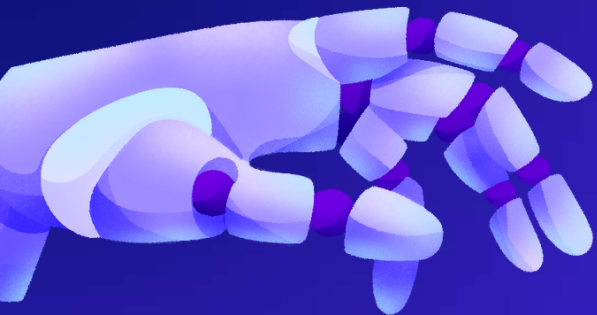# ARTIFICIAL INTELLIGENCE in Higher Education: Perceptions, Challenges, Ethics, and Impacts

By Dr. Chau Dang
School of Economics and Law
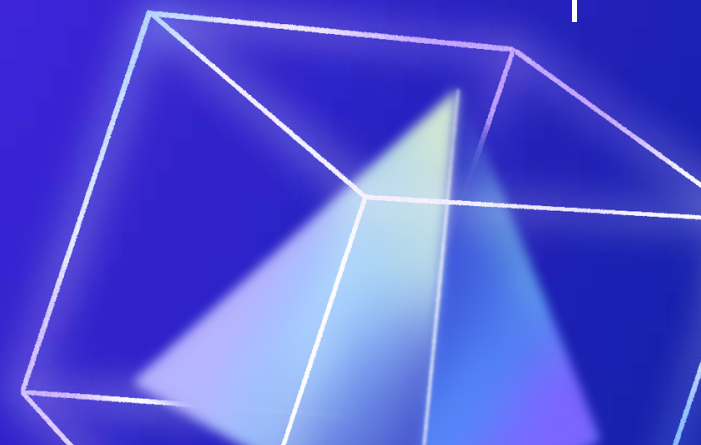**Tra Vinh University**

Bangkok, 4-6 Jan 2024

TABLE OF CONTENTS

1.
Introduction of AI in Higher Education

Introduction of AI in Higher Education

Source: AI in Higher Education: opportunities and considerations, MS 2020

100 STARTUPS USING ARTIFICIAL INTELLIGENCE TO TRANSFORM INDUSTRIES
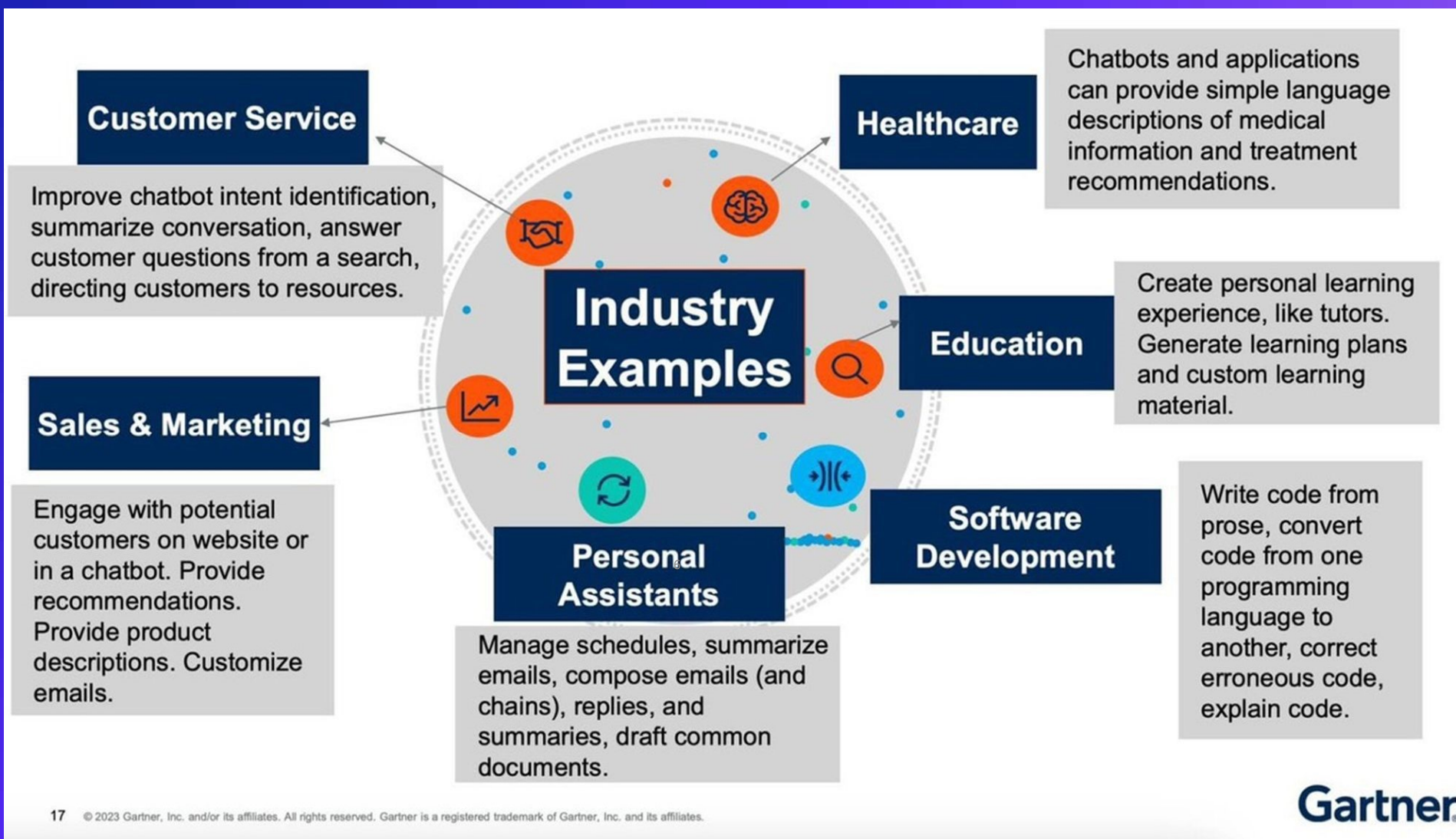
Source: CBinsight, 2023

2.
Perceptions of AI in Higher Education

1

Transforming Learning

2

Transforming Curriculum & Learning Spaces

3

Cultivating Ethics, Inclusion, & Social Justice

Teachers work about 50 hours a week, spending less than half of the time in direct interaction with students.

Activity composition of teacher working hours, number of hours

Preparation **10.5**

Evaluation and feedback **6.5**

Professional development **3.0**

Administration[2] **5.0**

50
average hours[1] of working time per week for a teacher

Student instruction and engagement **16.5**

Student behavioral-, social-, and emotional-skill development **3.5**

Student coaching and advisement **4.5**

only **49%** of time is in direct interaction with students
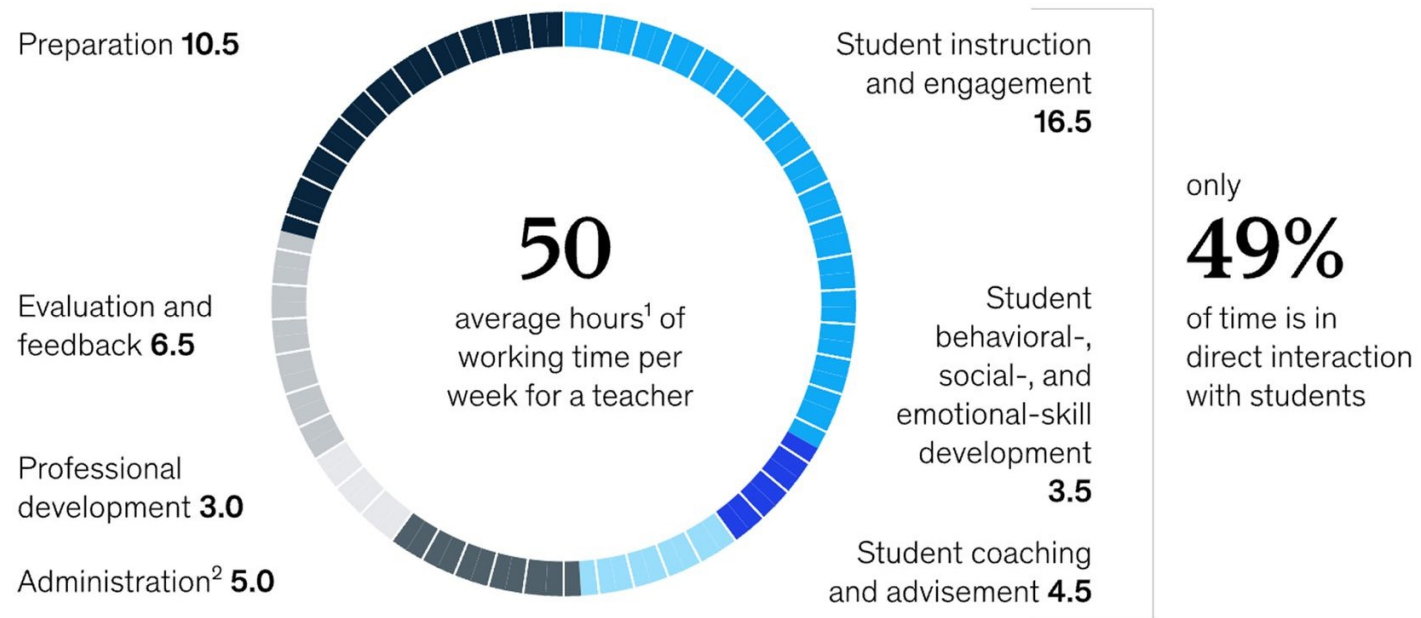
[1] Average for respondents in Canada, Singapore, United Kingdom, and United States.
[2] Includes a small "other" category.
Source: McKinsey Global Teacher and Student Survey

McKinsey & Company

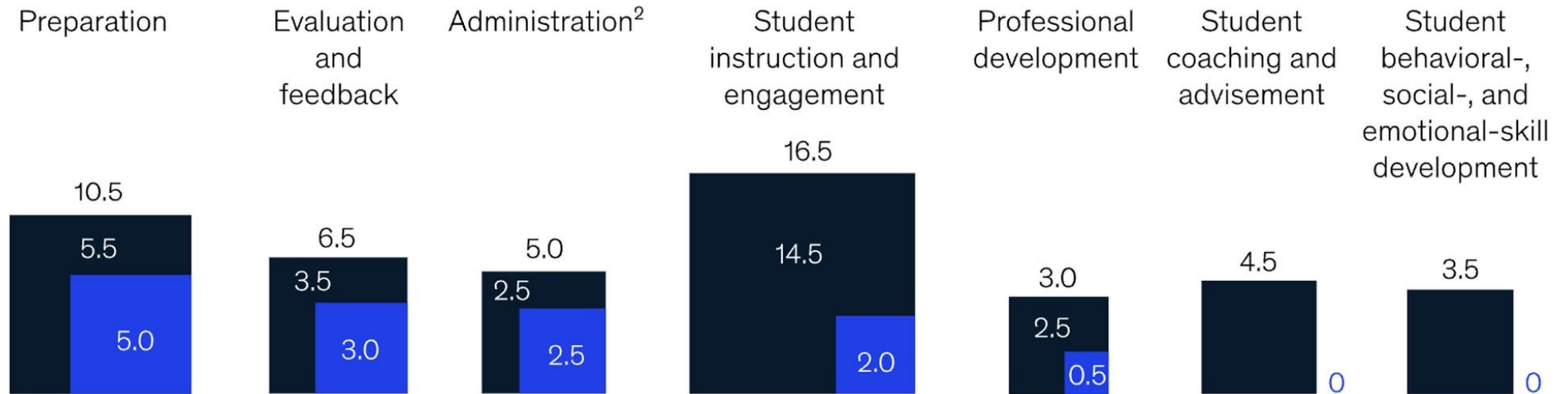Technology can help teachers reallocate 20 to 30 percent of their time toward activities that support student learning.

Potential for time reallocation, number of hours per week[1]

■ Reallocatable time   ■ Other working time

Preparation — 10.5 (5.5 / 5.0)
Evaluation and feedback — 6.5 (3.5 / 3.0)
Administration[2] — 5.0 (2.5 / 2.5)
Student instruction and engagement — 16.5 (14.5 / 2.0)
Professional development — 3.0 (2.5 / 0.5)
Student coaching and advisement — 4.5 (0)
Student behavioral-, social-, and emotional-skill development — 3.5 (0)

[1]Figures may not sum, because of rounding. Average for respondents in Canada, Singapore, United Kingdom, and United States.
[2]Includes a small "other" category.
Source: McKinsey Global Teacher and Student Survey

McKinsey & Company

AI has the potential to transform

....the way we teach and learn

- Provide personalized tutoring and support to students
- Automate grading and feedback, freeing up time for teachers to focus on more personalized interactions with students
- Create more engaging and interactive learning experiences
- Make learning more accessible to students with disabilities

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AI can streamline administrative tasks
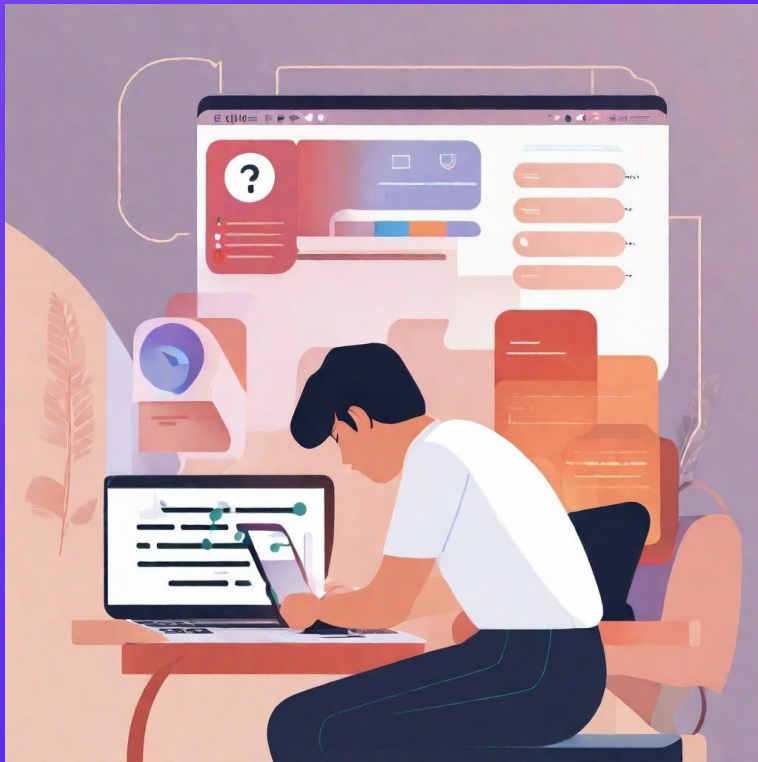
- Automate routine tasks such as scheduling, student inquiries, and data management
- Use predictive analytics to improve enrollment management, budgeting, and resource allocation
- Enhance campus security and safety through advanced monitoring and alert systems

AI can create personalized learning

- Student-content interactions/Tương tác sinh viên – nội dung
    - Curriculum pathways/Lộ trình học tập
    - Pace of learning/ Tốc độ học tập
    - Location of learning/ Địa điểm học tập
- Student-student interactions/ Tương tác sinh viên – sinh viên
    - Asynchronous and just in time/ không đồng bộ và đúng lúc
- Student-faculty interactions/ tương tác sinh viên – giảng viên
    - Asynchronous, whenever, wherever/ không đồng bộ, bất cứ lúc nào, ở đâu
    - Informed by student performance (learning analytics)/ dựa trên kết quả học tập của sinh viên (phân tích học tập)
- Student-institution interactions/tương tác học sinh – tổ chức
    - Alerts, nudges, advising to guide learning/ cảnh báo, nhắc nhở, tư vấn hướng dẫn học tập
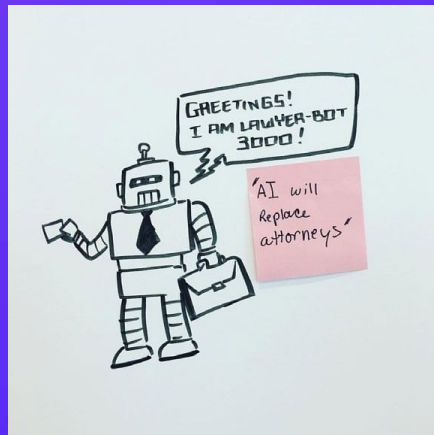
13
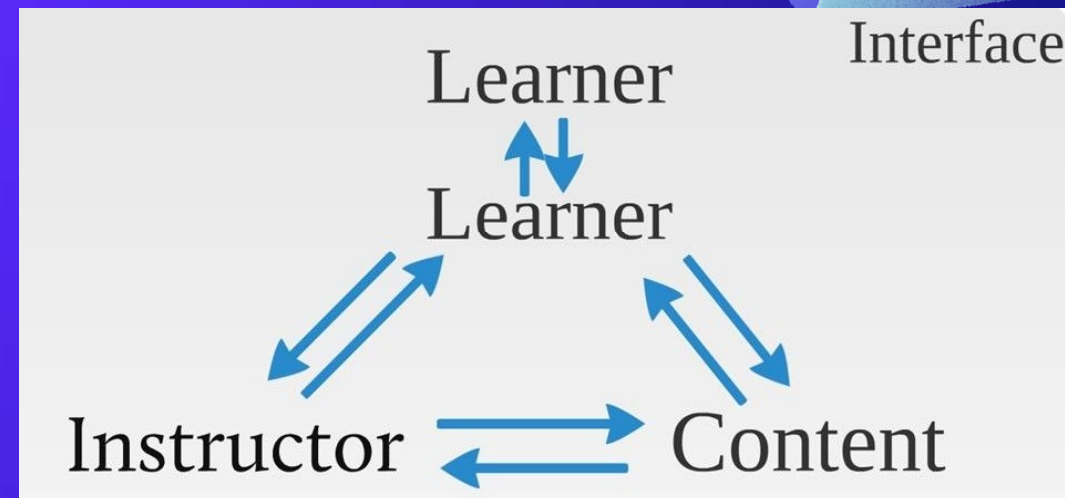
Boosting Student Engagement with AI

- Enhance gamification and make learning more fun
- Provide real-time feedback and support
- Facilitate group projects and peer-to-peer learning through AI tools

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Impacts on jobs/ impact on Curriculum

- Truck driver
- Customer care
- Accountant
- Lawyer
- Doctor
- Lecturer

Teachers' preparations

- Create content/ Tạo nội dung
- Deliver content/ truyền đạt nội dung
- Facilitate and guide (advise) learning/ Hướng dẫn và định hướng tư vấn việc học
- Assess learning/ Đánh giá quá trình học tập

- Instill curiosity/ Khơi dậy tính tò mò
- Inspire critical thinking/ Truyền cảm hứng tư duy phản biện
- Encourage flexibility/ Khuyến khích tính linh hoạt
- Reinforce collaboration/ Củng cố hợp tác

Boosting Student Engagement with AI

19%

Higher revenue due to innovation when management is diverse

- Distributed learning & work as an important tool of diversification
- AI depends on diversity of data

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Boost Your Productivity!

Essential Research Tools to Learn in 2023 (Part 1)

Literature Search	Elicit	Connected Papers	Research Rabbit
Writing Assistants	ChatGPT	WordTune	Bard
Grammar & paraphrasing	Quillbot	PaperPal	Grammarly
Citations	Zotero	Mendeley	JabRef
Illustrations	Canva	BioRender	Draw.io
Data (Quantitative)	R	SPSS	JASP
Data (Qualitative)	ATLAS.ti	Nvivo	Otter
Productivity	Trello	Notion	Pomofocus

@dr_asadnaveed

Boost Your Productivity!

Essential Research Tools to Learn in 2023 (Part 2)

Systematic Reviews	Rayyan	Covidence	RevMan5
Literature Reviews	R Discovery	LitMaps	Scite.ai
Pliagiarism Check	iThenticate	Crossref	Grammarly
Publication Portfolio	ResearchGate	Google Scolar	ORCID
Illustrations	MindMeister	Xmind	Mermaid.gs
Data (Collection)	REDCap	Qualtrics	SurveyMonkey
Data Analysis	Python	GraphPad	Dedoose
Productivity	Obsidian	Calendly	Doodle

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Gaps of AI in Higher Education

- Long-term impact studies on learning outcomes
- The impact of AI on the role of teachers and the dynamics in the classroom
- The ethical and societal implications of AI in education

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Industry Needs vs. Current Curriculum

- The field of AI is rapidly evolving and the industry has specific needs that are not being met by current academic curriculums.
- While universities are teaching fundamental concepts, industry professionals are looking for individuals with practical skills and experience.
- One of the biggest gaps is the lack of standardized curriculum and training programs

Professors should be actively involved in the integration of AI in higher education

- Receive training to use AI tools effectively
- Collaborate with AI designers to develop tools that meet their needs
- Provide feedback on the effectiveness of AI tools

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3.
Challenges of AI in Higher Education

The most important barrier to providing personalized learning is time.

Top barriers to providing personalized learning, % of teachers identifying area as a primary barrier
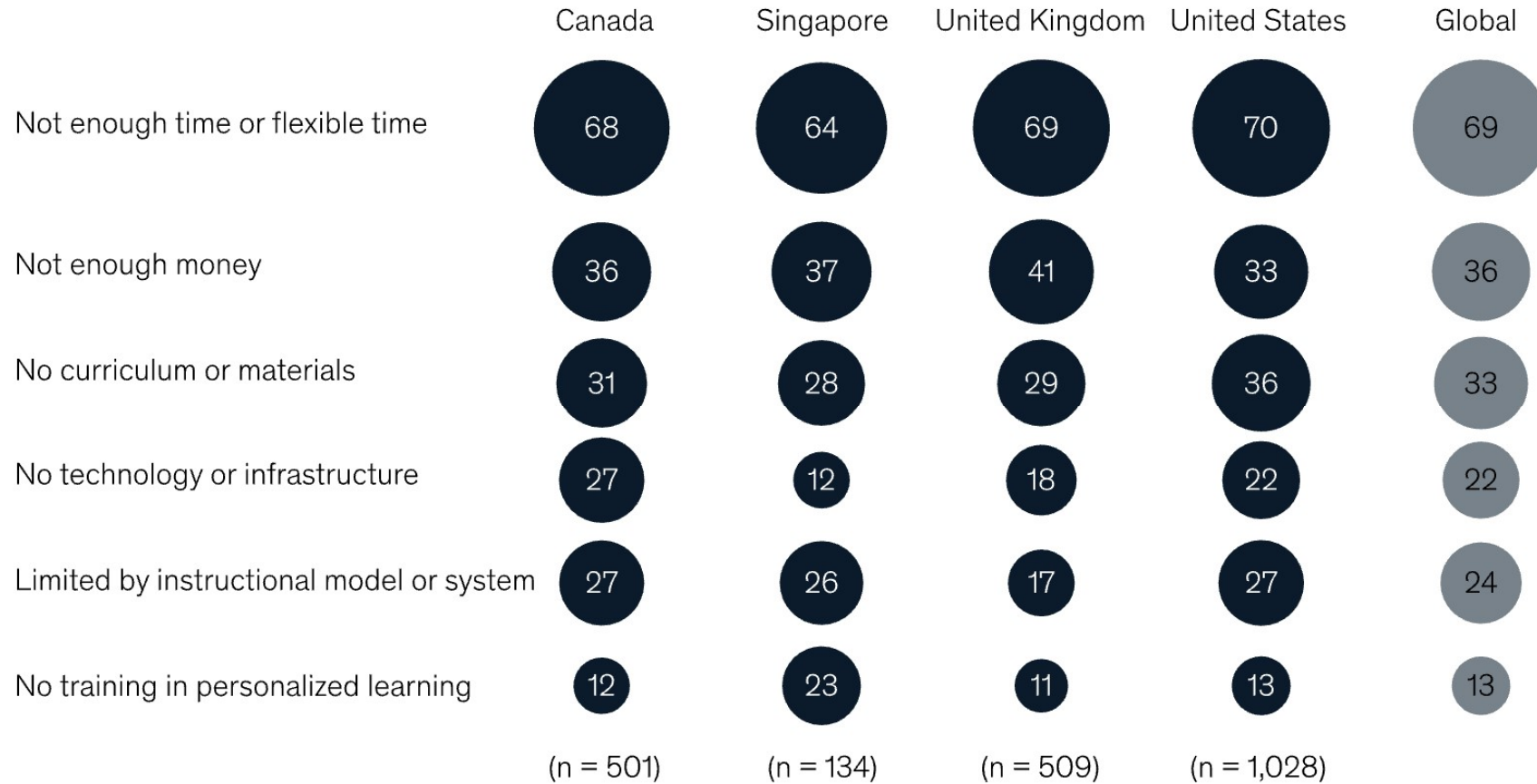
	Canada	Singapore	United Kingdom	United States	Global
Not enough time or flexible time	68	64	69	70	69
Not enough money	36	37	41	33	36
No curriculum or materials	31	28	29	36	33
No technology or infrastructure	27	12	18	22	22
Limited by instructional model or system	27	26	17	27	24
No training in personalized learning	12	23	11	13	13
	(n = 501)	(n = 134)	(n = 509)	(n = 1,028)	

McKinsey & Company

3. Challenges of AI in Higher Education

Improved learner outcomes remain the top reason for adopting AI, followed by cost savings, disruption, agility and first mover advantage.

What were the reasons for adopting AI?
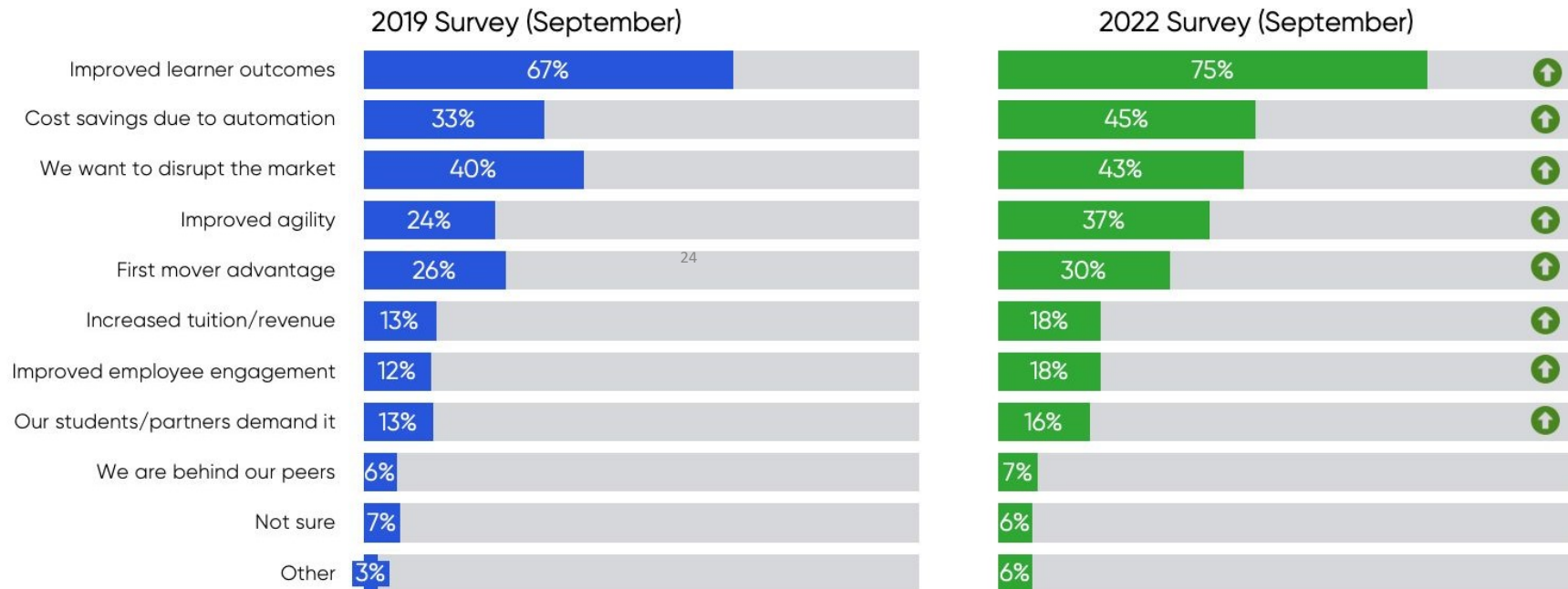
	2019 Survey (September)	2022 Survey (September)
Improved learner outcomes	67%	75% ⬆
Cost savings due to automation	33%	45% ⬆
We want to disrupt the market	40%	43% ⬆
Improved agility	24%	37% ⬆
First mover advantage	26%	30% ⬆
Increased tuition/revenue	13%	18% ⬆
Improved employee engagement	12%	18% ⬆
Our students/partners demand it	13%	16% ⬆
We are behind our peers	6%	7%
Not sure	7%	6%
Other	3%	6%

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Source: HolonIQ, February 2023. n = 464 across both 2019 Aug–Sep Survey and 2022 Aug–Sep Survey

3. Challenges of AI in Higher Education

HOLONIQ. AI IN EDUCATION

15-25% more usage of AI in core education processes. Significant value add is steady with some of the increase create adding moderate value.

Where is AI creating value for your organization?
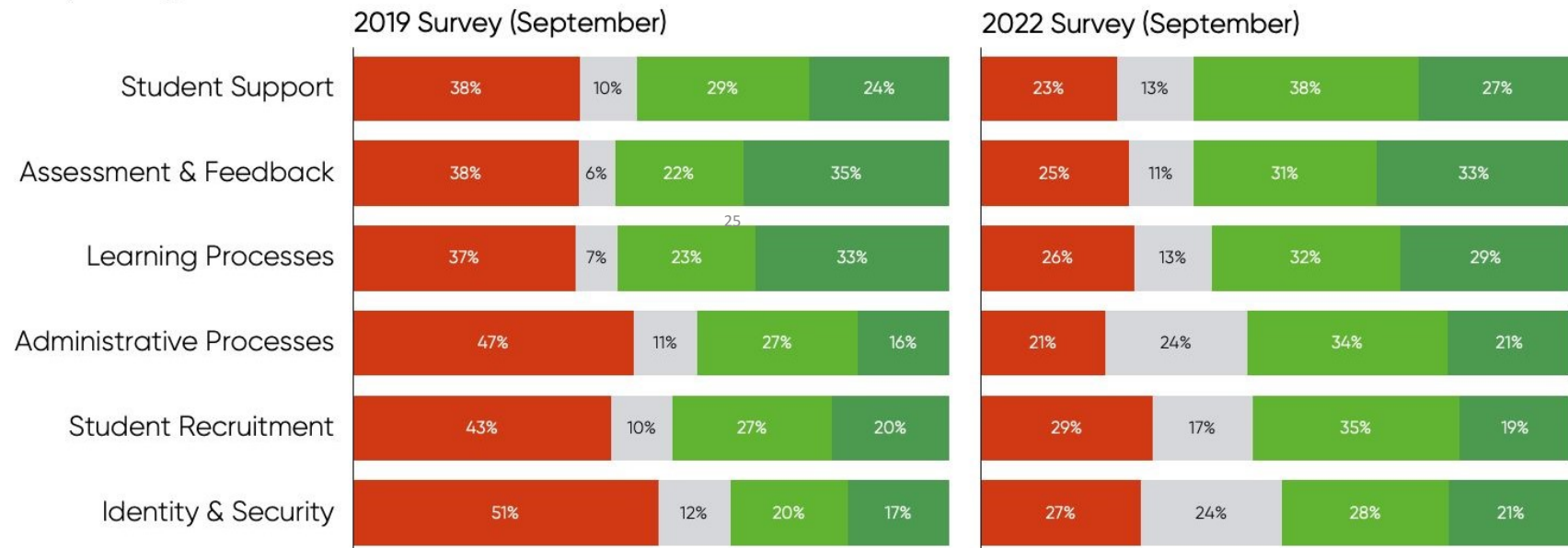
Legend: ■ Not Used ■ Balance ■ Moderate Value Add ■ Significant Value Add

2019 Survey (September)

Category	Not Used	Balance	Moderate Value Add	Significant Value Add
Student Support	38%	10%	29%	24%
Assessment & Feedback	38%	6%	22%	35%
Learning Processes	37%	7%	23%	33%
Administrative Processes	47%	11%	27%	16%
Student Recruitment	43%	10%	27%	20%
Identity & Security	51%	12%	20%	17%

2022 Survey (September)

Category	Not Used	Balance	Moderate Value Add	Significant Value Add
Student Support	23%	13%	38%	27%
Assessment & Feedback	25%	11%	31%	33%
Learning Processes	26%	13%	32%	29%
Administrative Processes	21%	24%	34%	21%
Student Recruitment	29%	17%	35%	19%
Identity & Security	27%	24%	28%	21%

Source: HolonIQ, February 2023. n = 464 across both 2019 Aug–Sep Survey and 2022 Aug–Sep Survey

3. Challenges of AI in Higher Education

Most barriers to adopting AI went up. Skills, resourcing, strategy and silo barriers all increased. More ownership by leaders changed positively.

What are the most significant barriers for adopting AI at your organization?

Source: HolonIQ, February 2023 (n = 464)

	2019 Survey (September)	2022 Survey (September)	
Lack of talent with appropriate skill sets for AI work	44%	53%	⬆
Under-resourcing for AI	37%	50%	⬆
Lack of clear strategy for AI	40%	47%	⬆
Lack of technological infrastructure to support AI	29%	30%	
Functional silos constrain end-to-end AI solutions	24%	29%	⬆
Lack of available (i.e. collected) data	25%	27%	
Uncertain or low expectations for return on investment	20%	26%	⬆
Lack of leaders' ownership of and commitment to AI	20%	17%	⬇
Personal judgment overrides AI-based decision making	12%	16%	⬆
Lack of changes to frontline processes after AI's adoption	6%	13%	⬆
Limited usefulness of data	6%	7%	
Limited relevance of insights from AI	7%	6%	

Source: HolonIQ, 2023

HOLONIQ. AI IN EDUCATION

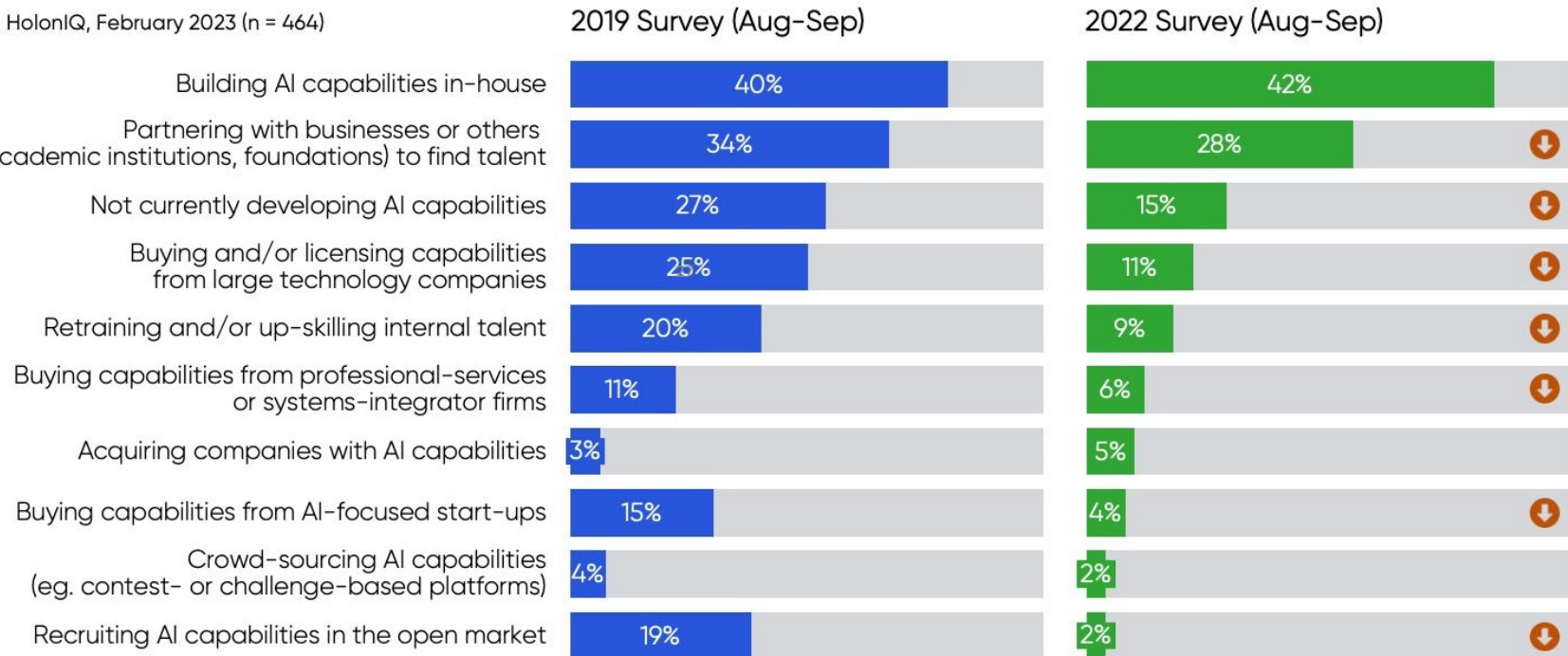## More organizations are developing AI capabilities in-house. Fewer organizations are partnering, licensing or leaning on prof services.

How is your organization developing AI capabilities?

Source: HolonIQ, February 2023 (n = 464)

|	2019 Survey (Aug-Sep)	2022 Survey (Aug-Sep)	
Building AI capabilities in-house	40%	42%	
Partnering with businesses or others eg. academic institutions, foundations) to find talent	34%	28%	⬇
Not currently developing AI capabilities	27%	15%	⬇
Buying and/or licensing capabilities from large technology companies	25%	11%	⬇
Retraining and/or up-skilling internal talent	20%	9%	⬇
Buying capabilities from professional-services or systems-integrator firms	11%	6%	⬇
Acquiring companies with AI capabilities	3%	5%	
Buying capabilities from AI-focused start-ups	15%	4%	⬇
Crowd-sourcing AI capabilities (eg. contest- or challenge-based platforms)	4%	2%	
Recruiting AI capabilities in the open market	19%	2%	⬇

3. Challenges of AI in Higher Education

"One of the biggest challenge for adopting AI insights in operations is the lack of data literacy across the organization."

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4.
Ethical Consideration of AI in HE
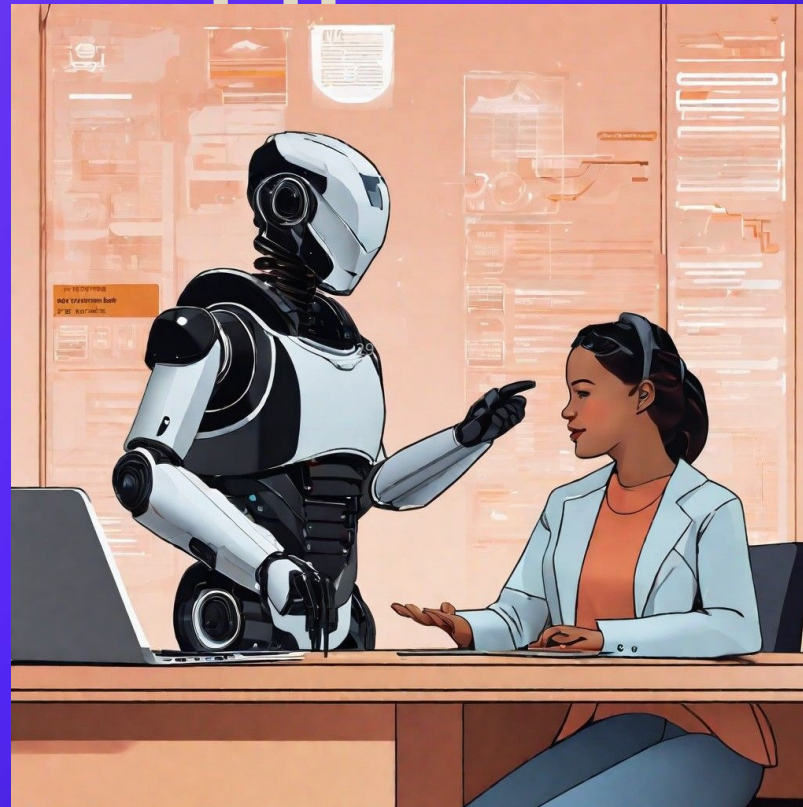
Transparency: Building Trust and Ensuring Ethical Implementation

- Transparency is crucial for building trust in AI systems and ensuring responsible implementation.
- Transparency fosters understanding of AI operations, enabling informed decision-making and bias detection.
- Institutions should provide clear explanations of AI usage, make AI details accessible, and allow for independent scrutiny.
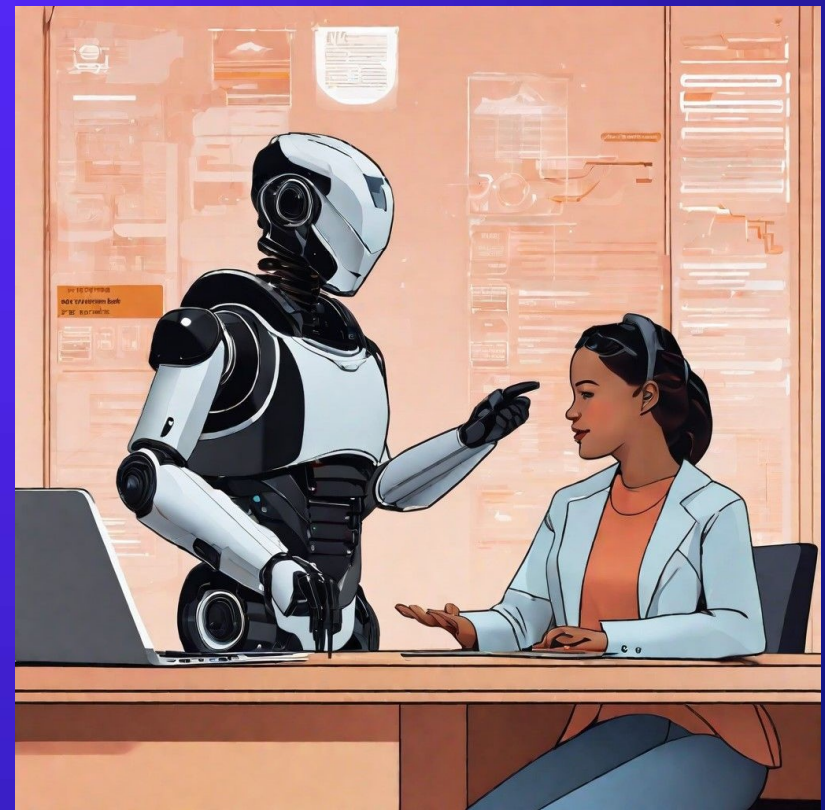
# Privacy: Safeguarding Personal Data and Individual Rights

- Protecting privacy is essential for respecting individuals' rights and preventing harm.
- Institutions should collect data with consent, use it for intended purposes, safeguard it from unauthorized access, and provide data control to individuals.
- Implementing strong data security measures, conducting regular privacy audits, and providing clear privacy policies are crucial steps.

Bias: Fostering Fairness and Equity in AI-Driven Decisions

- Bias mitigation is essential for ensuring fair and equitable outcomes in AI-driven decisions.
- Institutions should regularly audit and test AI systems to identify and address biases.
- Incorporating diverse perspectives in AI development, using unbiased data, and employing bias detection tools are effective strategies.

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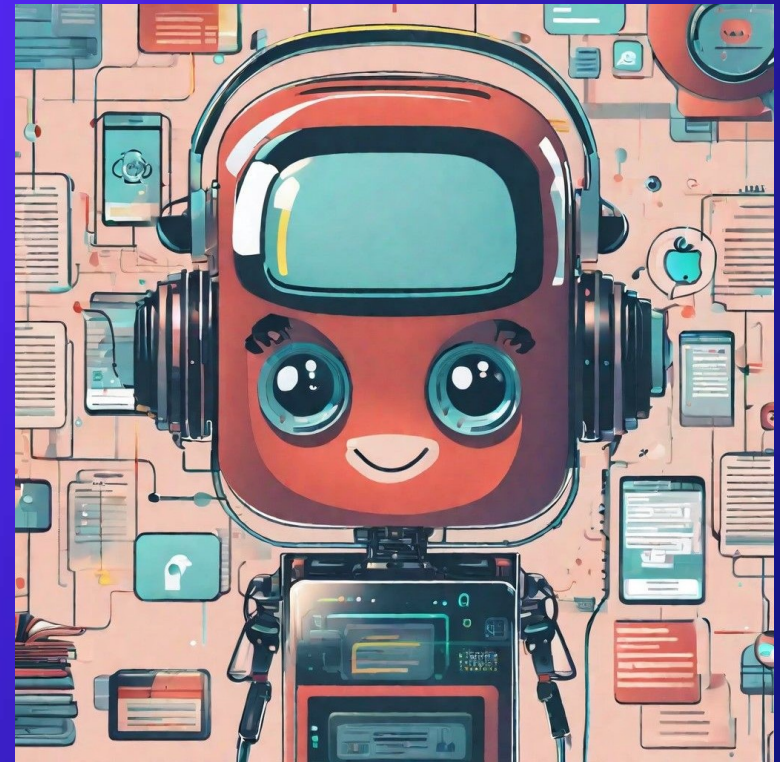
Accessibility: Empowering Inclusive Learning for All

- Accessibility is paramount for ensuring equal access to AI-enhanced learning opportunities.
- Institutions should design AI systems with accessibility from the start, providing appropriate accommodations for individuals with disabilities.
- Clear accessibility guidelines, user testing with diverse groups, and ongoing feedback mechanisms are crucial for inclusive AI implementation.

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Ethical Frameworks of AI in HE

- The implementation of an ethical framework for AI in higher education is crucial to ensure that the benefits of AI are maximized while minimizing potential harms.
- The framework should prioritize transparency, accountability, and inclusivity.
- It should also involve all stakeholders, including students, faculty, and administrators.
- By adopting such a framework, we can ensure that AI is used ethically and responsibly in higher education, and that it contributes to the betterment of society as a whole.
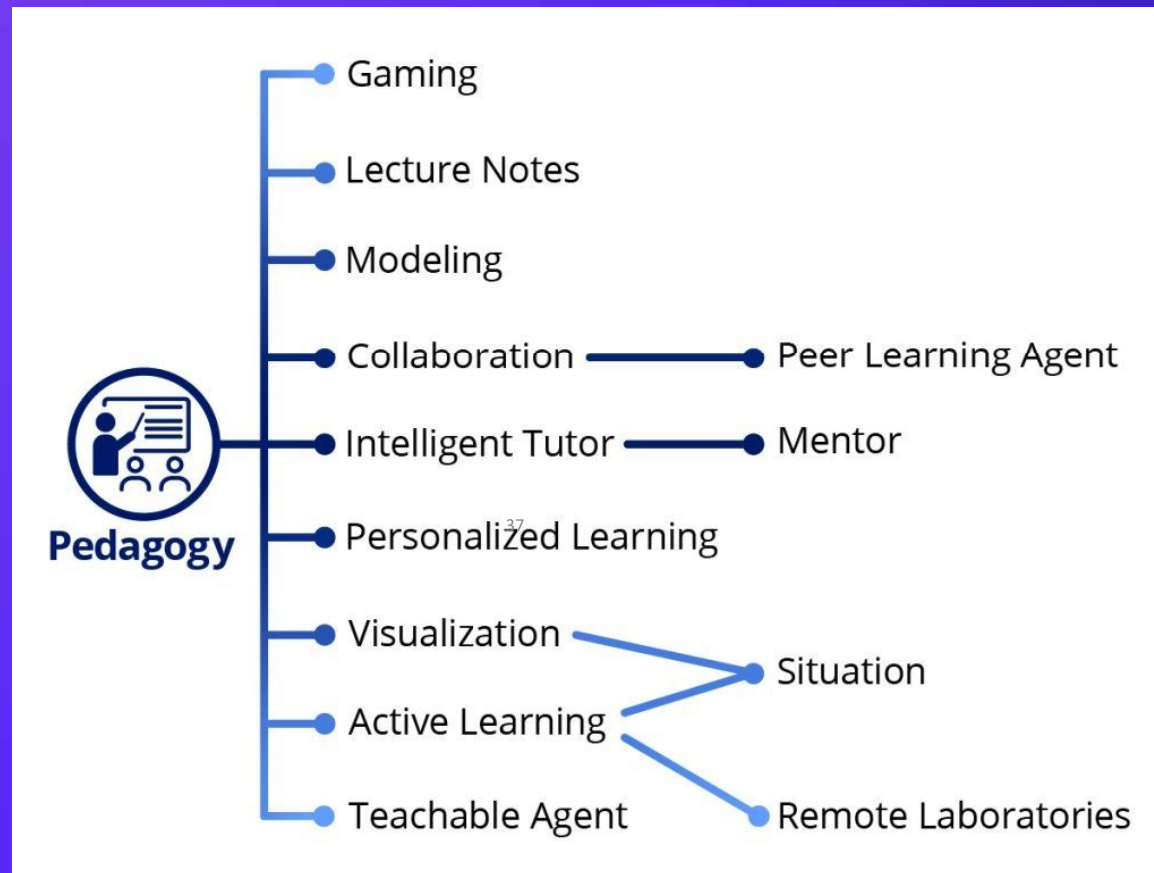
5.
Impacts of AI on Higher Education

AI's Impact on Critical Thinking and Learning Outcomes

- Fostering Analytical Thinking.
- Enhancing Problem-Solving Skills
- Developing Evidence-Based Reasoning

- Statistical Data on Learning Improvements
- Testimonials from Educators and Students
- Long-term Impacts on Learning

Pedagogy-Focused AI Integration

Source: Ways AI is being used for teaching and learning, https://theacademic.com/.

# Examples

Personalized Learning Platforms:

- Khan Academy: Offers personalized learning pathways in various subjects, including math, science, and history, adapting content based on student mastery and providing targeted practice exercises.

Adaptive Assessment Tools:

- NWEA MAP Growth: Utilizes adaptive assessments to measure student growth in math and reading, generating personalized reports that inform instructional decisions.
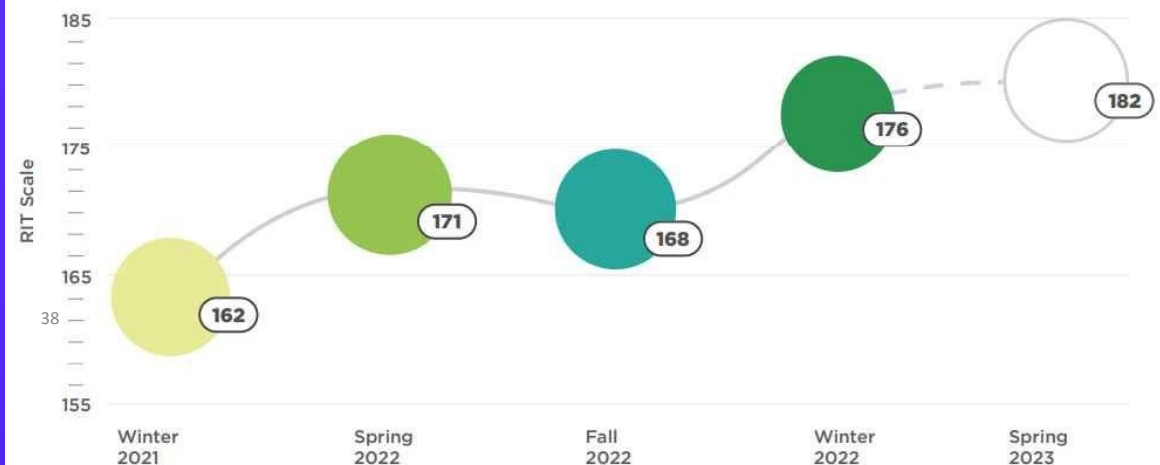
Source: www.nwea.org/resource-center/fact-sheet/46825/MAP-Growth_NWEA_factSheet-1.pdf/

Q & A
THANK YOU!

E-mail: jenny@tvu.edu.vn