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What Are the Myths, Realities and Opportunities of Artificial Intelligence (AI) and Learning Analytics?

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Contact North

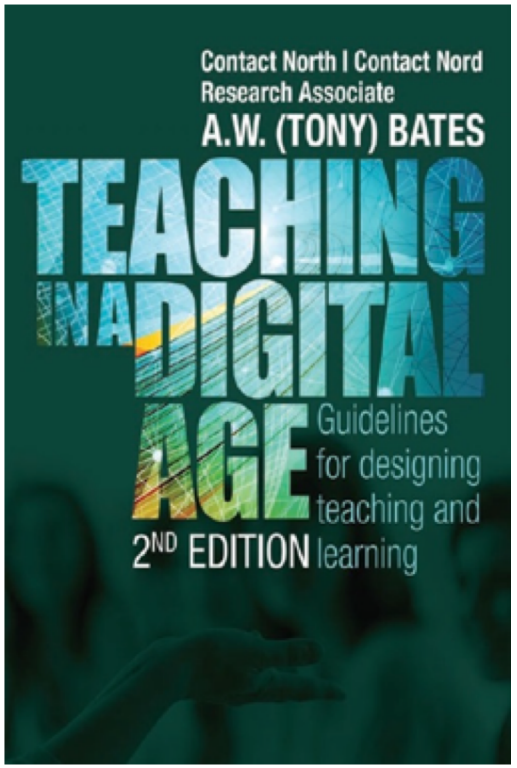
Webinar Format

Aim of series:

- Discuss issues raised in Teaching in a Digital Age
- Draw on your experiences in addressing these and related issues

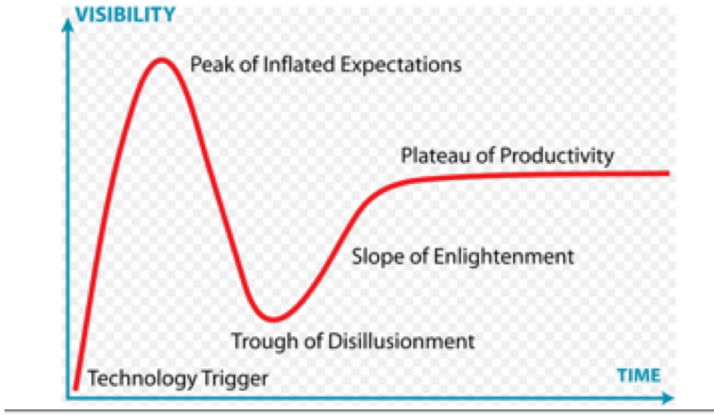
This webinar:

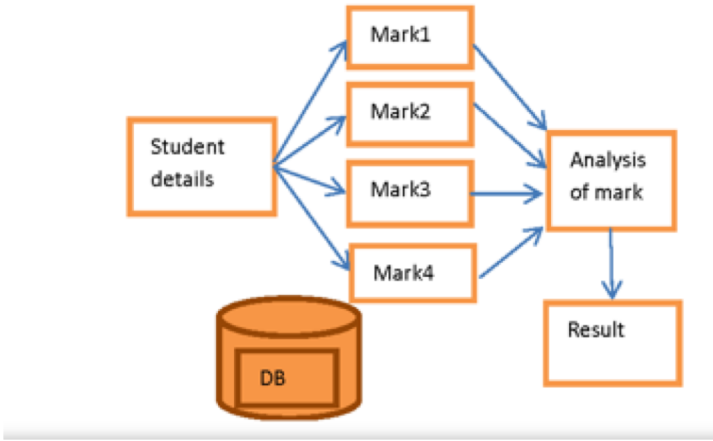
- Artificial Intelligence and Learning Analytics (Chapter 8.7.c)



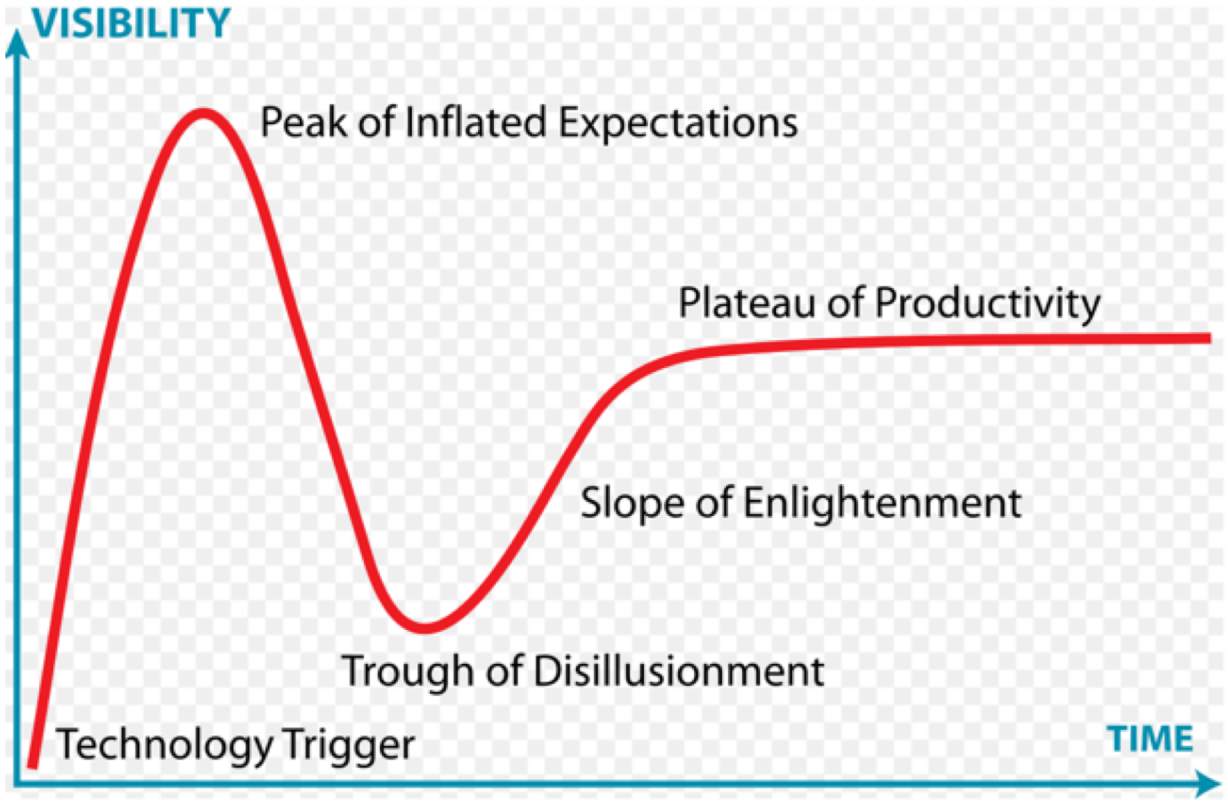
Topics

- Definition/general requirements of AI
- Types of educational applications
- Teaching and learning applications
- Strengths and weaknesses
- What is holding back AI in HE?
- Lessons learned about emerging technologies





Gartner's Hype Cycle



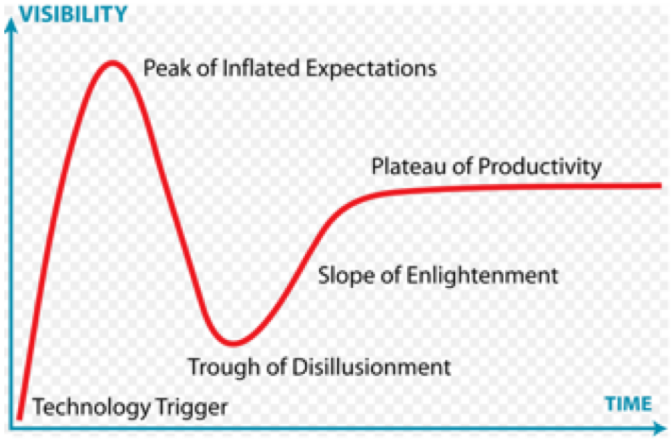
Question

Where would you place AI on the Gartner curve for:

(a) General applications

(b) Educational applications

What are your reasons?



Definitions

Intelligent computer systems or intelligent agents with human features, such as the ability to memorise knowledge, to perceive and manipulate their environment in a similar way as humans, and to understand human natural language.

Zawacki-Richter et al. (2019)

Types of Educational Applications

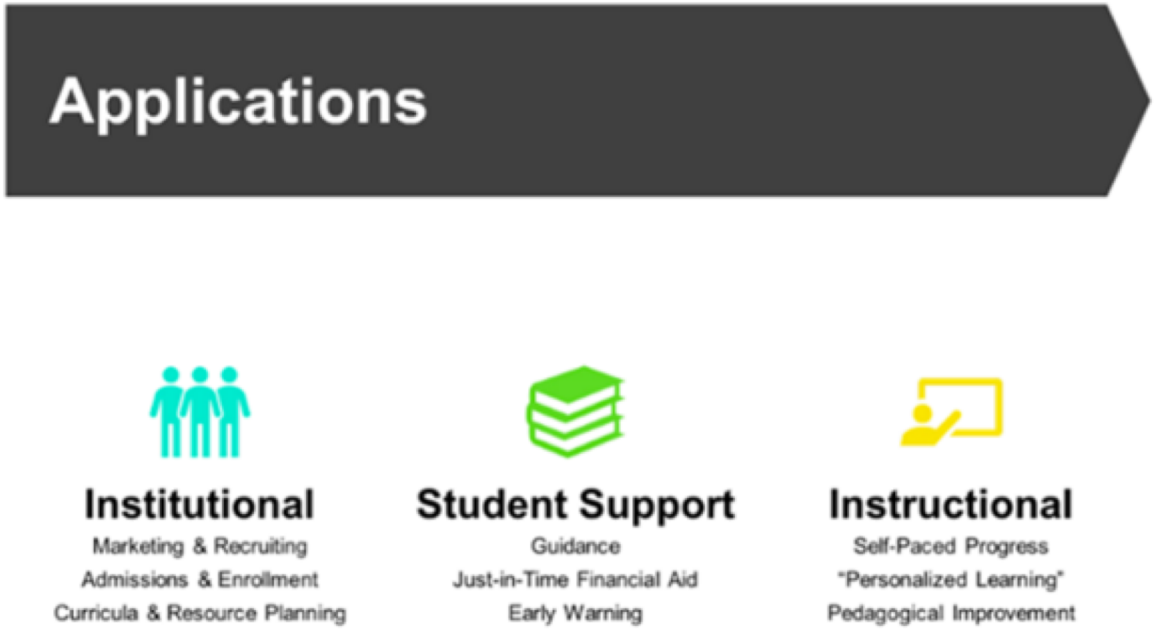


Image: Zeide, 2019

Teaching and Learning Applications

Learning analytics/prediction

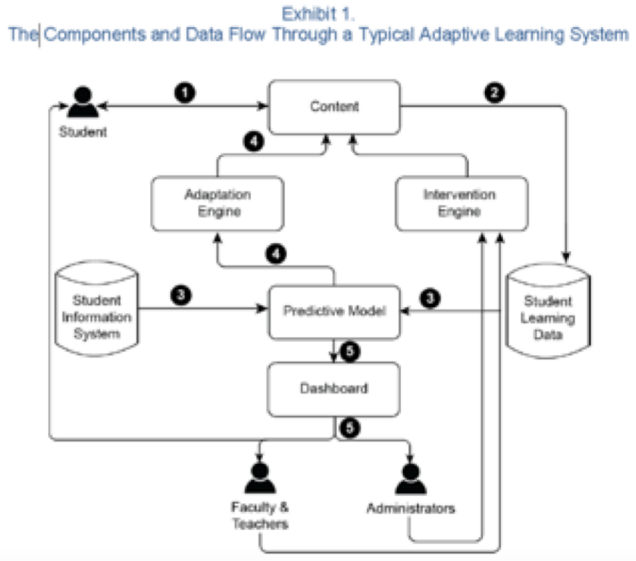
Intelligent tutoring systems

Adaptive learning (personalization)

Student assessment

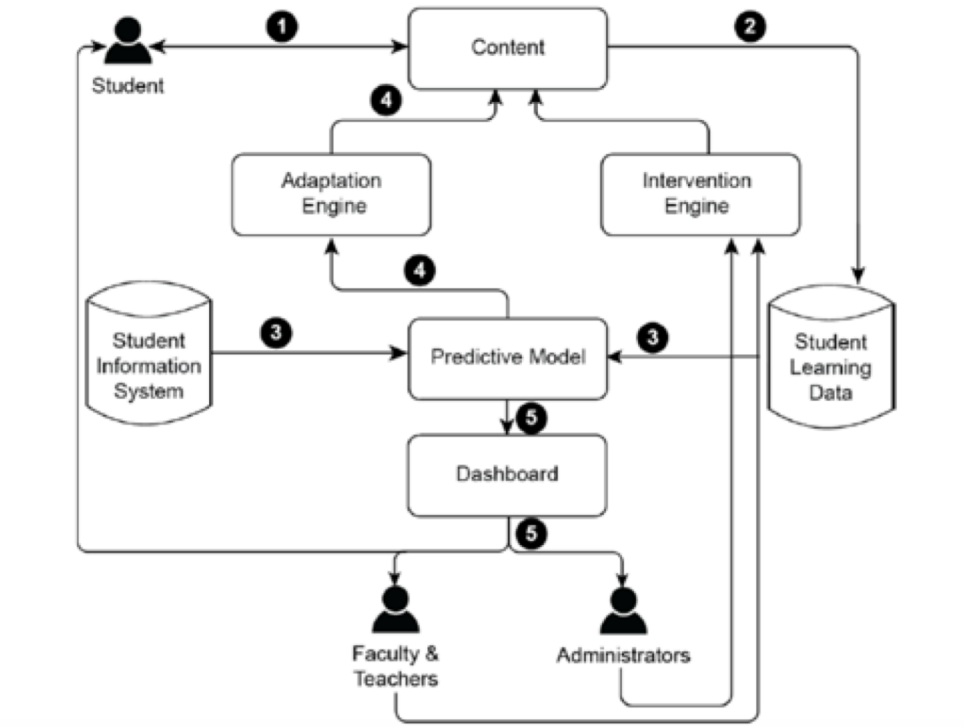
- Quantitative (comprehension; processes)
- Qualitative? Essays?

Chatbots



Teaching and Learning Applications

Exhibit 1.
The Components and Data Flow Through a Typical Adaptive Learning System



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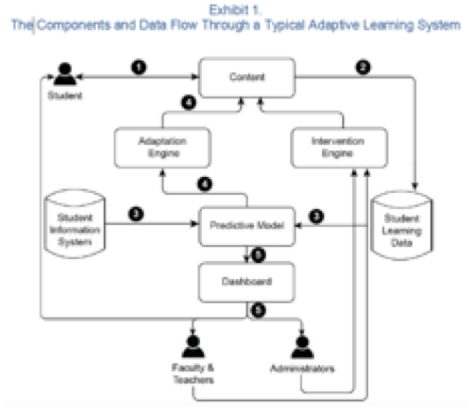
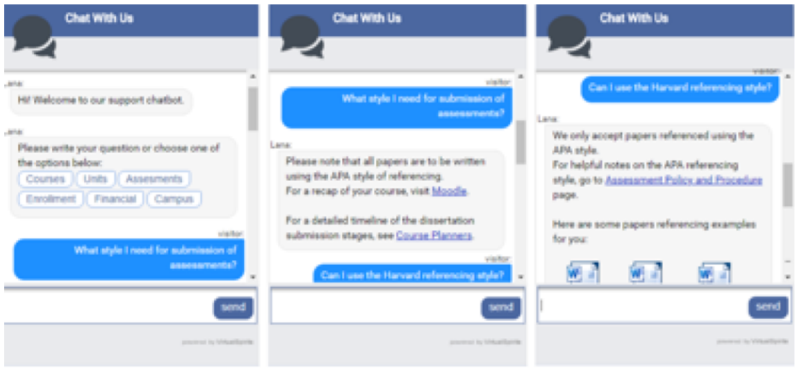
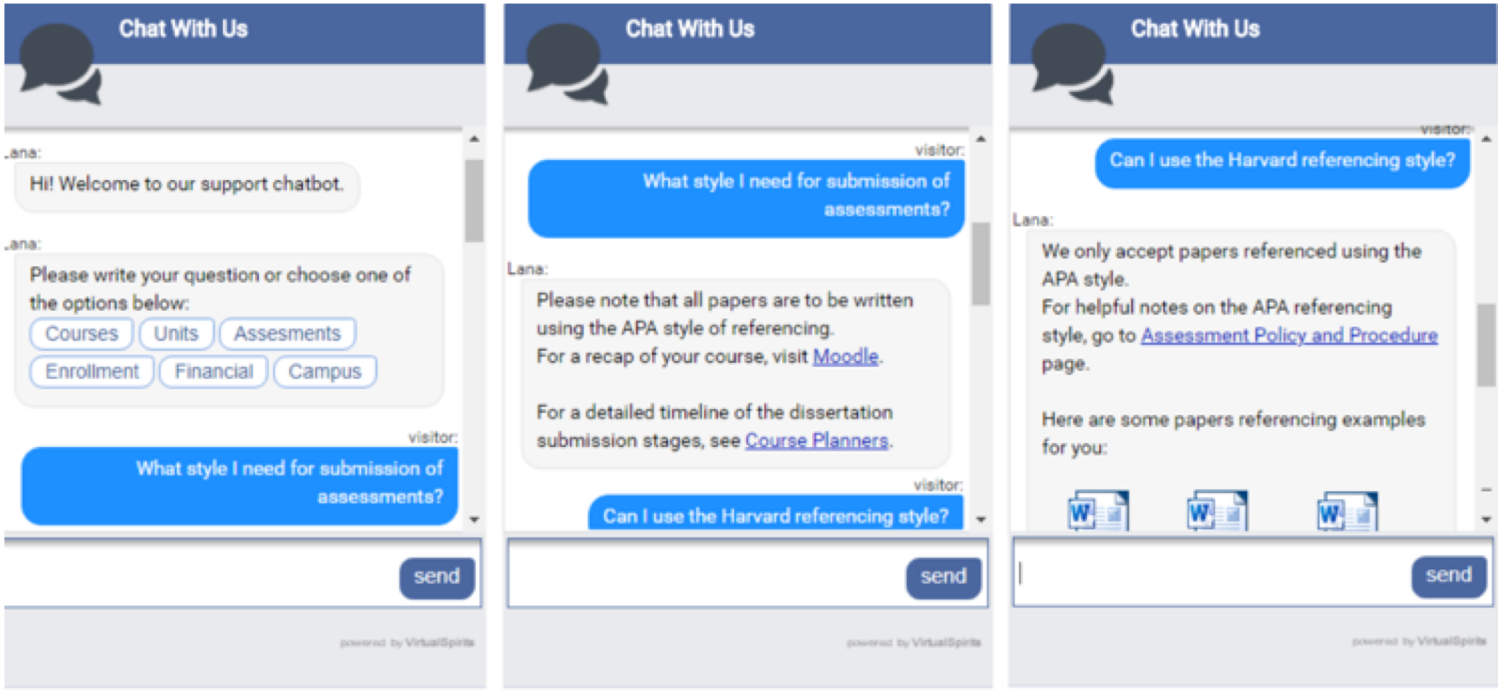


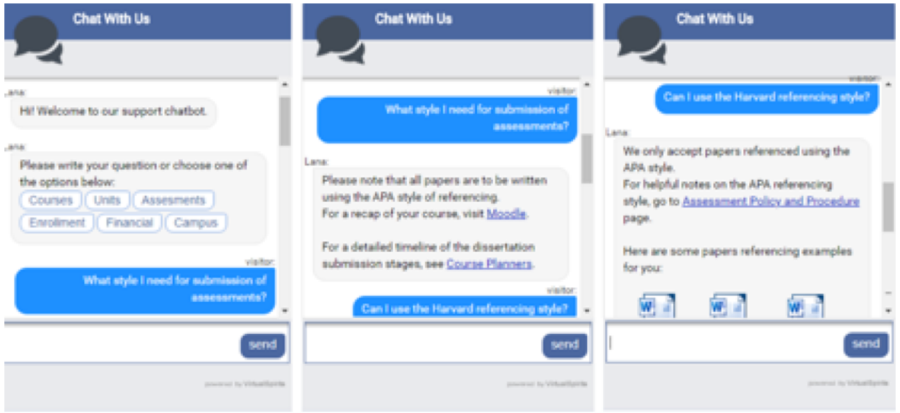


Teaching and Learning Applications



Questions and Comments

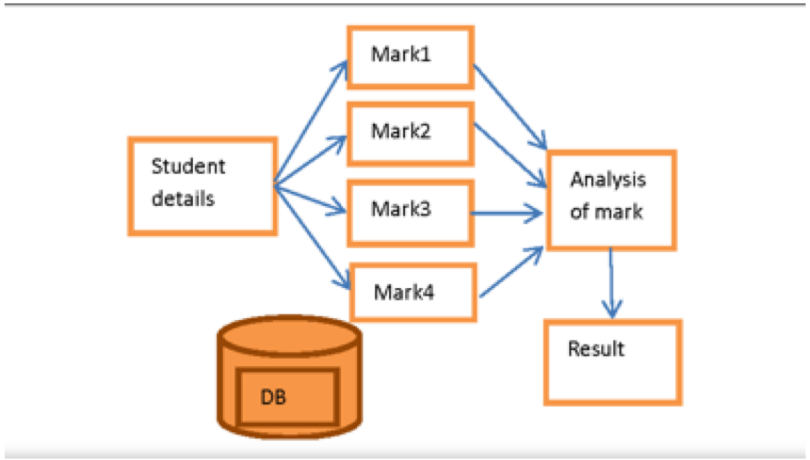
- Any other type of teaching and learning application of AI/learning analytics?
  - Which have you used?
- How well did it work and for what purpose?



Strengths and Weaknesses

Criteria:

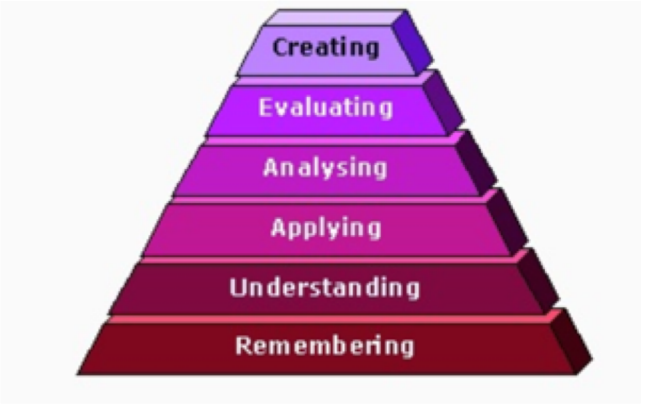
- Massive data sets; computing power; powerful algorithms (‘modern’ AI?)
- Unique educational affordances?
- Develop knowledge and skills needed in a digital age?
- Ethical, e.g. bias-free?
- Explicability?



Strengths and Weaknesses

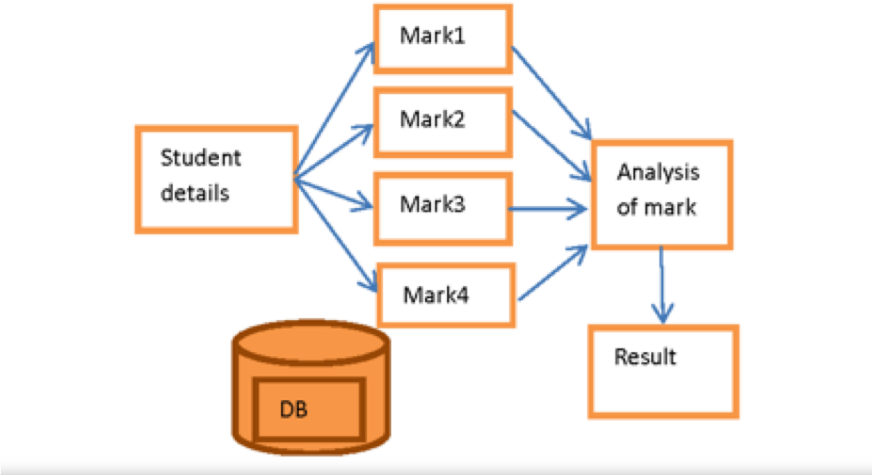
To date:

- 'modern' AI? Not been tried to date;
- Affordances? Replicating rather than transforming
- Skills? Content focused: memory/ comprehension: behaviourist;
- Ethics/explicability: lack of transparency in algorithms/data selection



Questions and Comments

- What do you think are the strengths of AI in teaching and learning?
- What are the weaknesses of current approaches?



What is holding AI back in education?

System fragmented: not enough data points: large-scale needed

Narrow view of learning: behaviourist; memorization

Most applications led by computer scientists not educators

Emotional/affective/social aspects of learning - but not either/or

AI still a sleeping giant

Conclusions About AI/LA

Disappointing to date

Need to re-think way AI is applied to teaching/learning

Educators need to be involved more in design/evaluation

AI good for content/comprehension

Augment or replace teachers?

A sleeping giant: get involved!

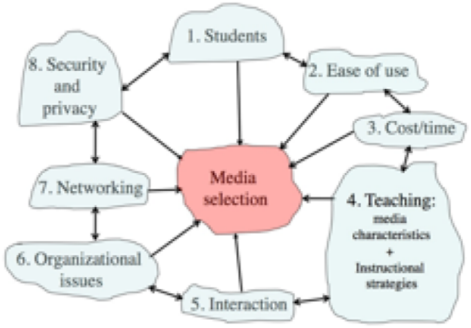
Conclusions About Emerging Technologies

New not necessarily better than old

Wait and see; dip toes or experiment

What educational goals/ affordances? Transformation?

Need a strong framework for decision-making: SAMR and SECTIONS



Questions and Comments

- Where would you place (a) AI (b) learning analytics in the SAMR model? (i) now (ii) in the future?
- Using the SECTIONS model, what are (a) benefits (b) limits of (i) AI (ii) learning analytics?
- Is there a future for AI in education – or is it a myth?
- What would make AI more valuable in education?