

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



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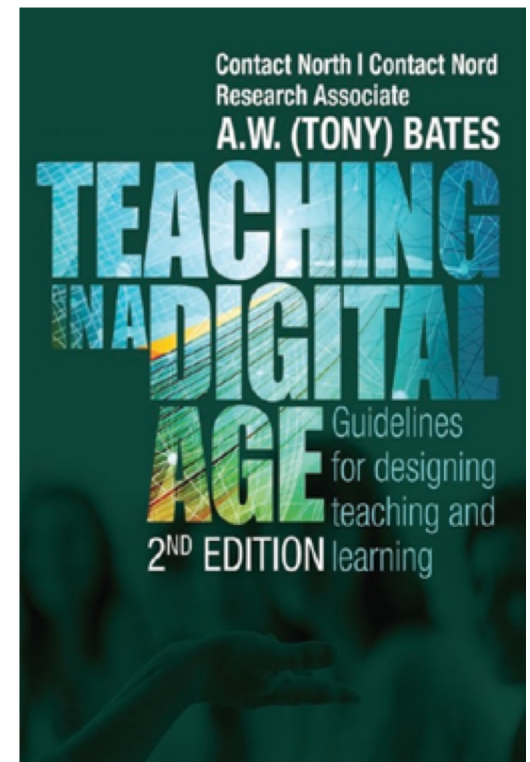
Webinar Format

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

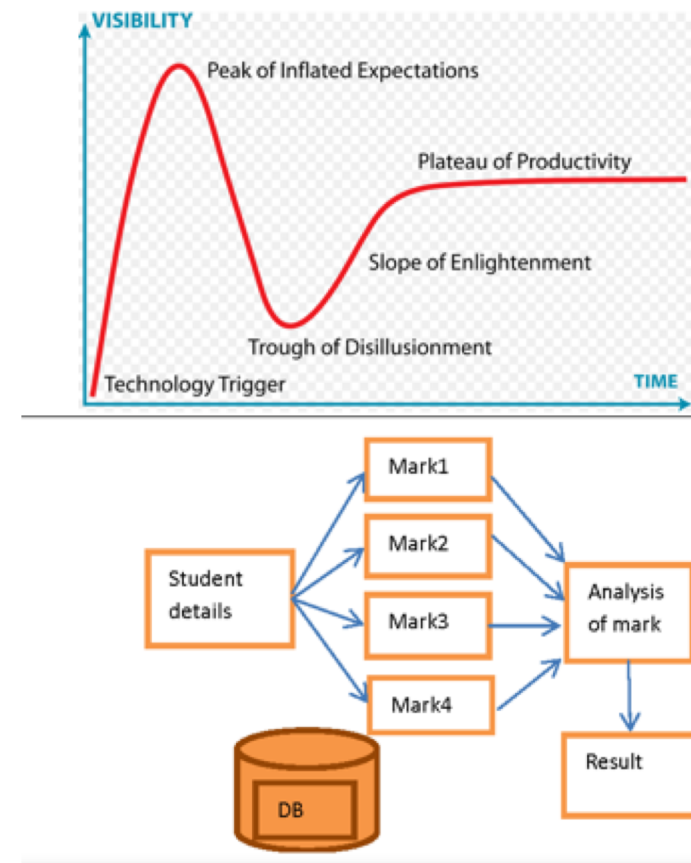
Types of educational applications

Teaching and learning applications

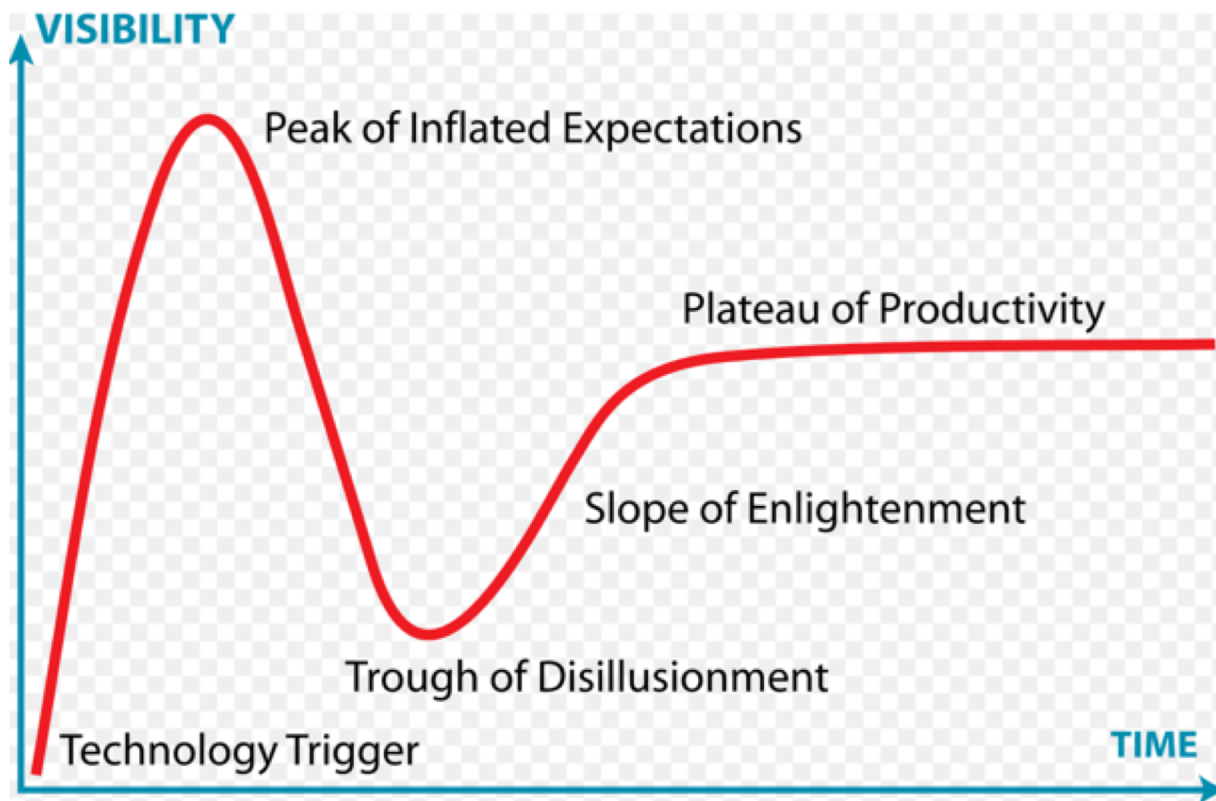
Strengths and weaknesses

What is holding back AI in HE?

Lessons learned about emerging technologies



Gartner's Hype Cycle

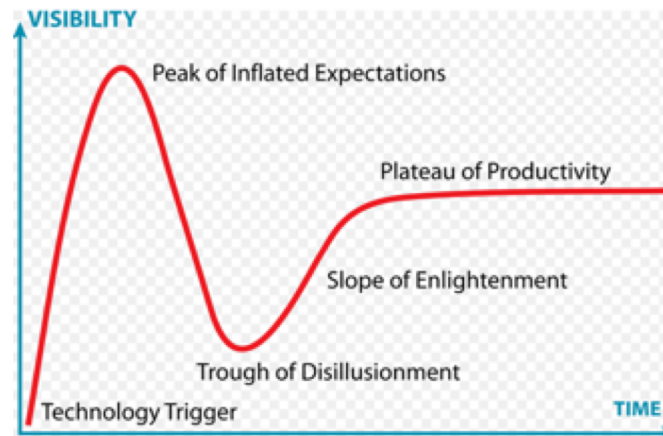


Question

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

Applications



Institutional

Marketing & Recruiting
Admissions & Enrollment
Curricula & Resource Planning



Student Support

Guidance
Just-in-Time Financial Aid
Early Warning



Instructional

Self-Paced Progress
"Personalized Learning"
Pedagogical Improvement

Image: Zeide, 2019

Teaching and Learning Applications

Learning analytics/prediction

Intelligent tutoring systems

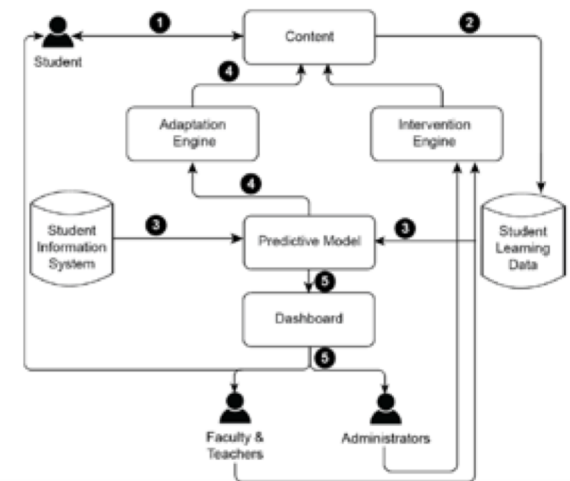
Adaptive learning (personalization)

Student assessment

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

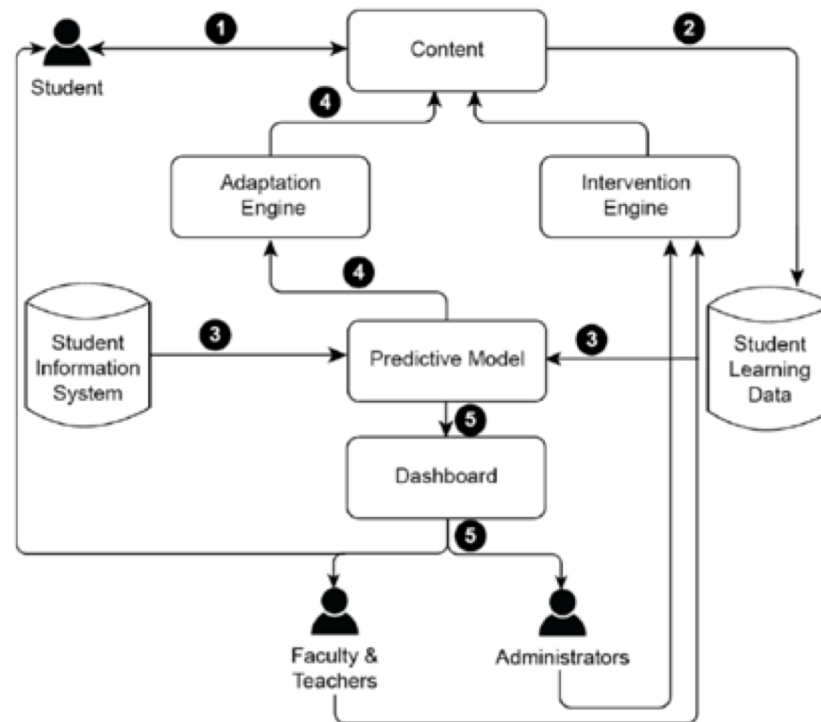
Chatbots

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



Teaching and Learning Applications

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Teaching and Learning Applications

Learning analytics/prediction

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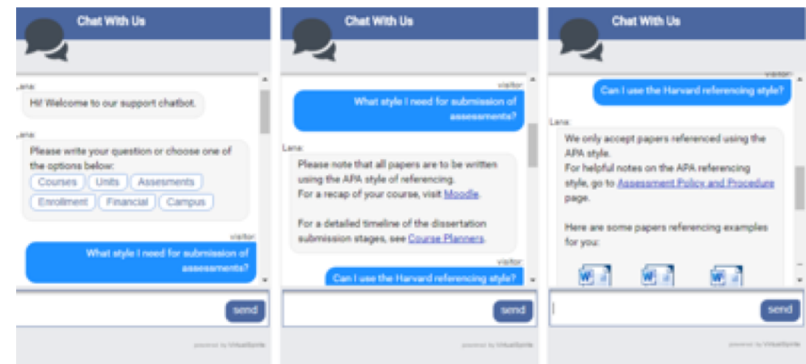
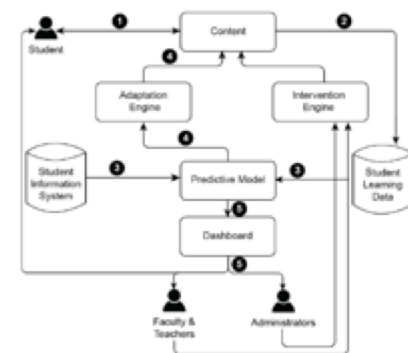
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Chatbots

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



Teaching and Learning Applications

The image displays three sequential screenshots of a web chatbot interface titled "Chat With Us".

Screenshot 1: The chatbot (Lana) greets the user: "Hi! Welcome to our support chatbot." It then offers a menu of topics: Courses, Units, Assessments, Enrollment, Financial, and Campus. The user (visitor) asks: "What style I need for submission of assessments?".

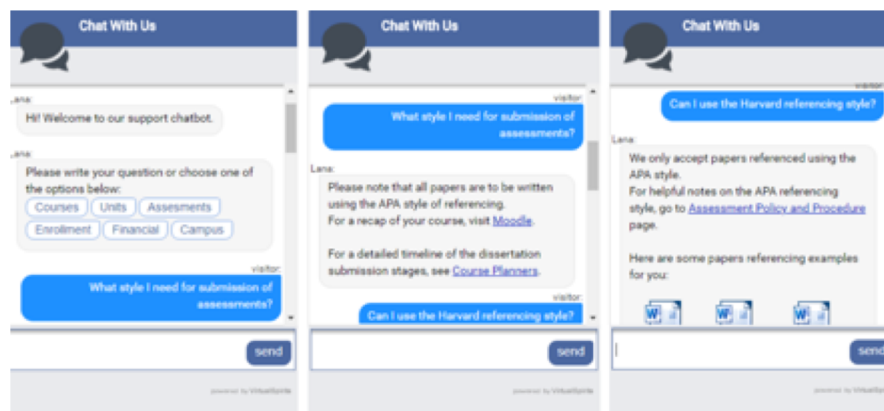
Screenshot 2: The chatbot (Lana) responds: "Please note that all papers are to be written using the APA style of referencing. For a recap of your course, visit [Moodle](#). For a detailed timeline of the dissertation submission stages, see [Course Planners](#)." The user (visitor) asks: "Can I use the Harvard referencing style?".

Screenshot 3: The chatbot (Lana) responds: "We only accept papers referenced using the APA style. For helpful notes on the APA referencing style, go to [Assessment Policy and Procedure](#) page. Here are some papers referencing examples for you:" followed by three document icons. The user (visitor) has a text input field at the bottom.

Each screenshot shows a "send" button and a footer indicating "powered by VirtualSpirits".

Questions and Comments

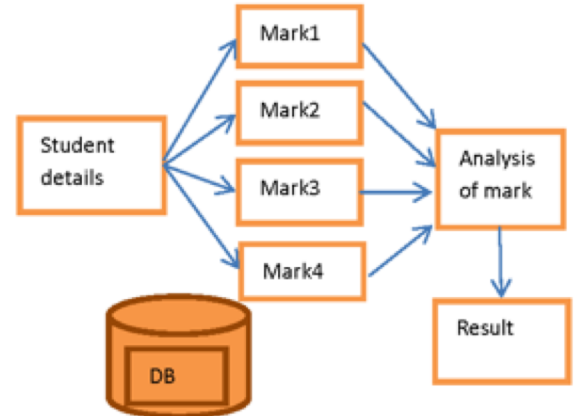
- Any other type of teaching and learning application of AI/learning analytics?
 - Which have you used?
- How well did it work and for what purpose?



Strengths and Weaknesses

Criteria:

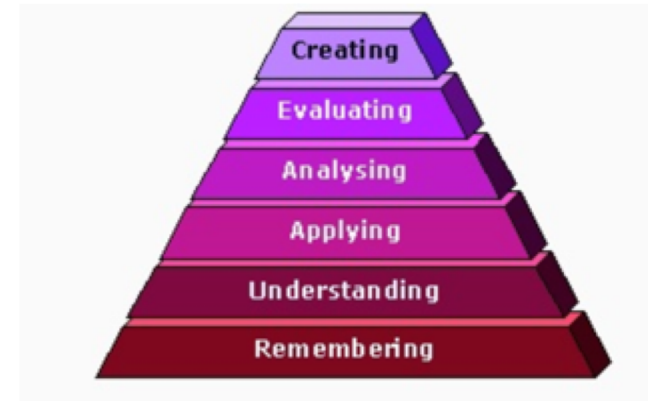
- Massive data sets; computing power; powerful algorithms ('modern' AI?)
- Unique educational affordances?
- Develop knowledge and skills needed in a digital age?
- Ethical, e.g. bias-free?
- Explicability?



Strengths and Weaknesses

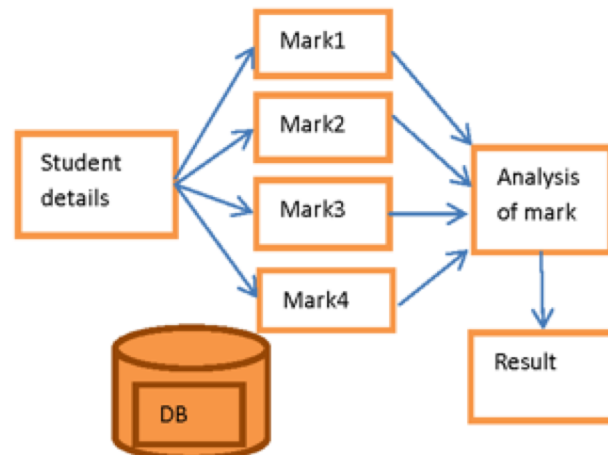
To date:

- '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!



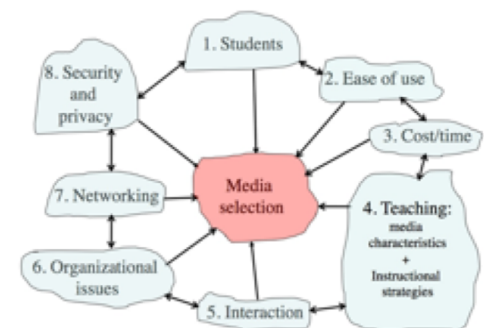
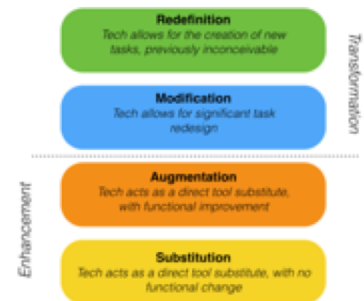
Conclusions About Emerging Technologies

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?

