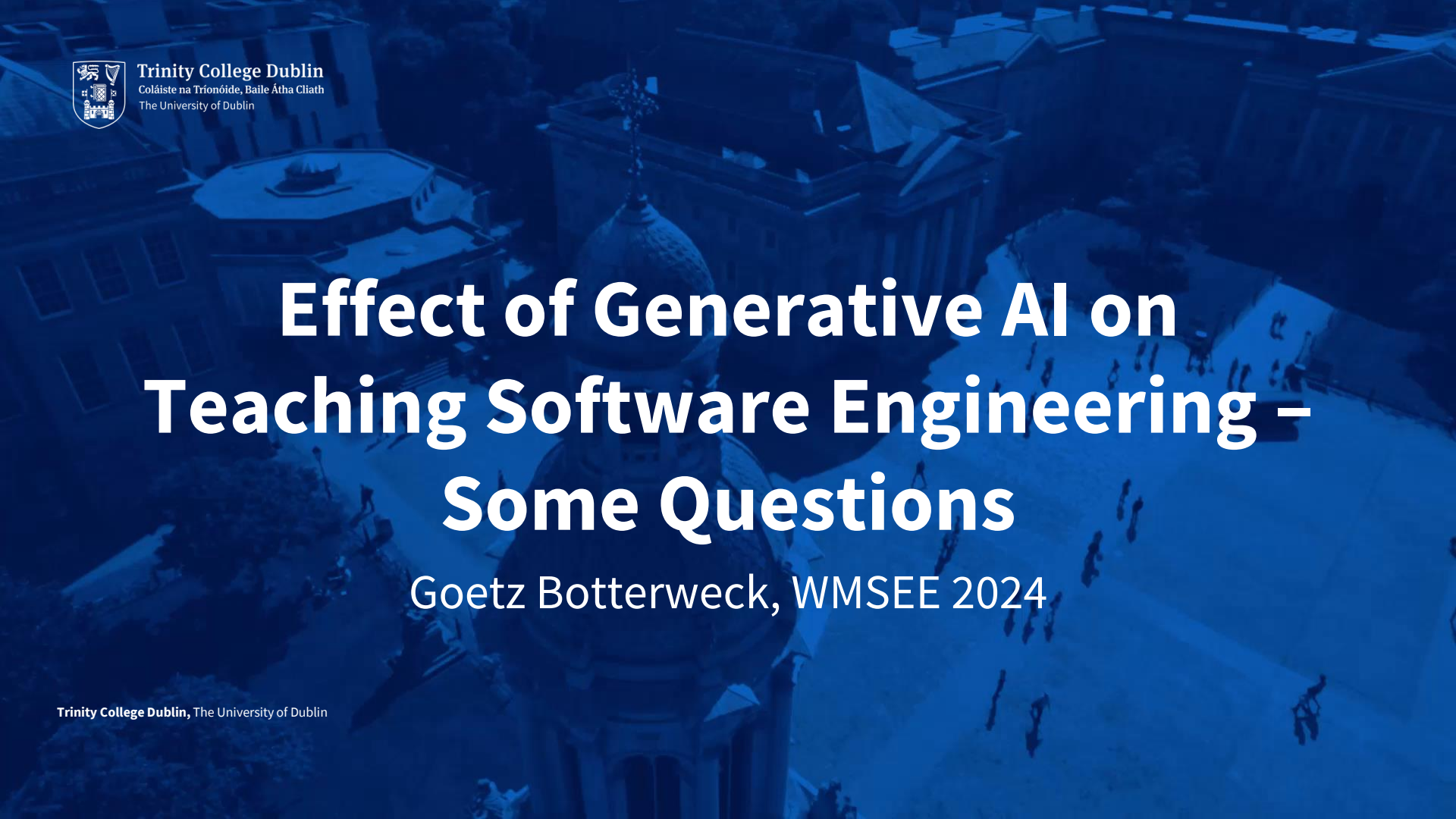
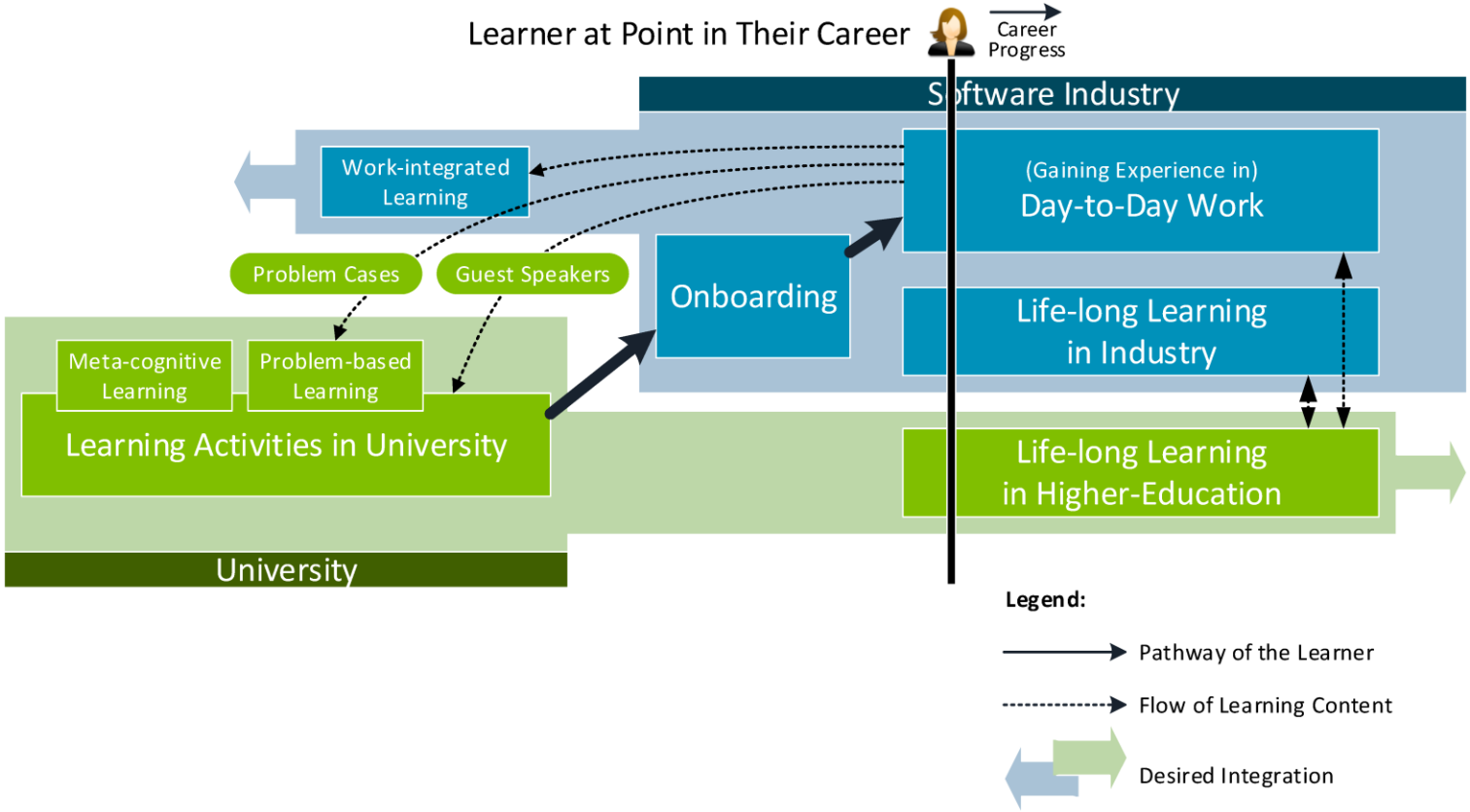
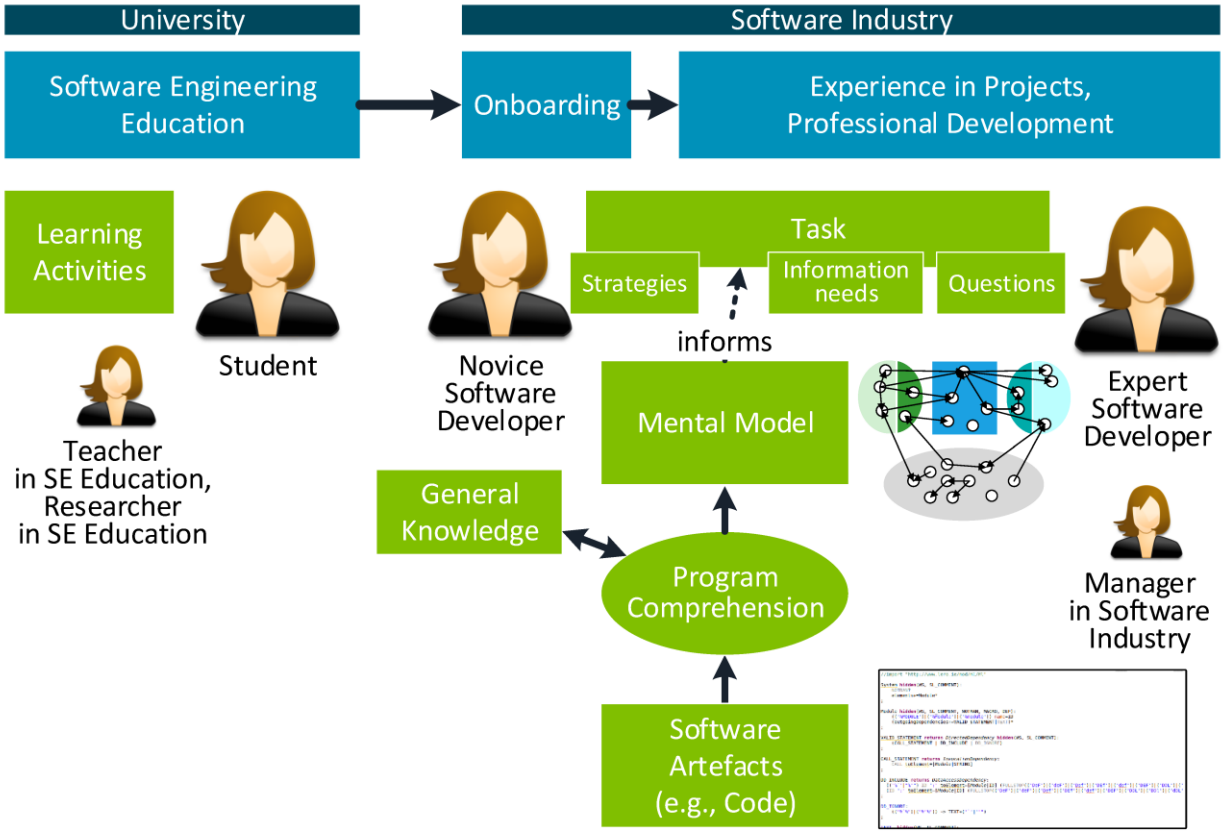


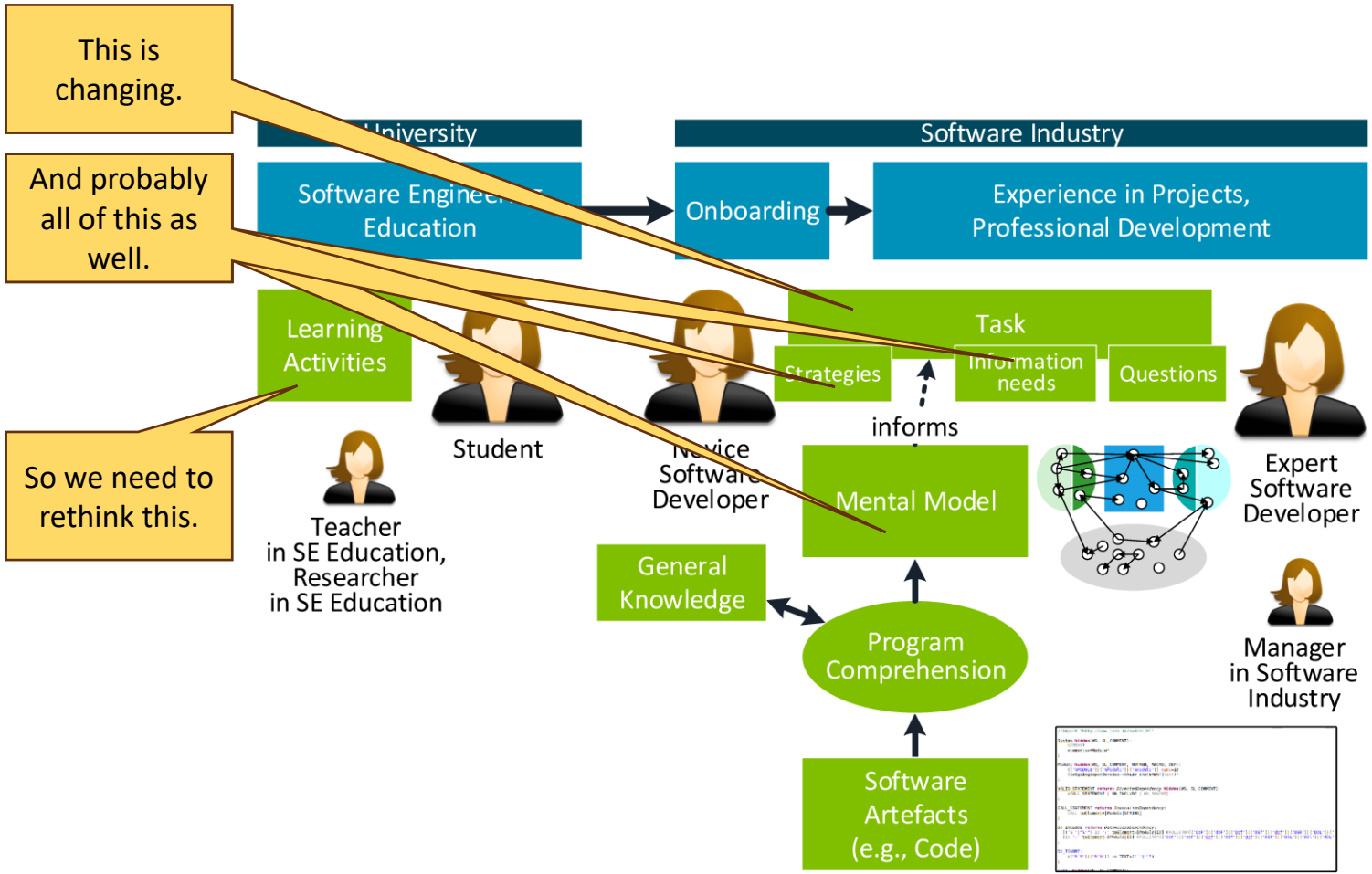
Effect of Generative AI on Teaching Software Engineering – Some Questions

Goetz Botterweck, WMSEE 2024

Trinity College Dublin, The University of Dublin


Learner at Point in Their Career
Career Progress
Software Industry
Work-integrated Learning
(Gaining Experience in)
Day-to-Day Work
Problem Cases
Guest Speakers
Onboarding
Life-long Learning in Industry
Meta-cognitive Learning
Problem-based Learning
Learning Activities in University
Life-long Learning in Higher-Education
University
Legend:
Pathway of the Learner
Flow of Learning Content
Desired Integration


University
Software Industry
Software Engineering Education
Onboarding
Experience in Projects, Professional Development
Learning Activities
Student
Teacher in SE Education, Researcher in SE Education
Novice Software Developer
Task
Strategies
Information needs
Questions
informs
Mental Model
General Knowledge
Program Comprehension
Software Artefacts (e.g., Code)
Expert Software Developer
Manager in Software Industry


This is changing.
And probably all of this as well.
So we need to rethink this.
University
Software Industry
Education
Onboarding
Experience in Projects, Professional Development
Learning Activities
Task
Strategies
Information needs
Questions
informs
Student
Teacher in SE Education, Researcher in SE Education
Developer
Mental Model
Expert Software Developer
General Knowledge
Program Comprehension
Manager in Software Industry
Software Artefacts (e.g., Code)

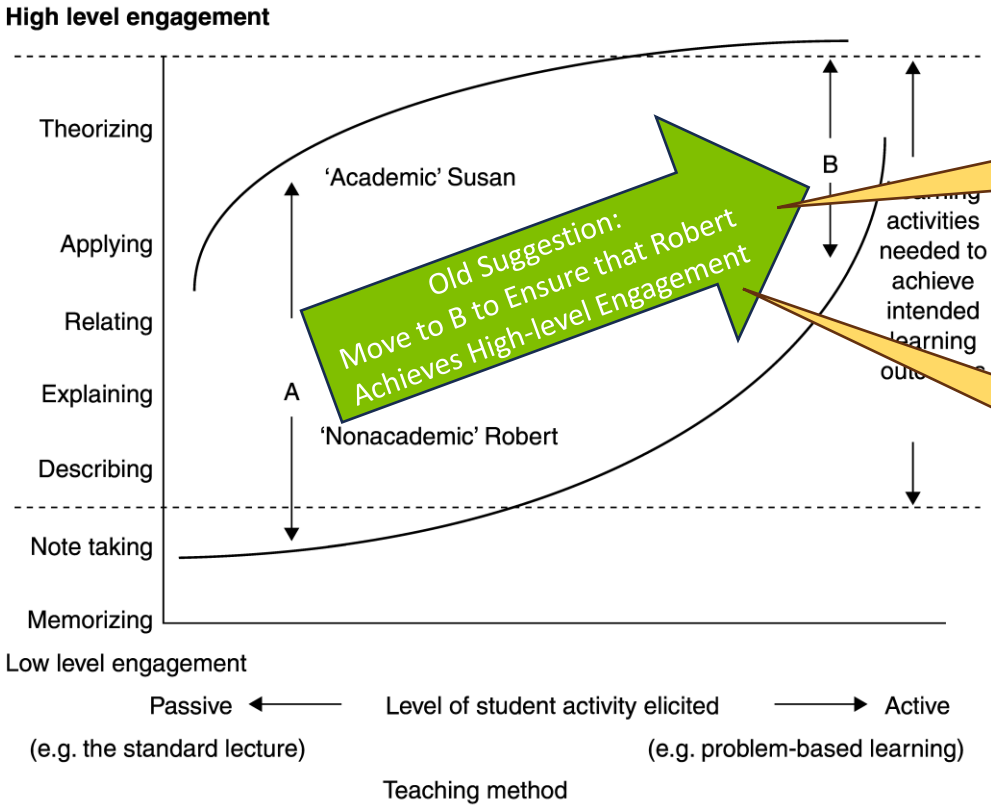
Questions

- How are the following changing with GenAI?
  - Mental models
  - Information needs of software engineers, questions they ask
  - Strategies

Questions

- What is the „hidden effect“ of learning activities?
  - Is “Building a compiler” obsolete if a tool can generate one?
  - Is “Summarising a paper” obsolete if a tool can generate one?
- How do we find out what/how we should teach SE?
  - We should not / cannot ask industry
  - We need to expect significant and constant change in the next years, how to deal with that?

Reaching (Almost) All Students

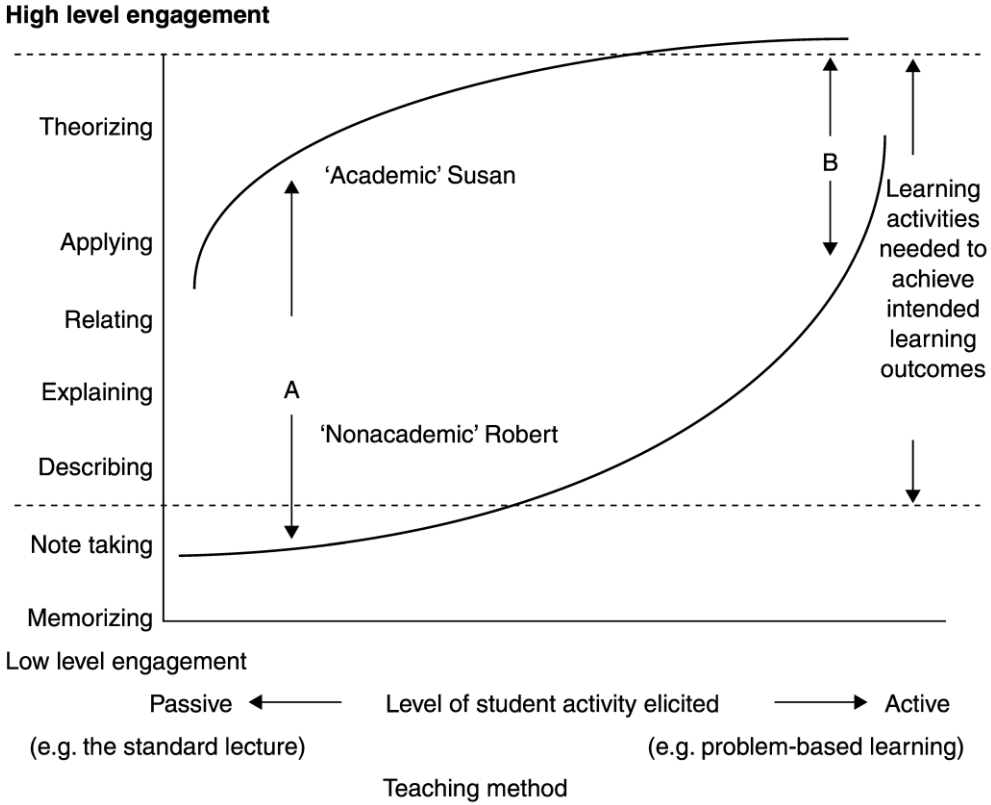


How can we support that with GenAI?
(GenAI as a tool for teaching)

What do we need to consider if the learned skill is based on GenAI?
(using GenAI as a learned skill)

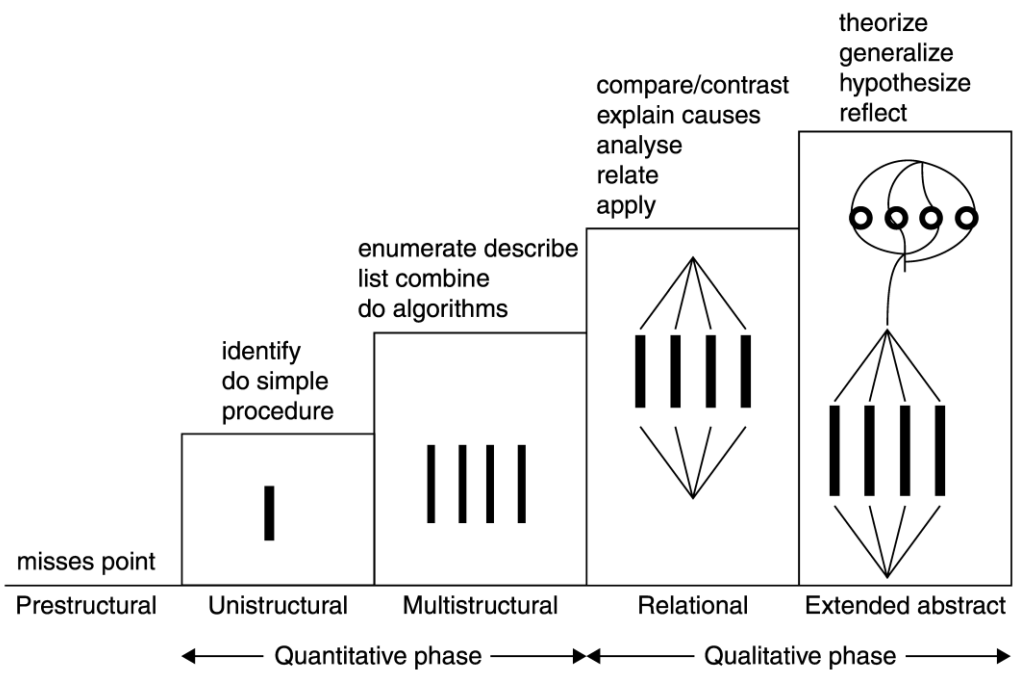
(Biggs and Tang 2011, p. 6)

Reaching (Almost) All Students



(Biggs and Tang 2011, p. 6)

How Are Learning Outcomes (Verbs) Affected?



Will relative importance change due to GenAI?

If an activity can „be done“ by AI, does that mean students should no longer do them?

(Biggs and Tang 2011, p. 91)

Literature

- Biggs, John, and Catherine Tang. “Teaching for Quality Learning at University – What the Student Does”, (4ed), 2011, McGraw Hill
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  - Not peer reviewed!