

EXPERIENCES FROM IMPLEMENTING TEACH-BACK IN THE TEACHING OF ARTIFICIAL INTELLIGENCE

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First teaching experience



Overview

- The course
- Teach-back
 - Implementation
 - Evaluation
- Results
- Moving forward

Course background



Audience



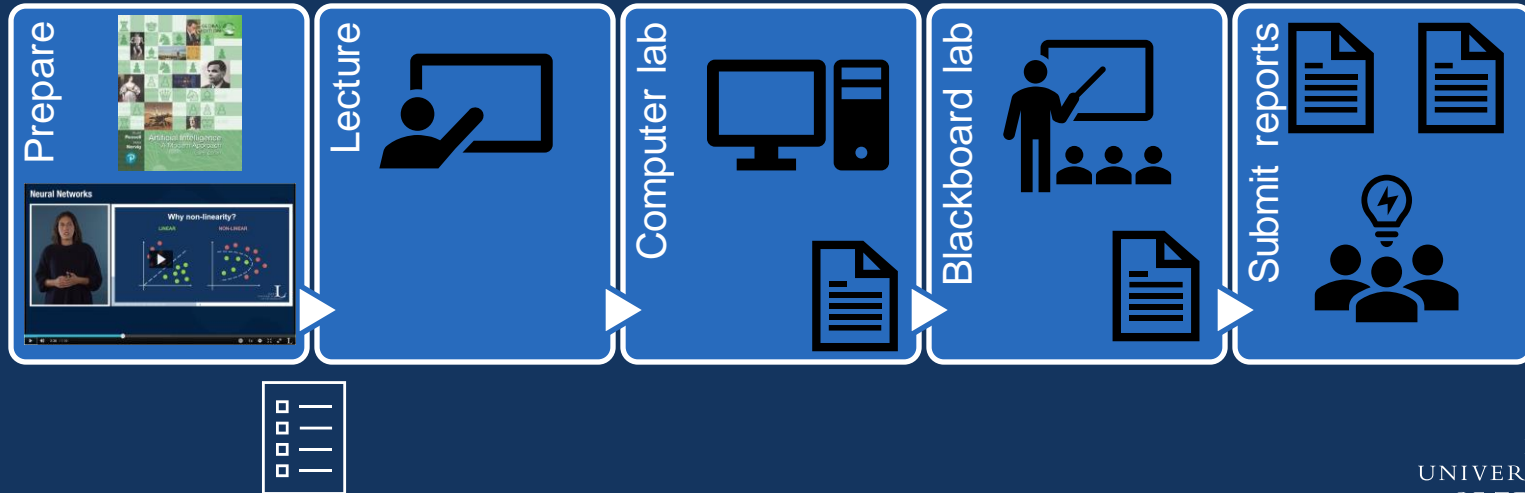
Scope



Time

Course design

- Flipped classroom
- Modular setup
- Structured activities



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Teach-back



Implementation

Lecture

Start: ask students to take note of difficult concepts

End: Vote about concepts

Blackboardlab

Explain concepts in groups



Formulating the questions

Concepts before class

Concepts voted in class

Questions for teach-back

Formulating the questions

| Concepts before class | Concepts voted in class | Questions for teach-back |
|--|--|--|
| Difference between propositional and predicate logic | Logic Propositional logic Different types of logic | Difference between propositional and predicate logic |

Formulating the questions

| Concepts before class | Concepts voted in class | Questions for teach-back |
|--|--|--|
| Difference between propositional and predicate logic | Logic Propositional logic Different types of logic | Difference between propositional and predicate logic |
| What is conditional probability? | | What is conditional probability? |

Formulating the questions

| Concepts before class | Concepts voted in class | Questions for teach-back |
|--|--|---|
| Difference between propositional and predicate logic | Logic Propositional logic Different types of logic | Difference between propositional and predicate logic |
| What is conditional probability? | | What is conditional probability? |
| | Fuzzy logic Uncertainties | Fuzzy logic What sources of uncertainty can we have? |

Evaluation

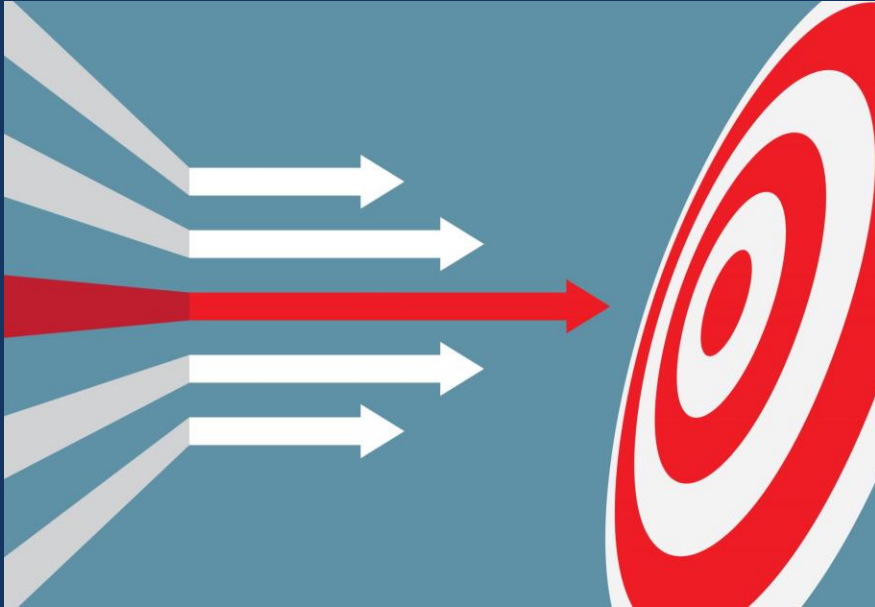


Survey



Oral exam

Evaluation



Targeting 3 main areas

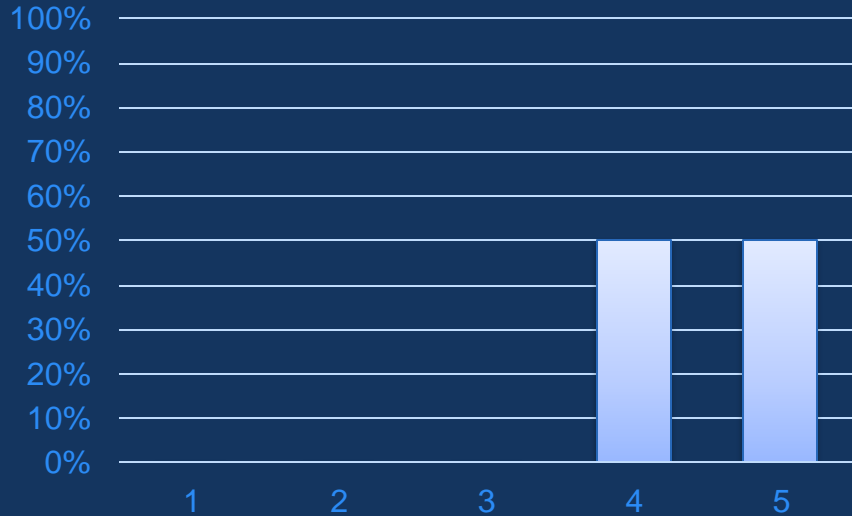
1. Confidence and experience
2. Understanding and retention
3. Engagement

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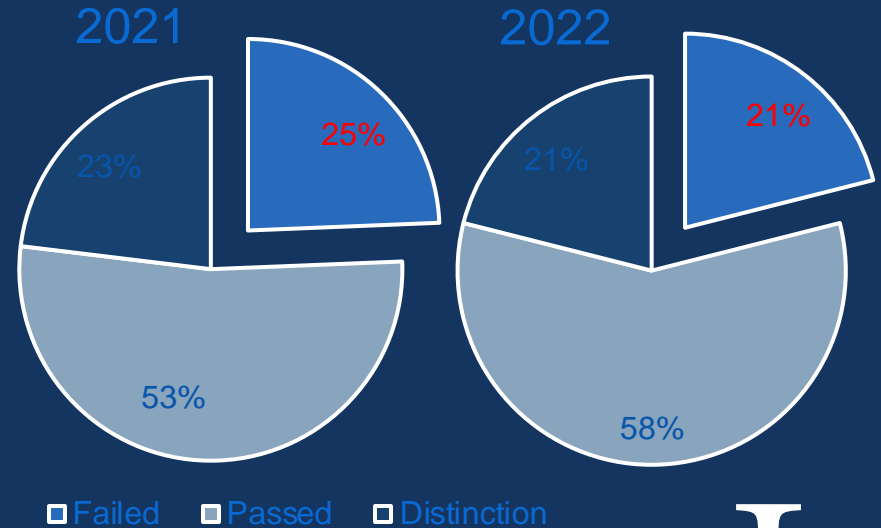
Confidence and experience

- Dare to ask

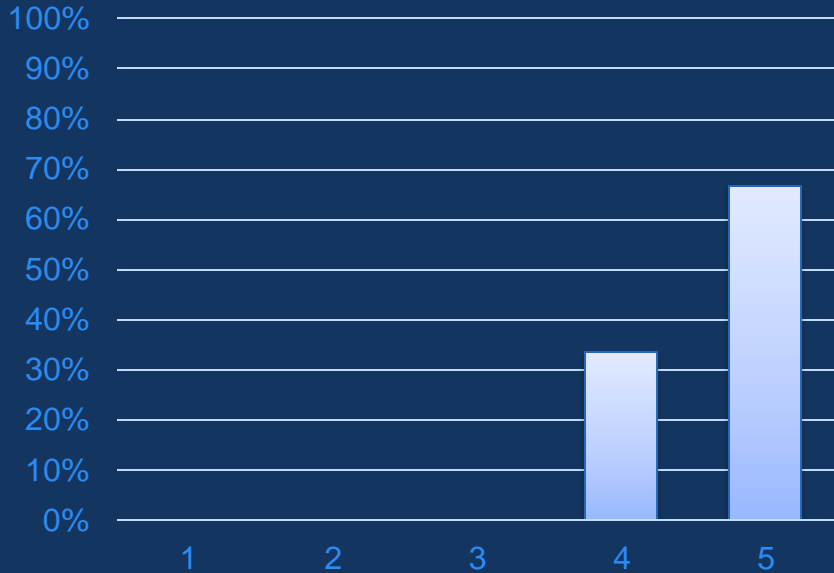


| n | average | deviation |
|---|---------|-----------|
| 2 | 4.5 | 0.7 |

- Better passing rate in exams



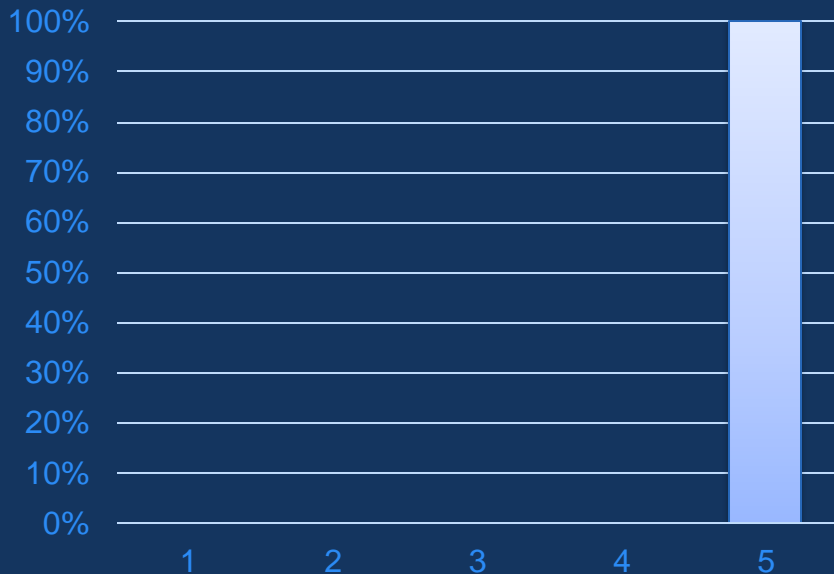
Understanding and retention



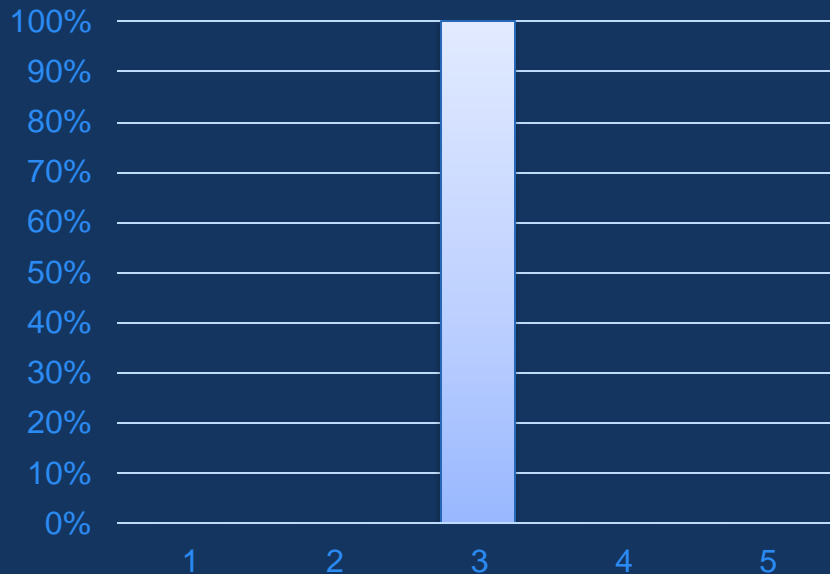
- Better understanding by...
 - ...listening to explanations from different perspectives
 - ...explaining
- Better retention

| n | average | deviation |
|---|---------|-----------|
| 3 | 4.7 | 0.6 |

Engagement



Teach-back was engaging/interesting



I spent much time with it

Exam testimonials

- Really helpful to get other people's perspective on things, hear other people's explanations
- Tried to do that almost every week, sometimes it was good and sometimes not as good. Found it helpful, understanding what I am comfortable describing and explaining
- We did it, but we didn't continue after the group task was done
- No, did not do it

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Future work

Improve teach-back and participation

- Start earlier
 - Share initial questions from the beginning
- Extend question-list
 - Exam questions available already
 - Or return to explaining concepts
- Teach-back in dedicated grup meetings
- Mandatory teach-back for a week
- Mock teach-back session

Increase feedback



Survey questions (exact wording)

- Having select concepts explained to me by my group members improved my understanding of the material.
- Reading up more on certain select concepts and explaining them to my fellow group members improved my understanding of the material.
- Explaining select concepts to my fellow group members, and listening to their explanations helped me to better remember these concepts.
- I found explaining concepts to my fellow group members, and listening to their explanation an engaging/interesting activity.
- Discussing the select concepts within my group increased my confidence, and made it easier for me to ask when something was not clear to me the first time.
- I have spent much time on understanding the concepts I chose to explain.