International Conference
The Future of Education

# The Future of Learning: Teaching Software Development in the Age of

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# Agenda


AI's role in software engineering education

Applications across development phases

AI disruption of traditional teaching

ISTQB Practical Tester

Curriculum redesign and assessment innovations

# The Paradigm Shift in Education

### Static

Traditional fixed curriculum

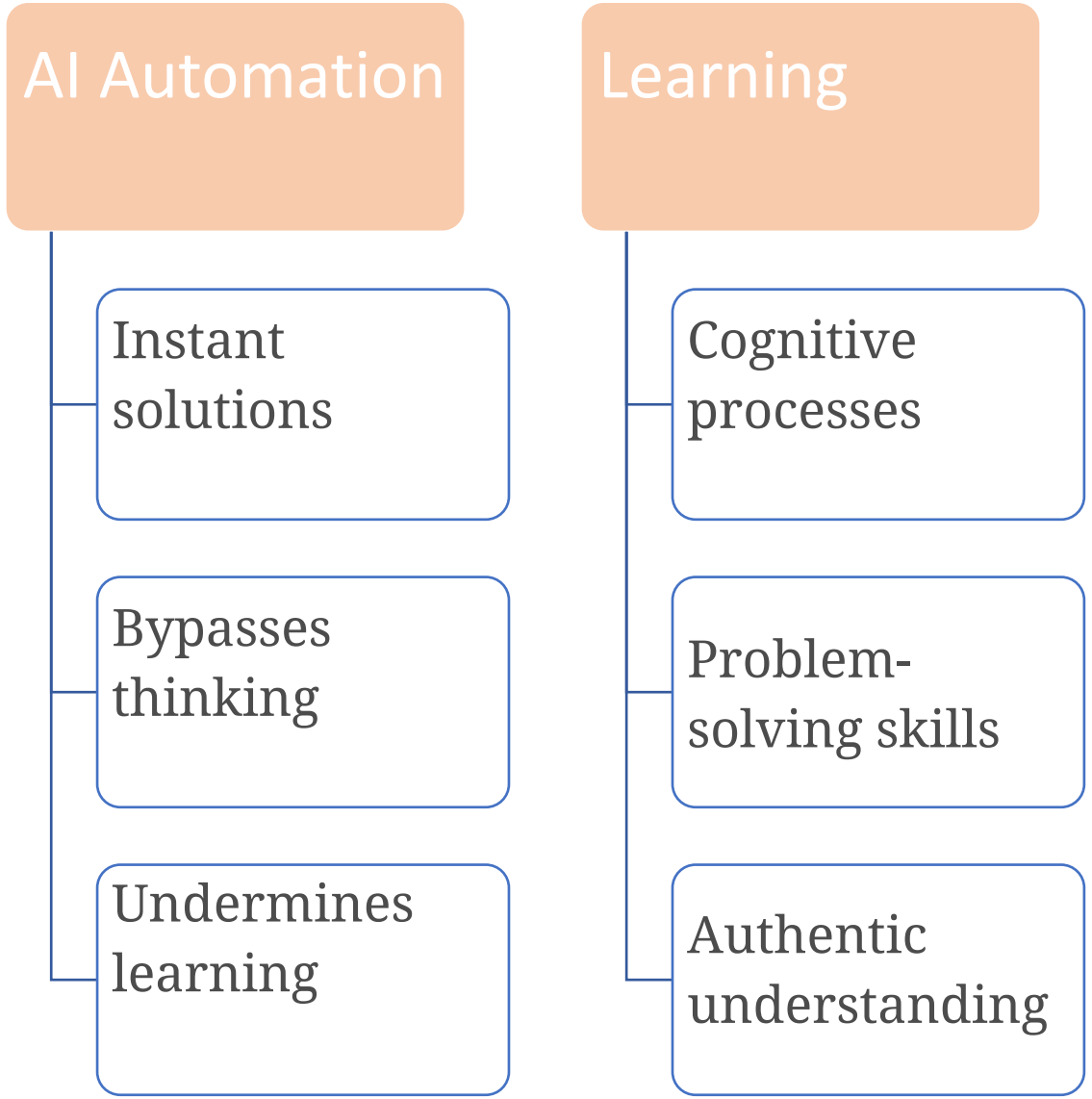
### Dynamic

Adaptive learning paths

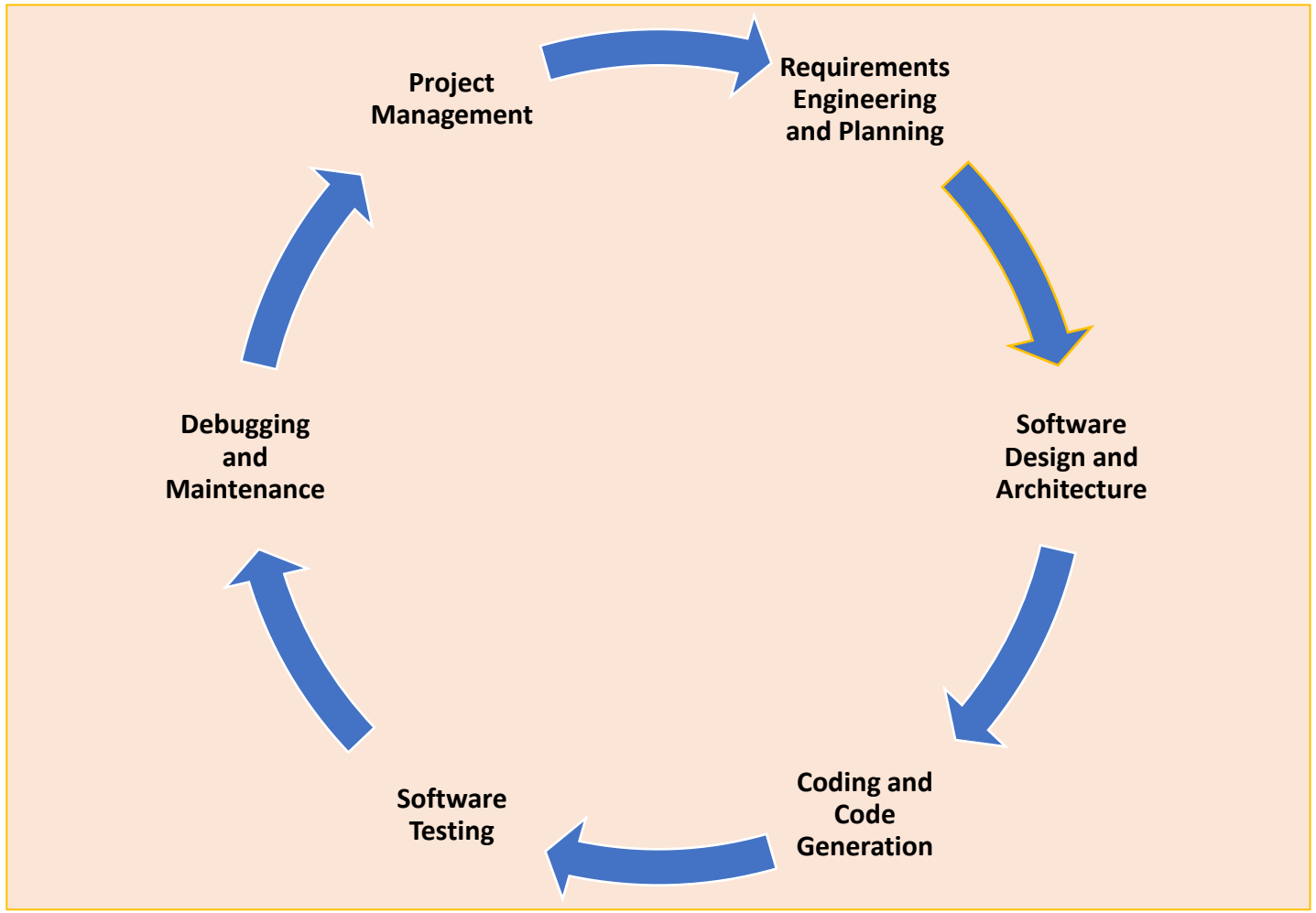
### Personalized

Individual learning experiences

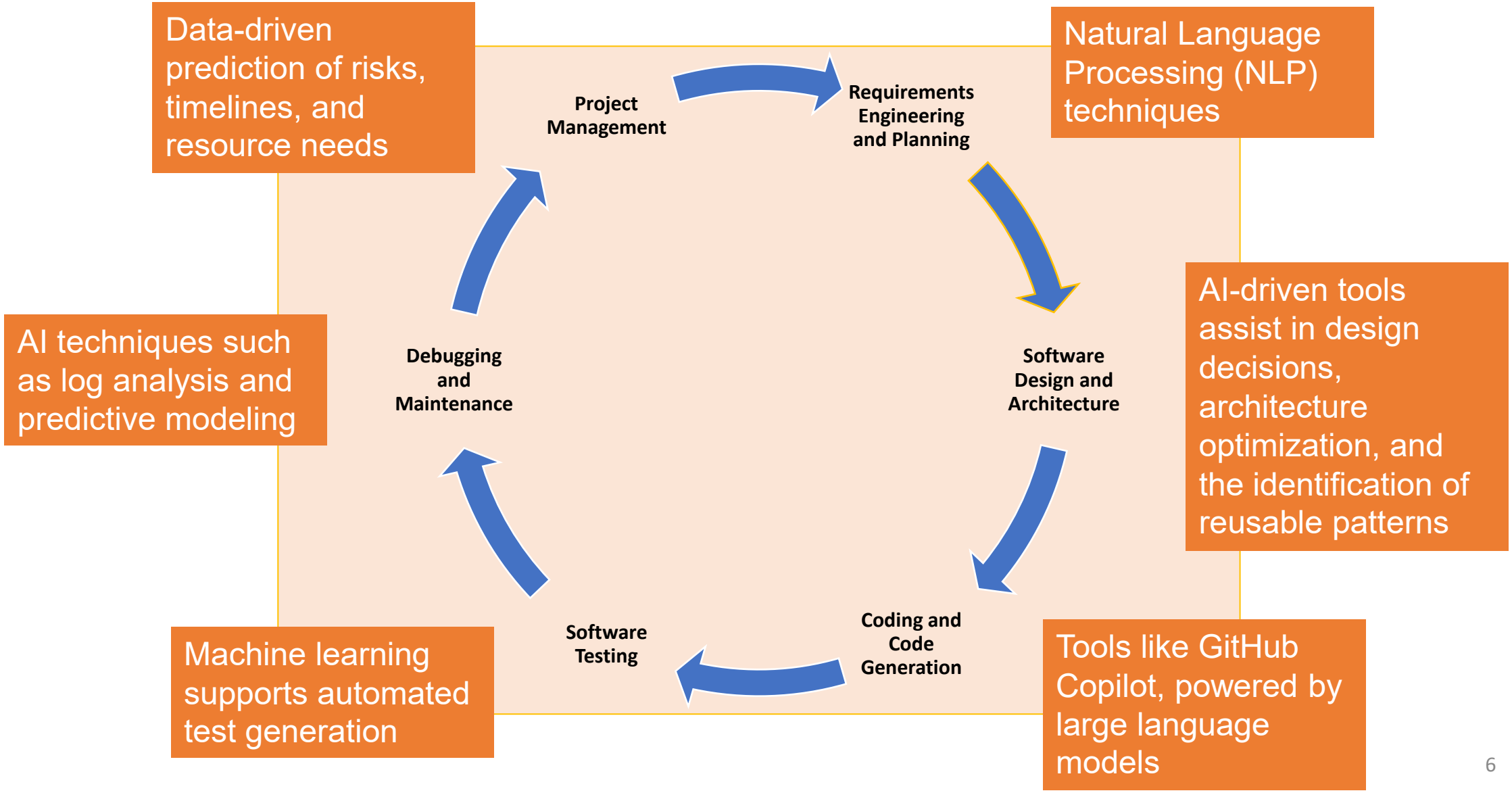
# Challenge – AI Automation vs. Learning



# Software Development Process



# Software Development Process and AI



# Influence of AI-tools on teaching

| Phase of Software Engineering | Influence of AI Tools on Teaching | Examples of AI-Integration |
|---|---|---|
| Requirements Engineering and Planning | + Low | Natural Language Processing (e.g., requirement analysis, user story validation) |
| Software Design and Architecture | ++ Medium | AI-assisted design suggestions, pattern recognition |
| Coding and Code Generation | +++ High | GitHub Copilot, code completion, syntax correction |
| Software-Testing | +++ High | Machine Learning for test case generation, test optimization |
| Debugging and Maintenance | ++ Medium | AI-supported log analysis, anomaly detection, predictive maintenance |
| Project Management | + Low | Data-driven effort estimation, risk prediction |

# Constructive Alignment in AI Education

## Learning Outcomes

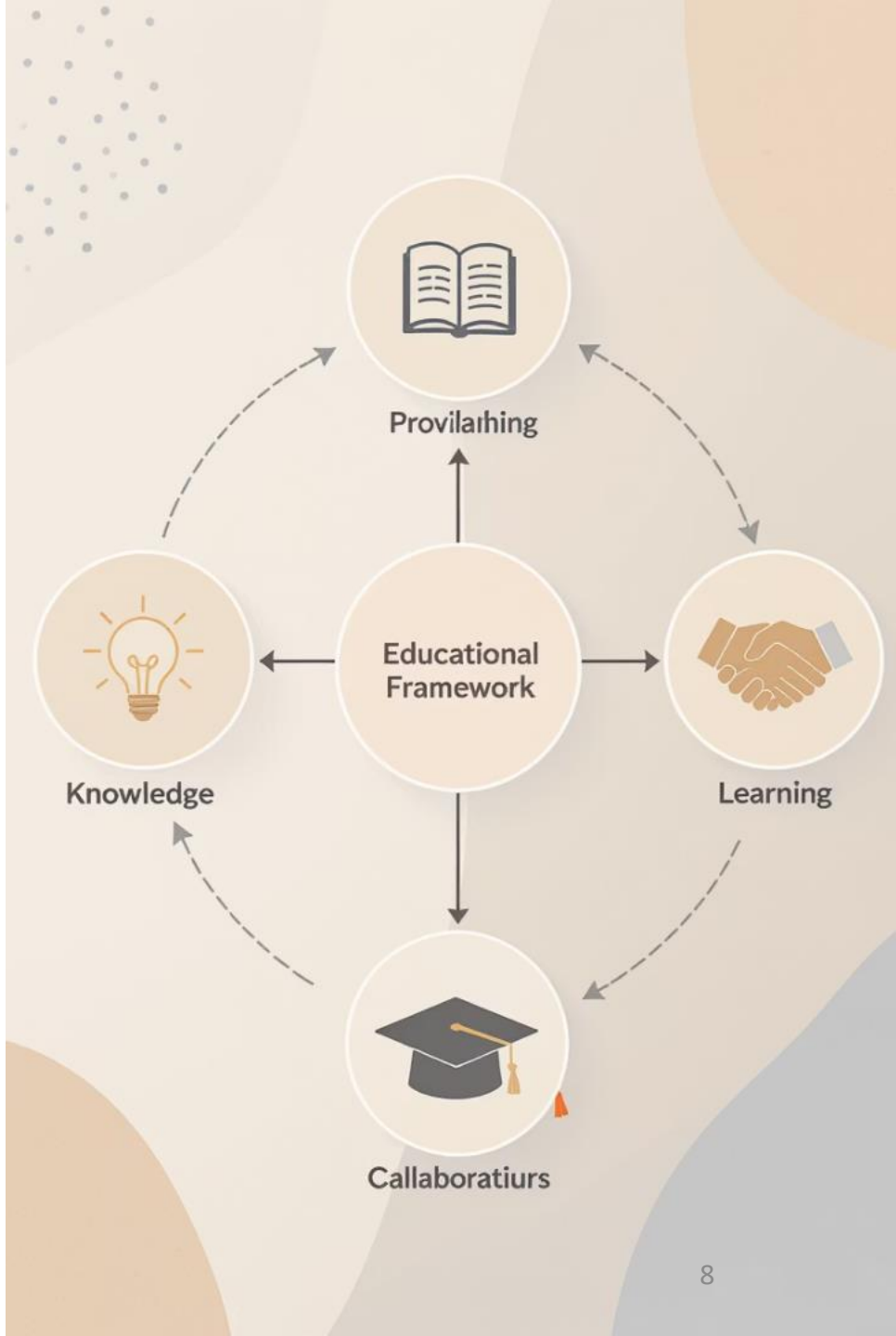
Clear AI-aware objectives

## Learning Activities

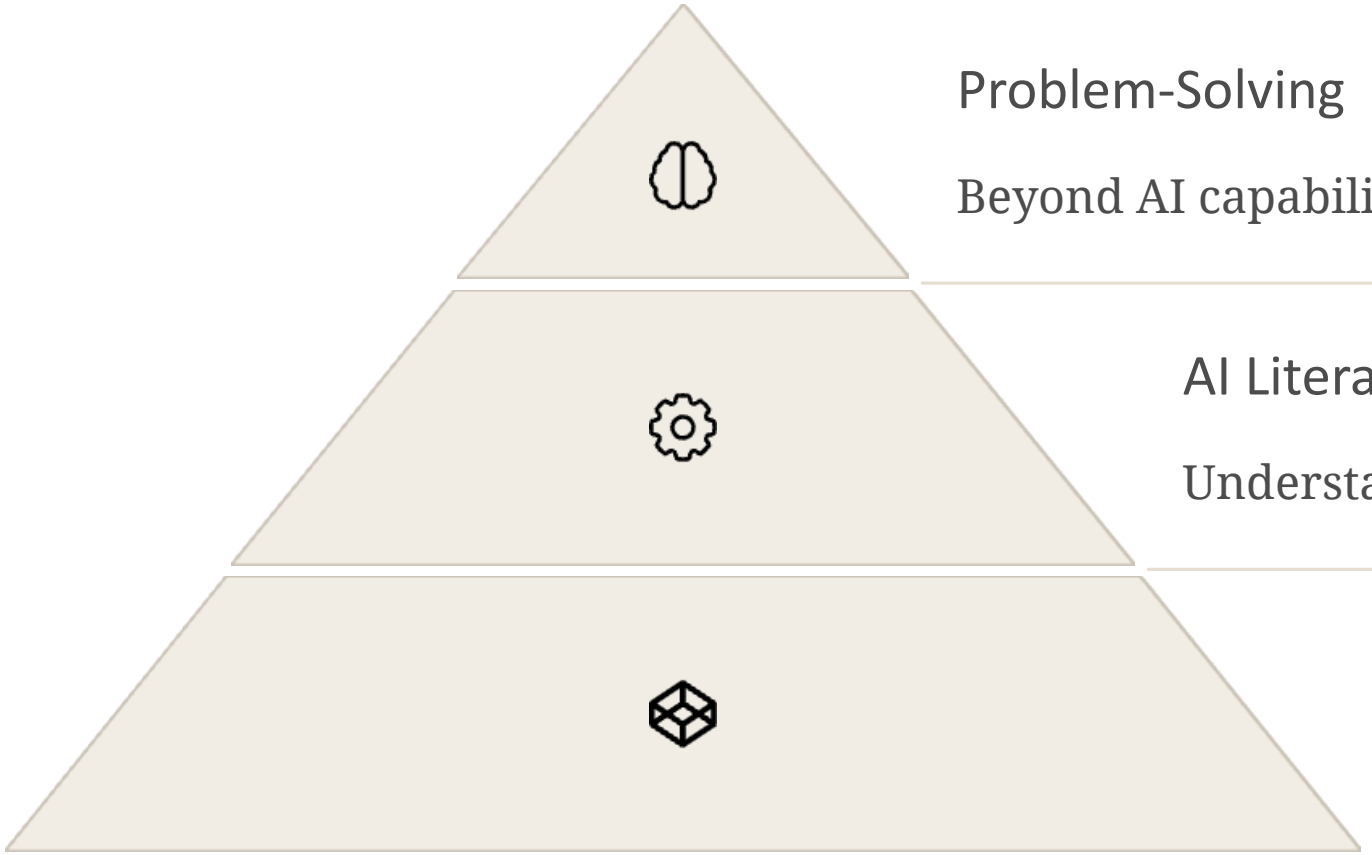
AI-integrated exercises

## Assessment Methods

Beyond AI capabilities



# Curriculum Design Principles



Problem-Solving

Beyond AI capabilities

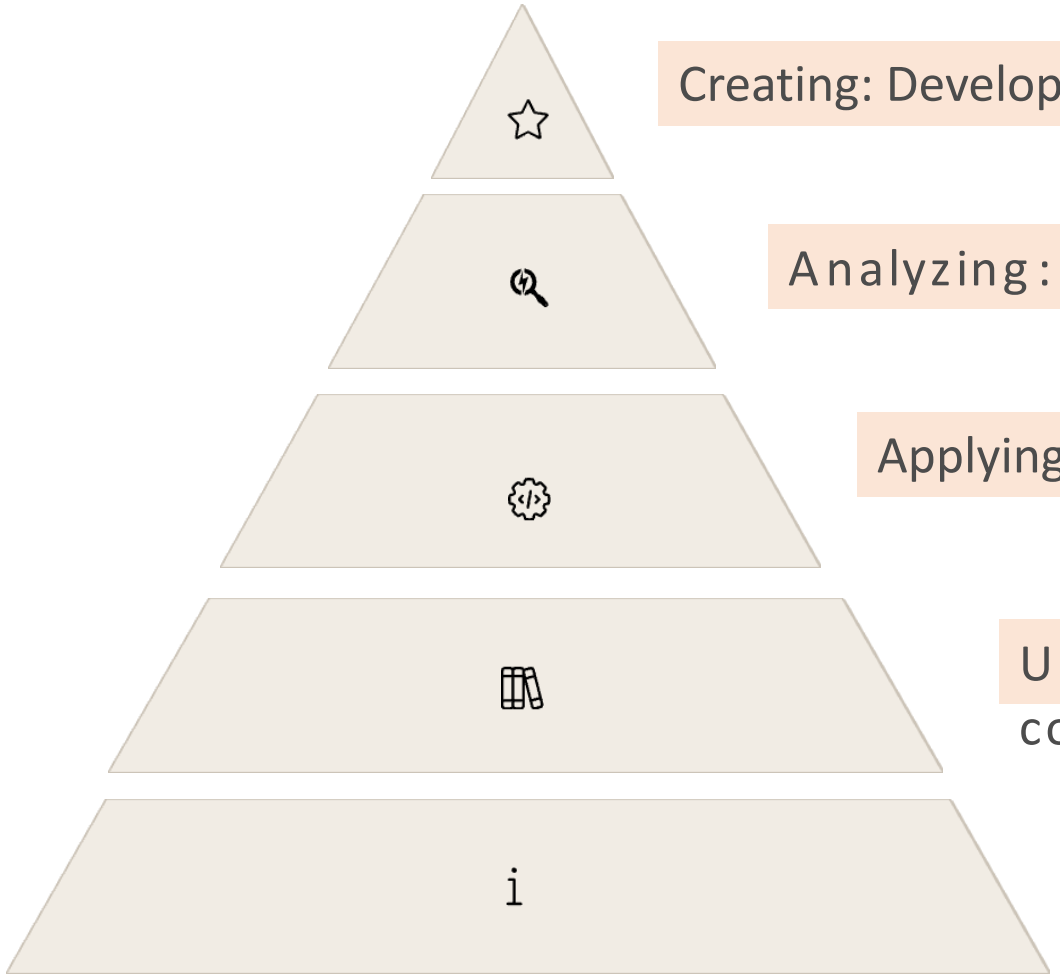
AI Literacy

Understanding AI tools

Technical Skills

Core programming knowledge

# Bloom's Taxonomy for AI Competence



Creating: Developing new AI solutions

Analyzing: Evaluating AI outputs

Applying: Using AI tools effectively

Understanding: Comprehending AI concepts

Remembering: Recalling AI terminology

# Rethinking Assessment

### Traditional Problem

AI solves assignments completely

### Assessment Challenge

Difficult to measure real competence

### New Approach

Process-based evaluation methods

# New (old) Assessment Approaches

Oral Exams

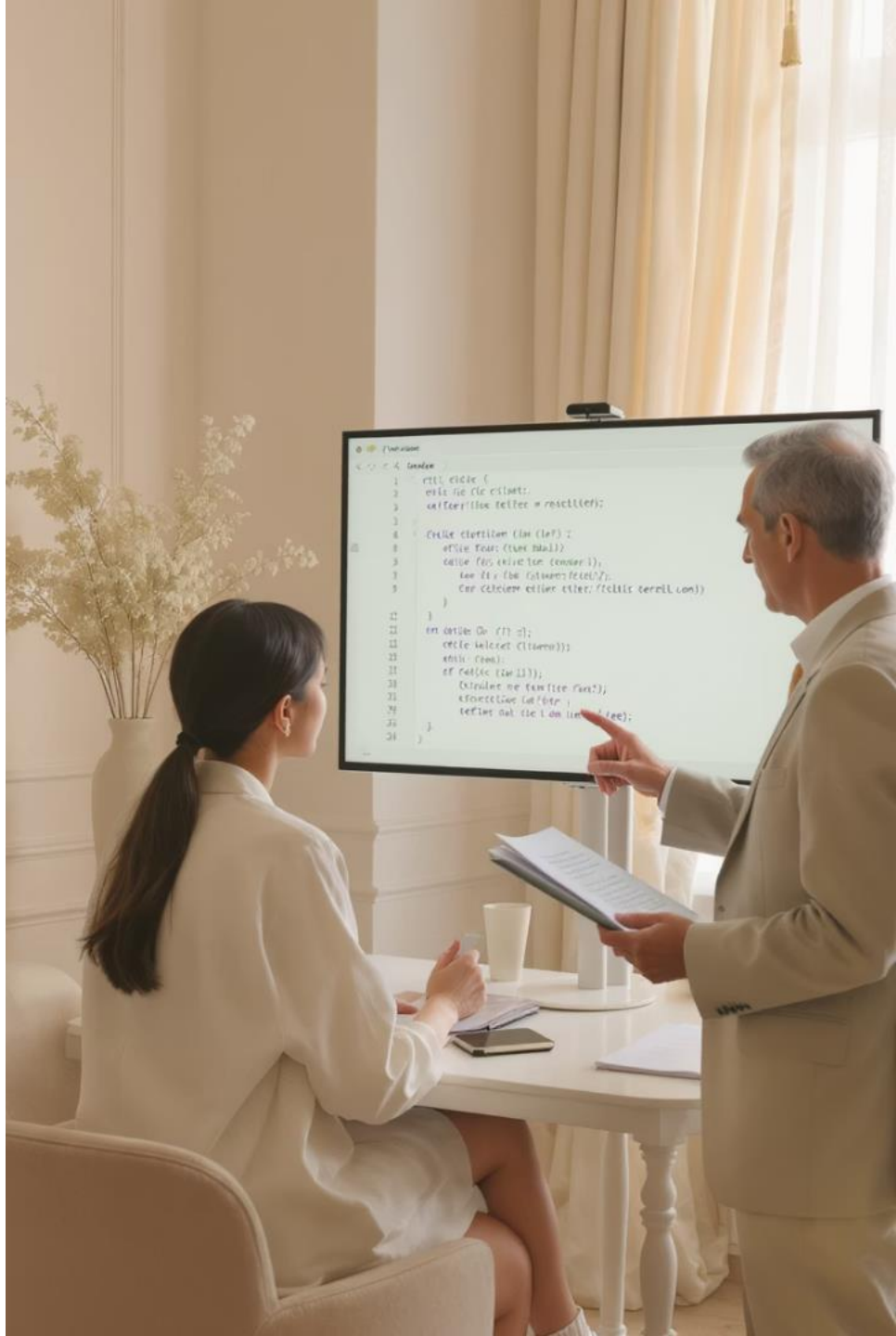
Real-time questioning

Live Problem-Solving

Observed coding sessions

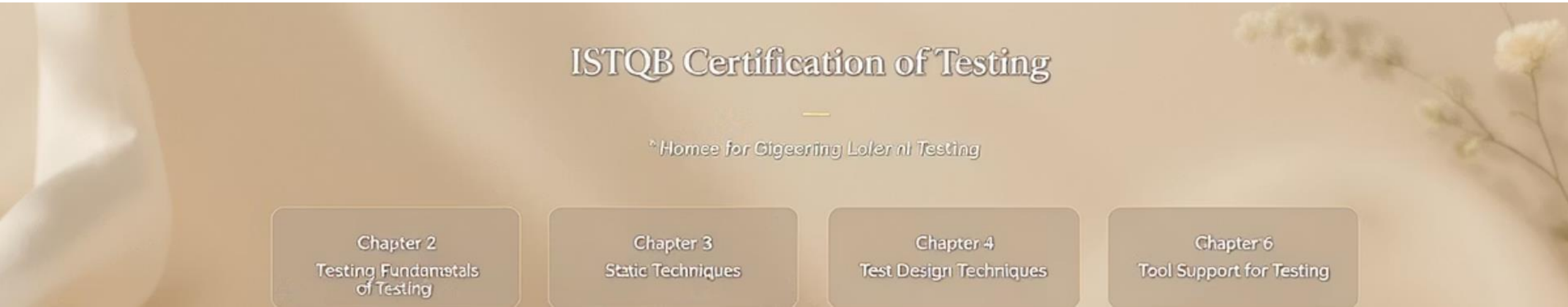
Reflective Projects

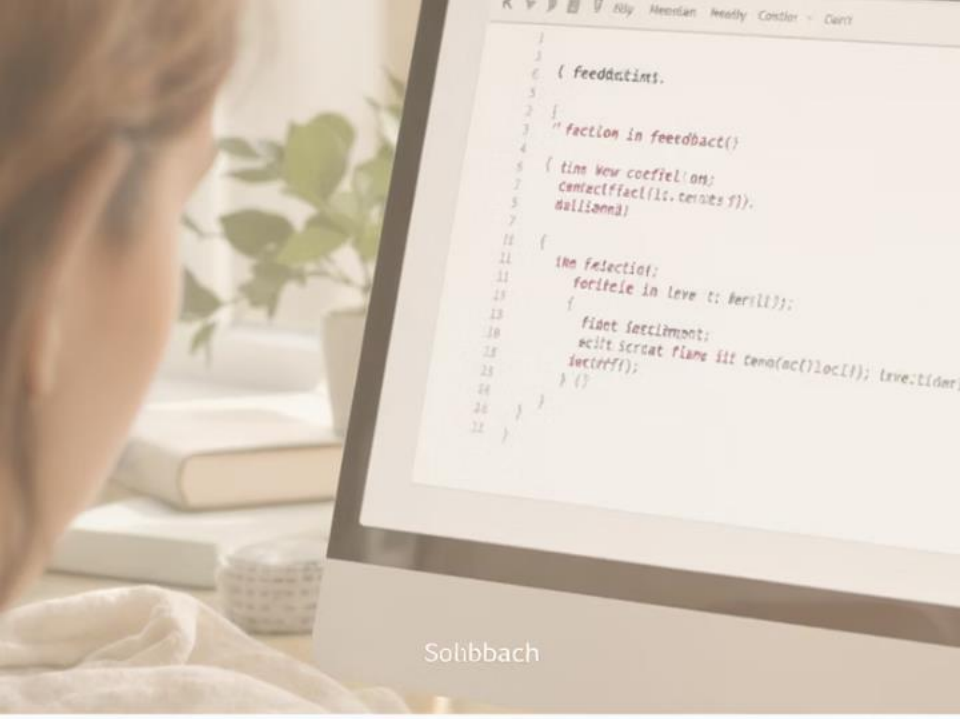
Process documentation



# Case Study – ISTQB Practical Tester

- Program Structure: 15 chapters with clear objectives
- AI Integration: Embedded assessment tools
- Outcomes-Based: Structured learning progression







# AI-Supported Feedback Mechanism

**Student Response**

Natural language answers

**AI Analysis**

Instant evaluation

**Personalized Feedback**

Tailored guidance

**Learning Loop**

Continuous improvement

# AI in Assessment – Hybrid Model

## AI Preliminary Review

Automated initial evaluation

## Human Expert Verification

Final grading by instructors

## Combined Feedback

Comprehensive assessment

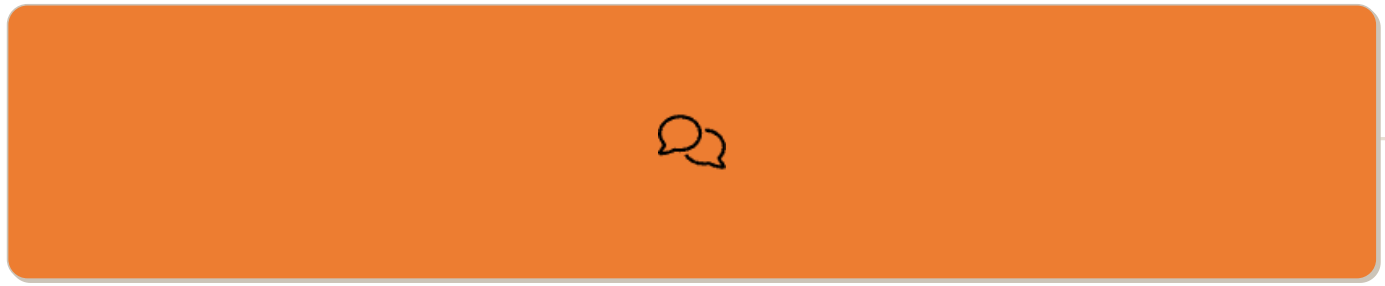
# Role of the Instructor

Traditional

Content provider

Evolving

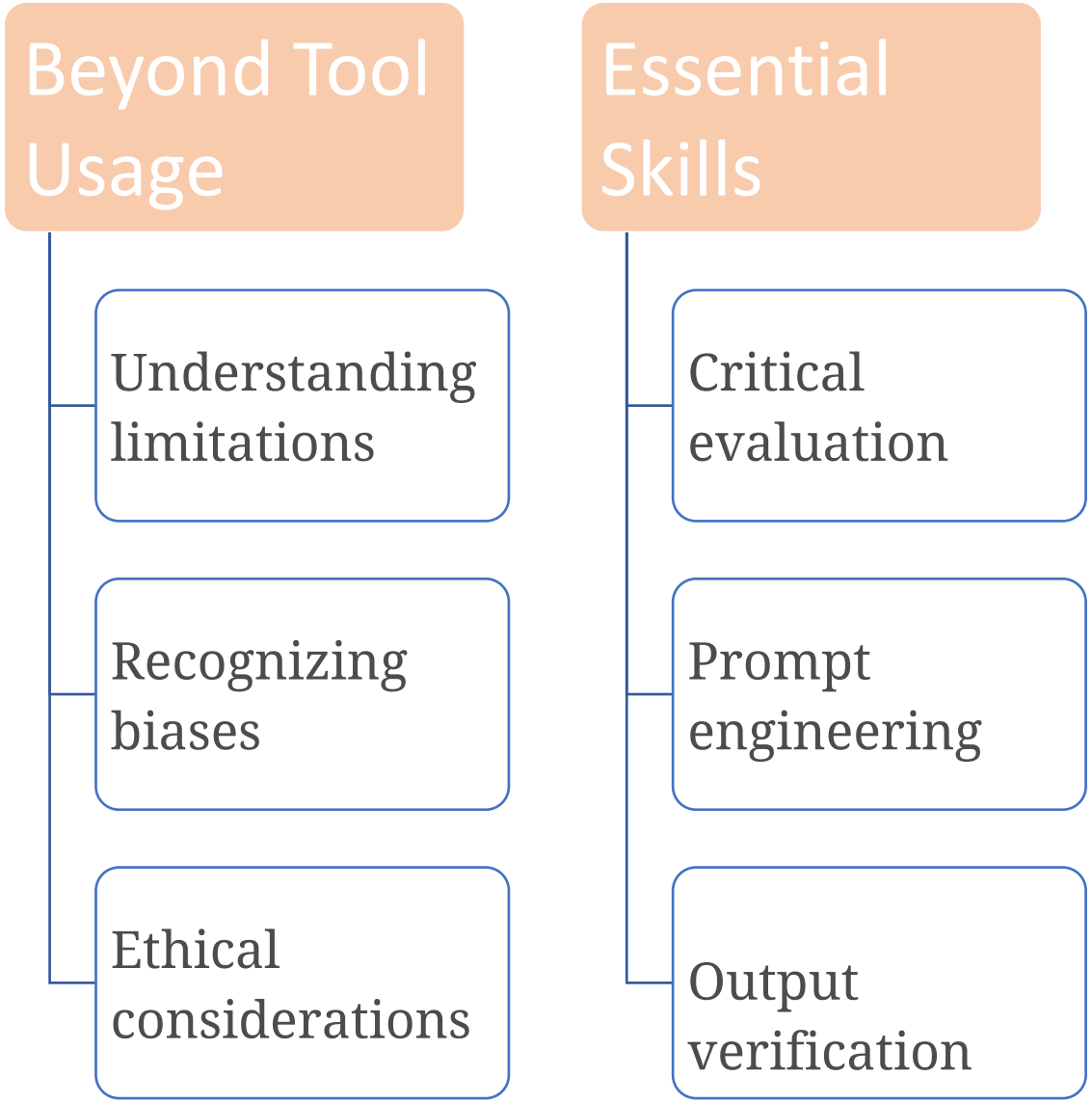
Guide and facilitator



Future

Critical discussion leader

# Methodological Competence and AI Literacy



# AI-Driven Teaching Infrastructure

### High-Performance Equipment

Powerful computing resources

### Robust Connectivity

Reliable high-speed networks

### AI Tool Access

Licensed educational platforms

# Conclusion

## Embrace AI

Integration, not prohibition

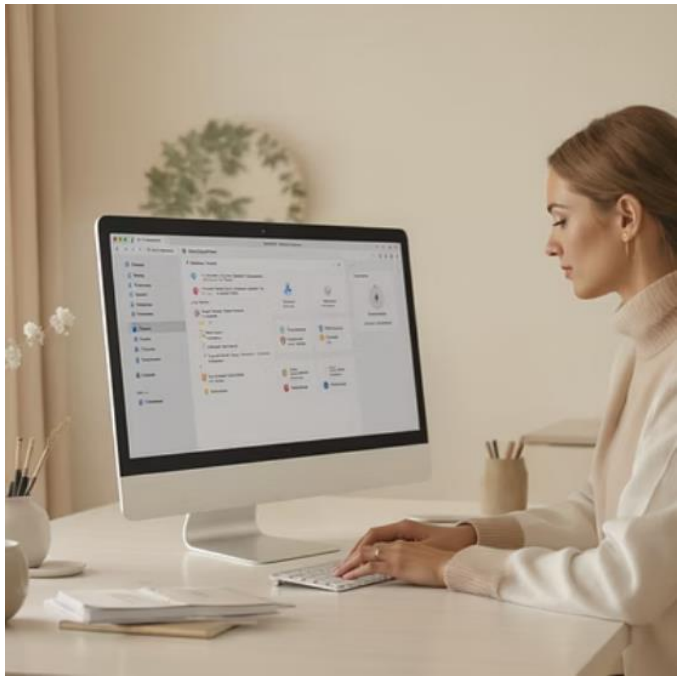
## Enhanced Learning

Improved motivation and mastery

## Scalable Education

Efficient and fair assessment

# Recommendation



**AI literacy is foundational. Educators must prepare students to use AI critically, ethically and creatively in academic and professional contexts.**