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AI competencies on the job: Co-creating a blueprint for workplace AI literacy

Johannes Schleiss and Prof. Dr. Sebastian Lang

Key Outcomes

- **Distinguish** between different conceptualizations of AI competencies
- **Understand** important categories and guiding questions for developing domain-specific AI courses
- **Apply** the AI course design planning framework for an example course
- **Reflect** on the use and identify potential scenarios of usage

Outline of the Workshop

Check-In

Input Block:
AI competencies and AI course design

Group Exercise 1:
Personas and understand AI use cases

Group Exercise 2:
Designing an AI course for different persona

Group Discussion and Feedback

Check-Out

Check-In

Who believes AI will significantly impact their discipline or industry in the next five years?

Who has used AI tools in their work?

Who has already developed AI courses or teaching content?

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Input and Context

Different conceptualizations of AI competencies

Generic AI literacy

Focus on awareness and basic understanding for critical navigation and use of AI technology[1,2,3]

Domain-specific AI competencies

Focus on application of AI within specific domains including domain-specific data, challenges and implications[7,8]

Expert AI competencies

Focus on deep understanding of the theoretical foundations, modelling techniques, architectures, current limitations and possible advancements[4,5,6]

1 Long & Magerko (2020) What is AI literacy? Competencies and design considerations
2 Laupichler et al. (2022). Artificial intelligence literacy in higher and adult education: A scoping literature review
3 Almatrafi, Johri & Lee (2024). A Systematic Review of AI Literacy Conceptualization, Constructs, and Implementation and Assessment Efforts (2019-2023)
4 Wollowski et al. (2016) A survey of current practice and teaching of AI
5 Russell & Norvig (2022) Artificial Intelligence: A Modern Approach
6 Goodfellow, Bengio, Courville (2016) Deep Learning
7 Schleiss et al. (2023). AI course design planning framework: Developing domain-specific AI education courses
8 Knoth et al. (2024). Developing a holistic AI literacy assessment matrix–Bridging generic, domain-specific, and ethical competencies

Challenges of domain-specific AI education in the workplace

Breadth of the topic and its dynamic nature

Background of learners and instructors

Time and workload of learners and instructors

Guiding Categories for domain-specific AI courses

Domain
With which domain is the course associated?

Potential AI Use Cases
What are potential use cases of using AI in the domain?

Data in the domain
What type of data is most common in the domain? Is data abundant or scarce?

Implications of using AI in the Domain
What implications (ethical, legal, social) does the use of AI have in the domain/the use case?

Additional Learning Resources
What additional (external) material or resources could be used?
What Open Educational Resources could be helpful?

Learning Environment

Learners and their Interaction with AI

What existing AI knowledge and skills do the learners have?
What are other related skills?
What role in the AI interactions are learners supposed to take after completing the course?

Instructors

What AI-related skills and competencies do the instructors have?

Internal Support

What time and AI-related resources are available?
What AI-related data is available?
What support does the institution or the network provide?

The AI Course Design Planning Framework

Course:	Author:	Date:	Version:

1 AI in the Domain

Domain
With which domain is the course associated?

Potential AI Use Cases
What are potential use cases of using AI in the domain?

Data in the Domain
What type of data is most common in the domain?
Is data in the domain abundant or scarce?

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What implications (ethical, legal, social) does the use of AI have in the domain / the use case?

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What additional (external) material or resources could be used?
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2 Learning Environment

Learners and their Interaction with AI
What existing AI knowledge and skills do the learners have?
What other related skills and knowledge do the learners have?
What role in the AI interaction are learners supposed to take after completing the course?

Instructors
What AI-related skills and competencies do the instructors have?

Internal Support
What time and AI-related resources are available?
What AI-related data is available for the course?
What support does the institution or the network provide?

3 Course Implementation

Learning Outcomes
What are the relevant learning outcomes of the course?

Assessment
How will the learning outcomes be assessed?

Learning Activities
What learning activities will be included in the course?
What didactical approach will be taken?

Designed by Johannes Schleiss and Matthias Laupichler

Download here: https://education4ai.github.io/ai-course-design-planning-framework/

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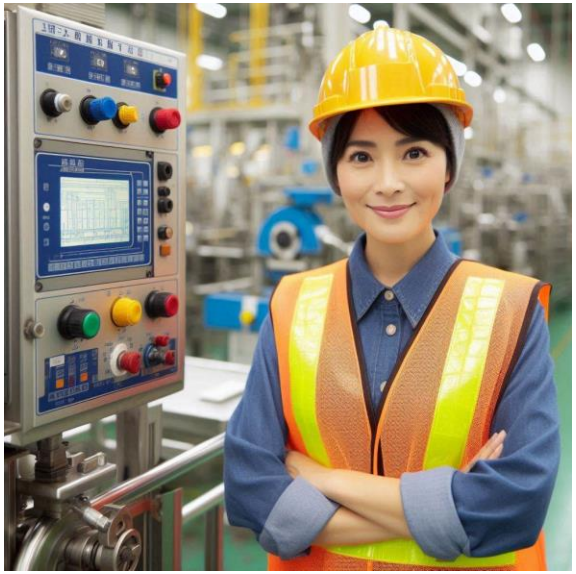
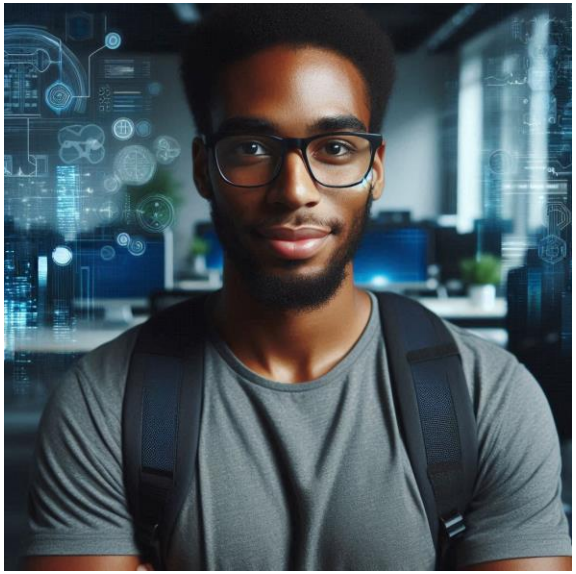
Group Work Introduction

Three learner personas



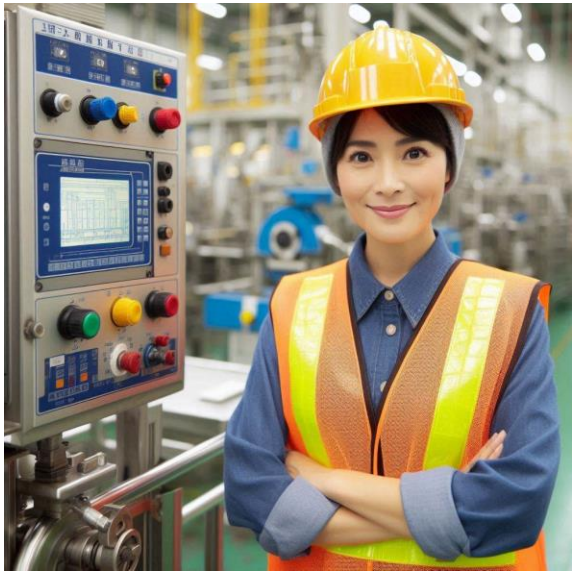
Sarah Chen
Manufacturing Process Engineer



Curtis Myles
IT Systems Specialist

Marcus Weber
Healthcare Administrator

Three learner personas



Sarah Chen
Manufacturing Process Engineer

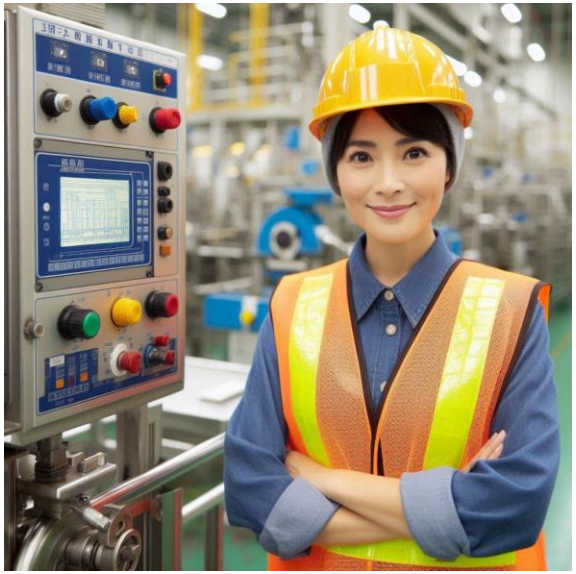
Background:

- 42 years old with 15 years of experience in manufacturing
- Supervises a team of 20 production line workers
- Has basic digital skills but limited exposure to AI
- Education: Bachelor's degree in Industrial Engineering

Current Challenges:

- Project to integrate AI-driven quality control systems
- Needs to support workers in adapting to new AI-assisted processes
- Concerned about workforce resistance to technological changes
- Struggles to evaluate AI vendor proposals effectively

Three learner personas



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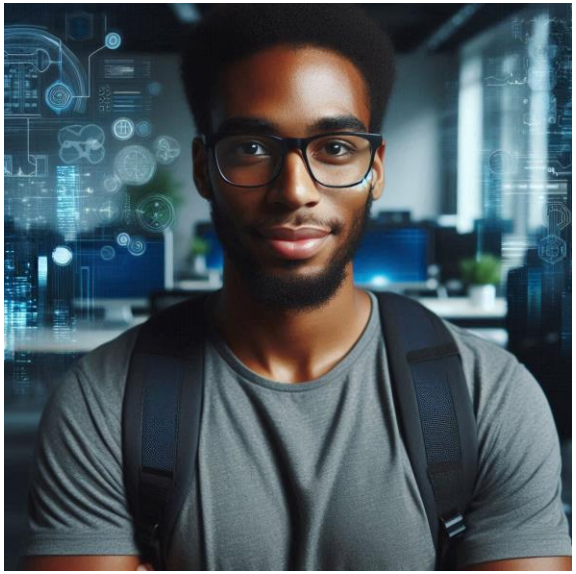

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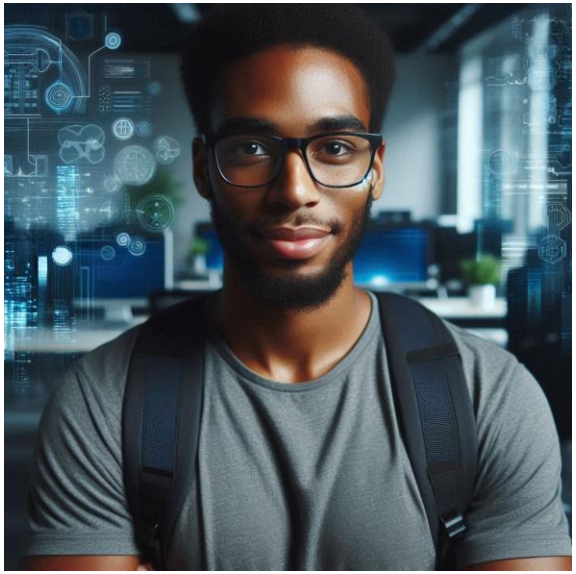


Curtis Myles
IT Systems Specialist

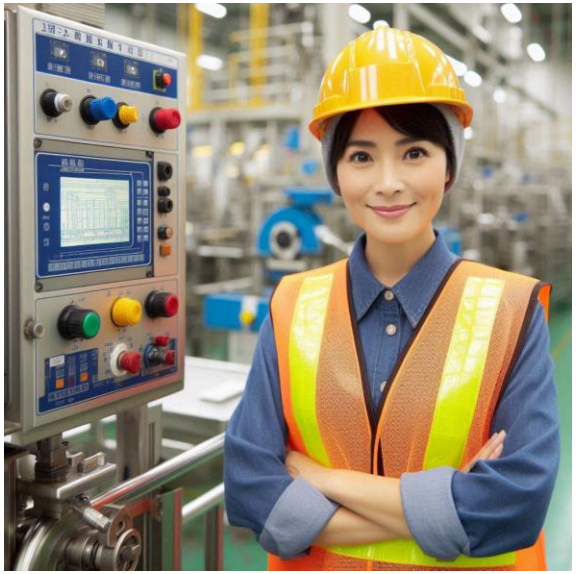
Background:

- 28 years old
- Completed 3-year vocational training as IT specialist
- 5 years experience in IT system administration
- Strong practical IT skills, especially in networking and system integration

Current Challenges:

- Needs to integrate AI tools into existing IT infrastructure
- Uncertainty in evaluating AI security risks
- Requires knowledge about AI-specific infrastructure requirements

Three learner personas



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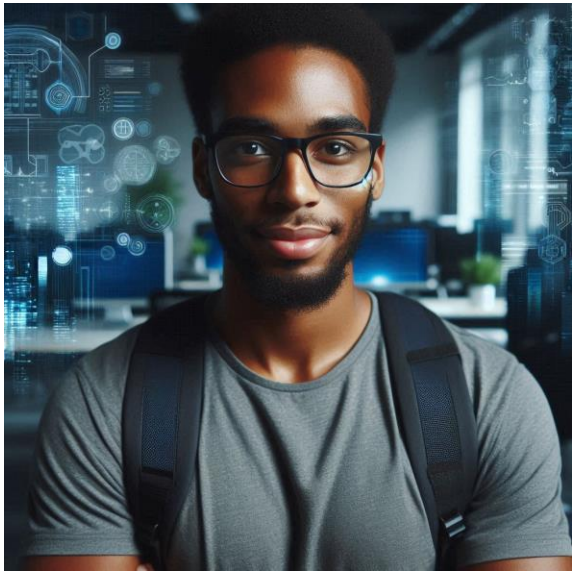


Curtis Myles
IT Systems Specialist

Marcus Weber
Healthcare Administrator

Three learner personas

Marcus Weber
Healthcare Administrator

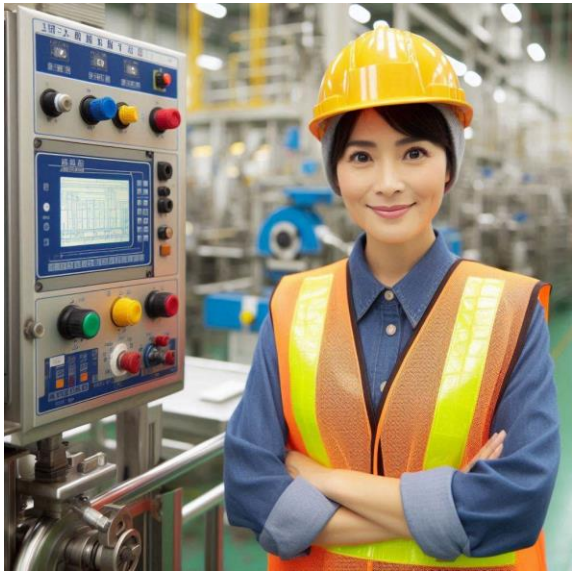
Background:

- 35 years old
- 8 years in healthcare administration
- Manages patient data systems at a regional hospital
- Moderate technical skills, some programming experience
- Education: Master's in Healthcare Administration

Current Challenges:

- Needs to implement AI-powered patient scheduling systems
- Concerned about AI ethics and patient privacy
- Requires knowledge to bridge technical and medical teams
- Must ensure compliance with healthcare regulations

Three learner personas



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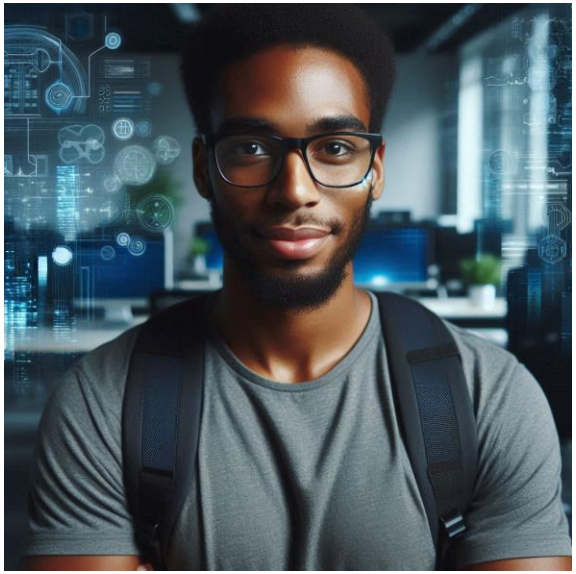

Curtis Myles
IT Systems Specialist

Marcus Weber
Healthcare Administrator

Group work - Part 1

1. Get together in groups (around 4-5 people), ideally around a common persona

2. Quick round of introduction

3. Understand the persona and discuss the AI use cases in the domain of the persona

Group work – Part 2

1. Get together in groups (around 4-5 people), ideally around a common persona

2. Quick round of introduction

3. Understand the persona and discuss the AI use cases in the domain of the persona

4. Fill the framework from left to right

Short round of presentations

- What persona?
- What learning goals?
- Other points you want to share?

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Group Discussion

What are your observations?

- What was easy? Where did you had difficulties?
- What new insights did you gain?

Take-Aways and Recommendations

- AI competencies vary across disciplines
- Need to reflect AI-application in each disciplinary context and create courses from there
- Active exchange with students to learn together
- Use of open educational resources
- Experiment, learn and take others along

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Stay in touch

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Slides

Check-Out

Write on a sticky note:

What is one thing you take away from this session?

References

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