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Learning Design with AI:
Adapting the LISA Framework for K-12

TU Graz

Presentation by Gerald Geier

A contribution by Sandra Schön, Benedikt Brünner, Martin Ebner, Gerald Geier and Mario Giampaolo

Pädagogische Hochschule Steiermark

UNIVERSITÀ DI SIENA 1240

17th International Conference on Intelligent Multimodal Communication and Learning Technologies (IMCL 2026)
Artificial Intelligence in Education, Learning and Research
12–13 November 2026, UNIC Athens Campus in Elliniko, Athens, Greece

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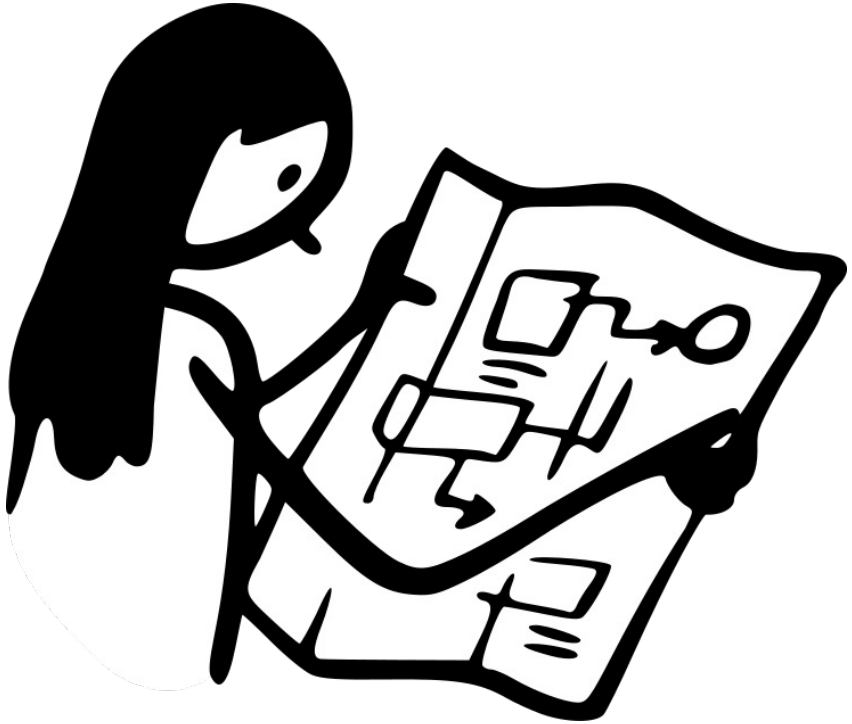
Schön, S., Brünner, B.& Ebner, M., Geier, G. & Giampaolo (2026). **Learning Design with AI: Adapting the LISA Framework for K-12.** Presentation at IMCL 2026, Athens, Greece, 11/2026). DOI: https://doi.org/10.3217/y2spw-ctf96 Graz University of Technology.

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Agenda

- Challenges when talking about Learning and Teaching “with AI”
- Suggestion for categorisation: The LISA framework
- Examples for the 6 LISA archetypes
- Your Feedback and possible usage



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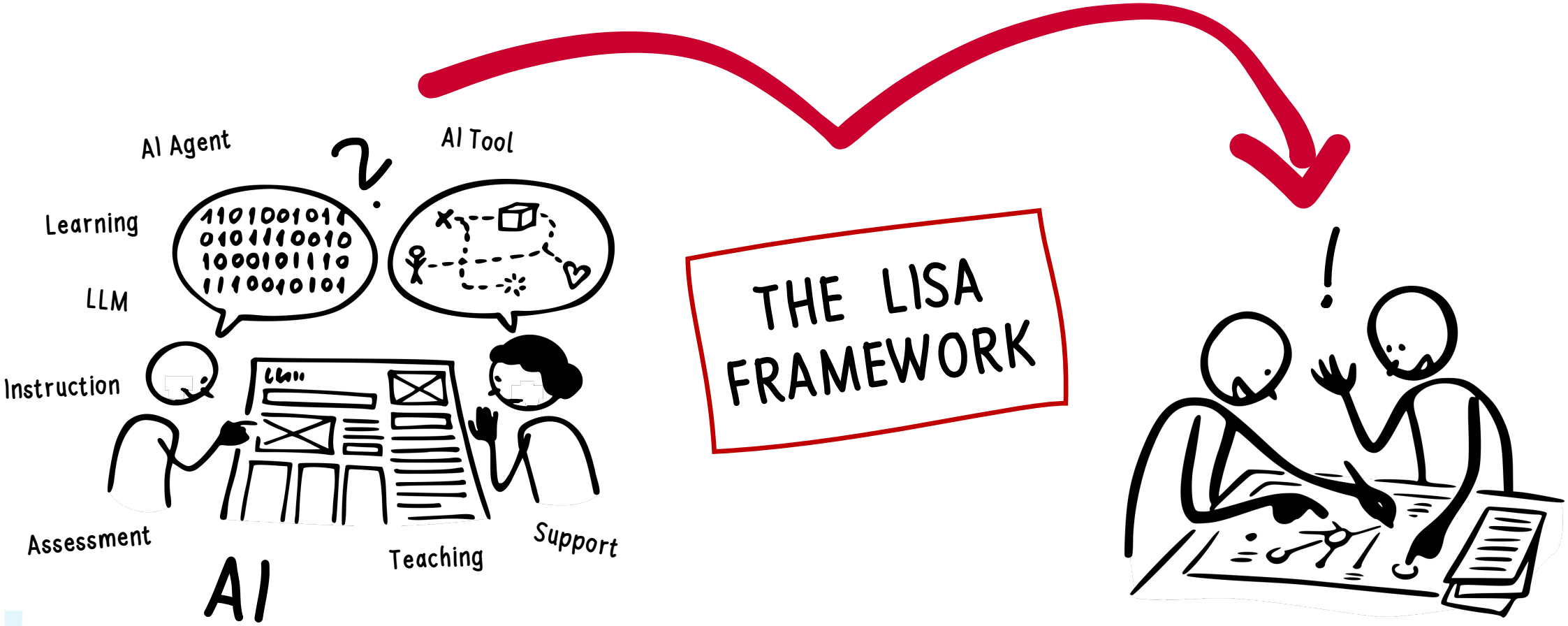
Challenges of counseling and discussion

- What is meant by “Teaching with AI“ or “Learning with AI“?
- No existing framework/concept/typology of AI in Teaching/Learning Design
- (GDPR, ethics, ….)



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The EU project DigiSET

- 01/2026-12/2028, lead bei UWK, Austria
- DigiSET develops a “European Academy for **Digitally Sustainable European Teachers“**, who are able to integrate artificial intelligence, education for sustainable development and Open Educational Resource (OER) in their teaching
- DigiSET will develop **trainings, OER and tools**.



https://digisetproject.eu/

Beiträge TU Graz
https://repository.tugraz.at/communities/digiset/

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A system/concept for AI in learning design would be helpful

University for Continuing Education Krems · Donau Universität Krems · TU Graz Graz University of Technology · Universität Siena 1240 · Universität di Siena · civicaMente Società Benefit · BAU Bahçeşehir University · MAUDE Studio · EUROMASC · Bridgetown College · OpenCom

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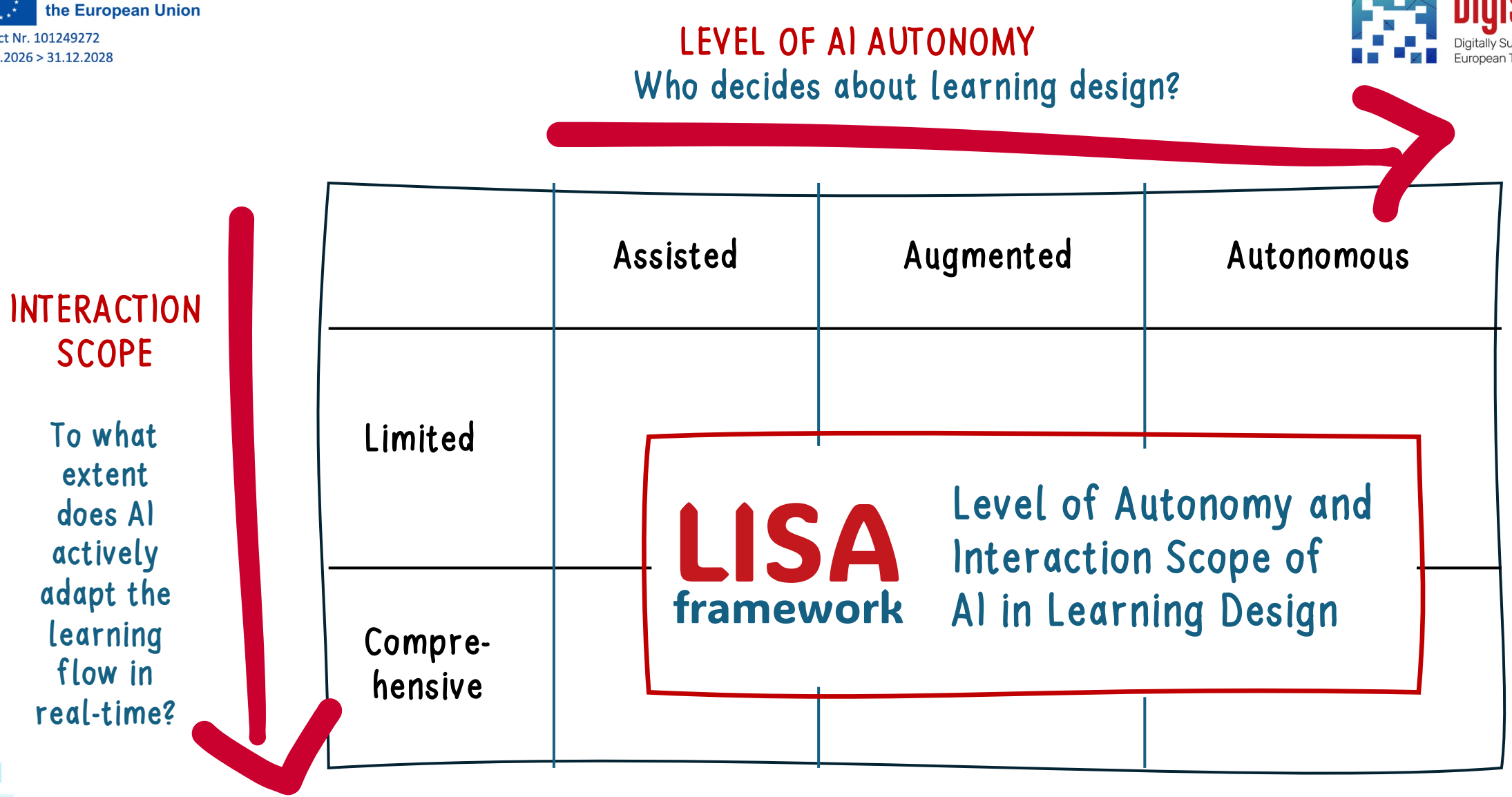
The LISA typology is still under development

- Need to categorize different AI usages in learning design
- First draft (one dimension) was used at a regional e-Learning conference at PH Kärnten, March 2026 (Martin Ebner)
- Presentation of the current version
  - Translation into German, examples from higher education (GMW 2026, Sandra Schön)
  - English version, examples from higher education (ICL 2026, Benedikt Brünner)
  - English, examples from school sector (IMCL 2026, Gerald Geier)
- We collect feedback afterwards and will then publish an open licensed whitepaper with the (adapted) LISA framework



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LEVEL OF AI AUTONOMY
Who decides about learning design?

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Table 1. Levels of AI autonomy in learning design.

Term	AI-Assisted Learning Design	AI-Augmented Learning Design	AI-Autonomous Learning Design
Core Definition	The AI provides supportive services (data aggregation, idea suggestions, draft creation, quality checks); the human designer remains the sole decision-maker.	The AI expands the design process by delivering adaptive pathways, generative content, or predictive analytics; control becomes difficult or impossible to retain fully.	The AI takes over the entire instructional-design workflow (needs analysis, content creation, sequencing, assessment, optimization) without active human intervention.
Primary Decision-Maker	Human (instructional/learning designer)	Shared control (human defines parameters, AI operates within them)	AI (only governance/compliance review)
How AI Operates	Helps, potentially reduces feedback loops with third parties.	Builds dynamic learning structures, creates personalized media, supplies data-driven predictions.	Fully automated, self-learning systems that produce content from analytics, web-mining, and generative models.

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LISA framework

Level of AI Autonomy

Who decides about learning design?

Interaction Scope

To what extent does AI actively adapt the learning flow in real-time?

	Assisted	Augmented	Autonomous
Limited			
Compre-hensive			

*Level of Autonomy and Interaction Scope of AI in Learning Design

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INTERACTION SCOPE

To what extent does AI actively adapt the learning flow in real-time??

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Table 2. Interaction Scope in learning design.

Term	Limited Interaction	Comprehensive Interaction
Core Definition	AI operates as a static tool; executes tasks based on fixed rules without altering the learning trajectory in real-time.	AI operates as an adaptive agent; dynamically adapts content, sequence, and feedback based on real-time learner data and context.
Form of Interaction	Linear and discrete. The AI provides output and waits for the next command. No continuous adaptation loop.	Non-linear and iterative. The AI continuously monitors and adjusts the flow, anticipating needs and modifying delivery instantly.
Agentic Capability	Low/None. Follows a pre-defined script regardless of learner performance or state.	High. Actively perceives context, plans actions, and reshapes the learning path based on immediate feedback.

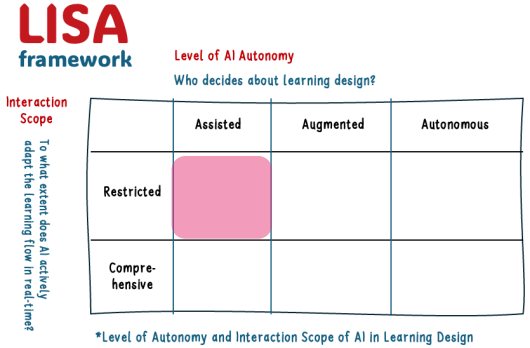
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LISA framework

THE SIX LISA ARCHETYPES

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INTERACTION SCOPE \ LEVEL OF AI AUTONOMY	Assisted	Augmented	Autonomous
Limited	A. **THE CONTENT CREATOR** (Human decides, AI produces resources)	B. **THE CO-CREATOR** (Shared decision, iterative co-production)	C. **THE RULE-BASED AGENT** (AI decides, follows static rules)
Compre-hensive	D. **THE SMART ASSISTANT** (Human decides, AI adapts dynamically)	E. **THE ADAPTIVE PARTNER** (Shared decision, dynamic adaptation)	F. **THE AUTONOMOUS AGENT** (AI decides, adapts dynamically)



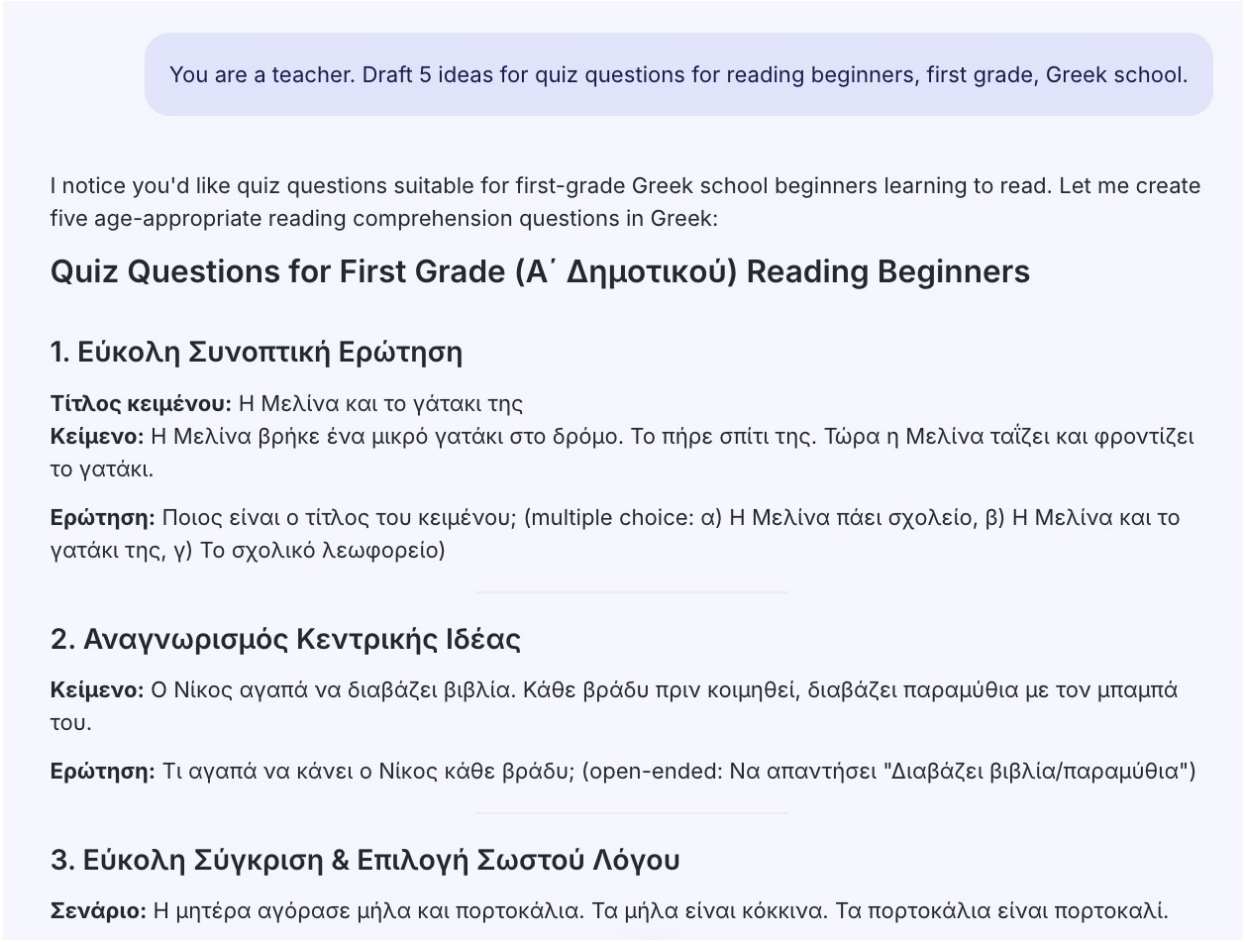
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A. The Content Creator

Assisted autonomy · Limited interaction

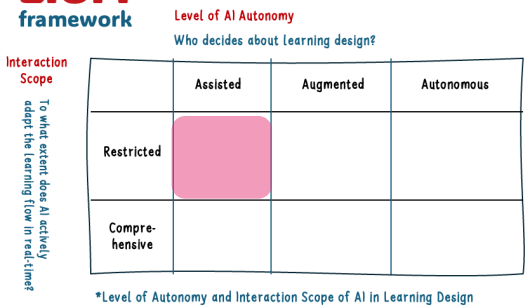
Creating worksheets

A teacher asks AI to draft worksheets, quiz questions or illustrations, then reviews and selects the output for classroom use.



Example: Screenshot of a Conversation with Lumo, 10/2026, Aspertus 1.5 – CC0

LISA framework



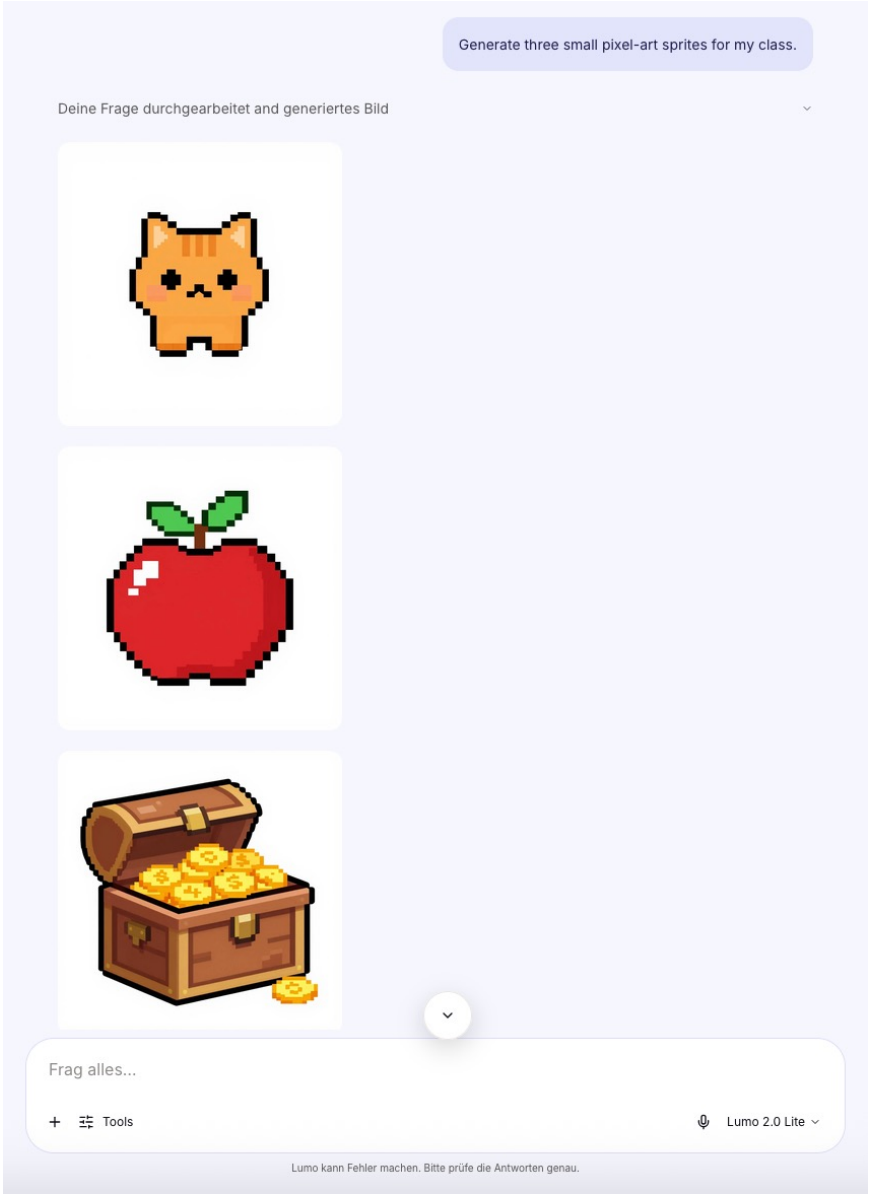
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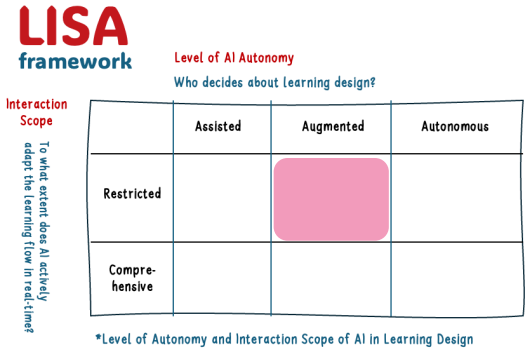
Assisted autonomy · Limited interaction

Resources for maker projects

A teacher generates pixel-art sprites for an OctoStudio project and uses AI to suggest game ideas, then selects resources for the activity.



Example: Screenshot of a Conversation with Lumo, 10/2026, Lumo Light, CC-0



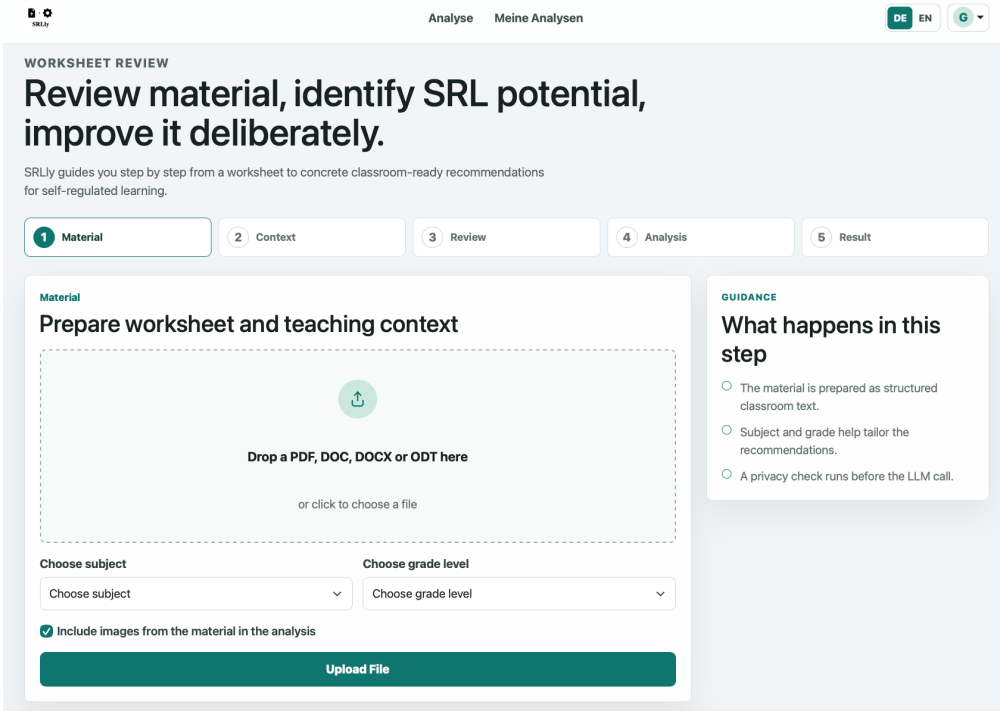
*Level of Autonomy and Interaction Scope of AI in Learning Design

B. The Co-Creator

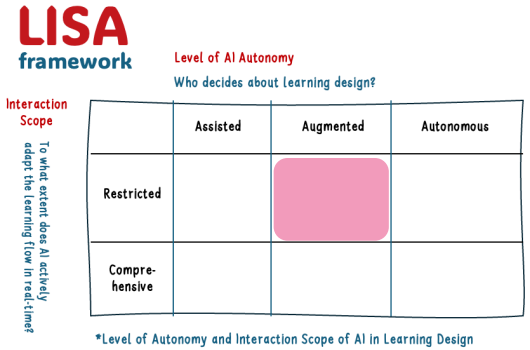
Augmented autonomy · Limited interaction

Material development for collaborative work: SRLly.at

AI suggests improvements to worksheets, lesson plans or rubrics. The teacher checks and approves changes, as illustrated by SRLly.at.



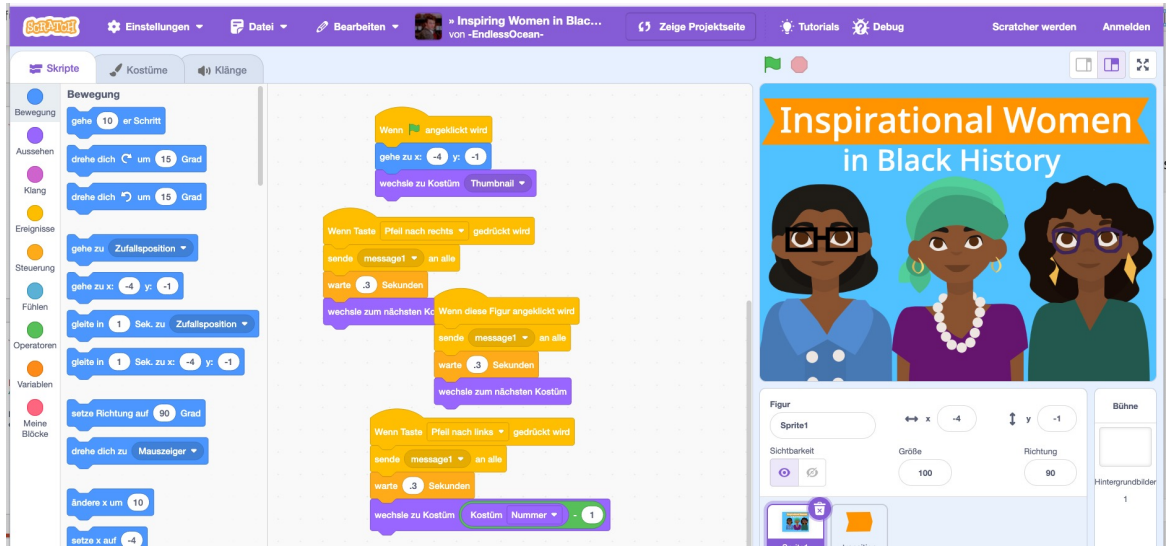
See Geier, G., Ebner, M. & Burgsteiner, H. (2026). Development and Evaluation of an AI-Supported Teacher Assistant Tool (AI-TAT) to Foster Self-Regulated Learning. In: Smith, B.K., Borge, M. (eds) Learning and Collaboration Technologies. HCII 2026. Lecture Notes in Computer Science, vol 16733. Springer, Cham. https://doi.org/10.1007/978-3-032-30784-2_12



*Level of Autonomy and Interaction Scope of AI in Learning Design

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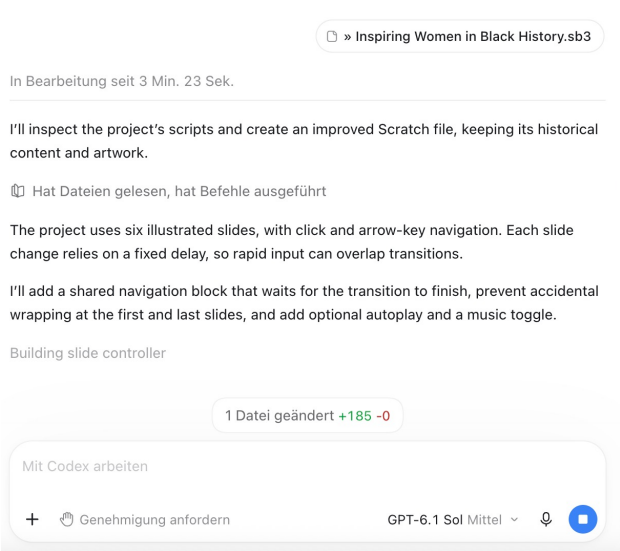
Augmented autonomy · Limited interaction



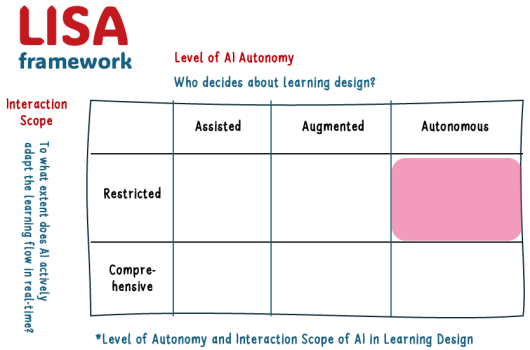
Screenhot taken from Scratch, CC BY SA
URL: https://scratch.mit.edu/projects/288611887/editor/

Iterative Scratch programming

A lower-secondary teacher creates a historical animation with Scratch. She asks support from Chat GPT and tests in Scratch.



Screenhot taken from ChatGPT 10/2026 GPT-6.1 Sol CC-0



C. The Rule-Based Agent

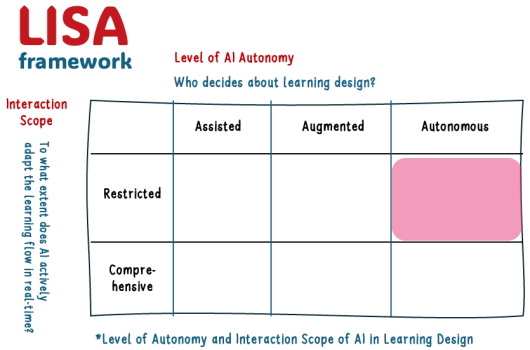
Autonomous decisions · Limited interaction

Assessment and progression check at prompting.school

Learners complete predefined modules and knowledge checks. The system evaluates responses and awards progression or badges using fixed criteria.



https://prompting.school

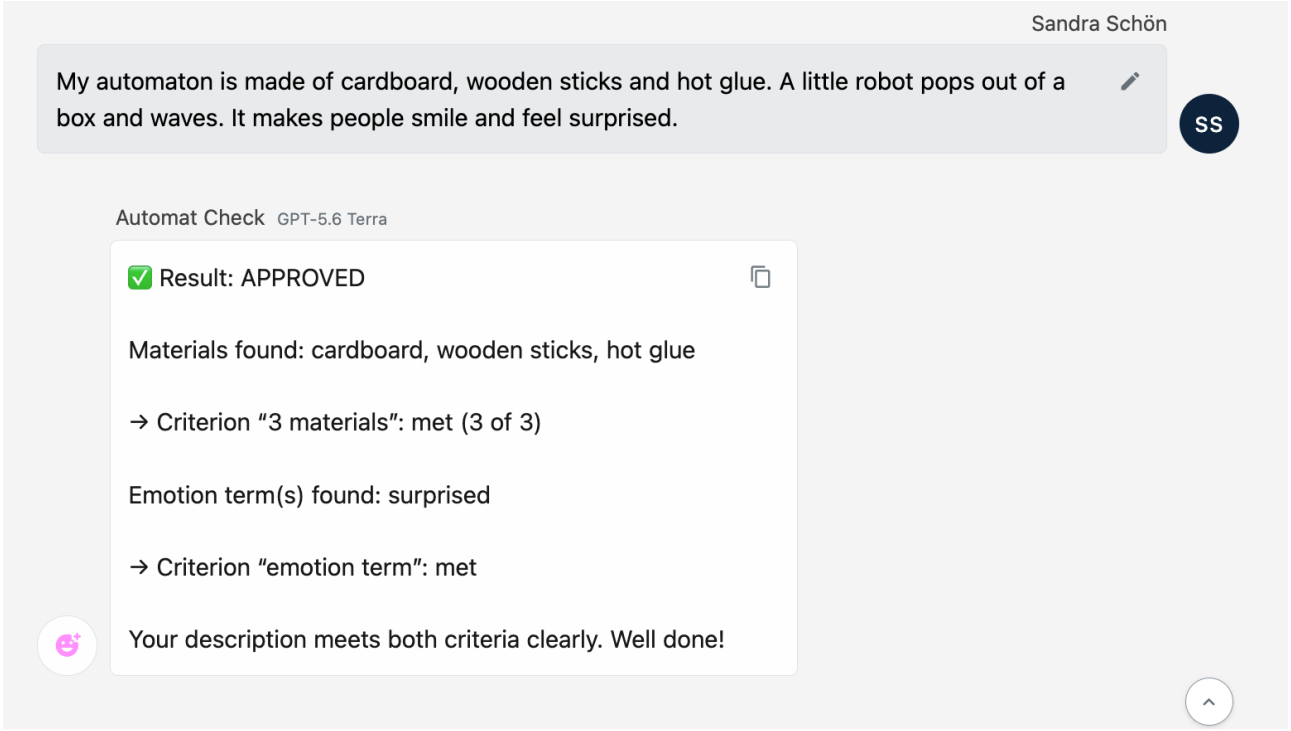


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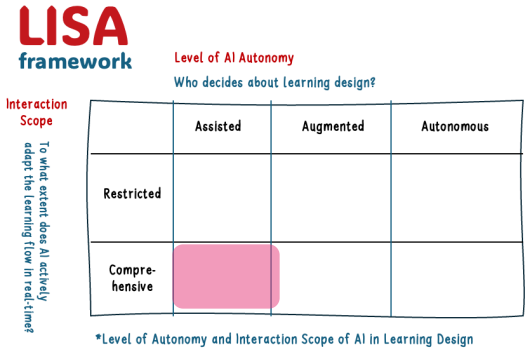
Autonomous decisions · Limited interaction

Fixed-criteria maker feedback

An upper-secondary student describes a handmade automat. AI checks for three materials and an emotion-related term, then approves or requests corrections.



For this example, Academic AI was used, a service provided to Austrian researchers who want to use AI – this is a „Tailor AI" service available to all TU Graz people, assessing descriptions of automats as described through a fitting master prompt.



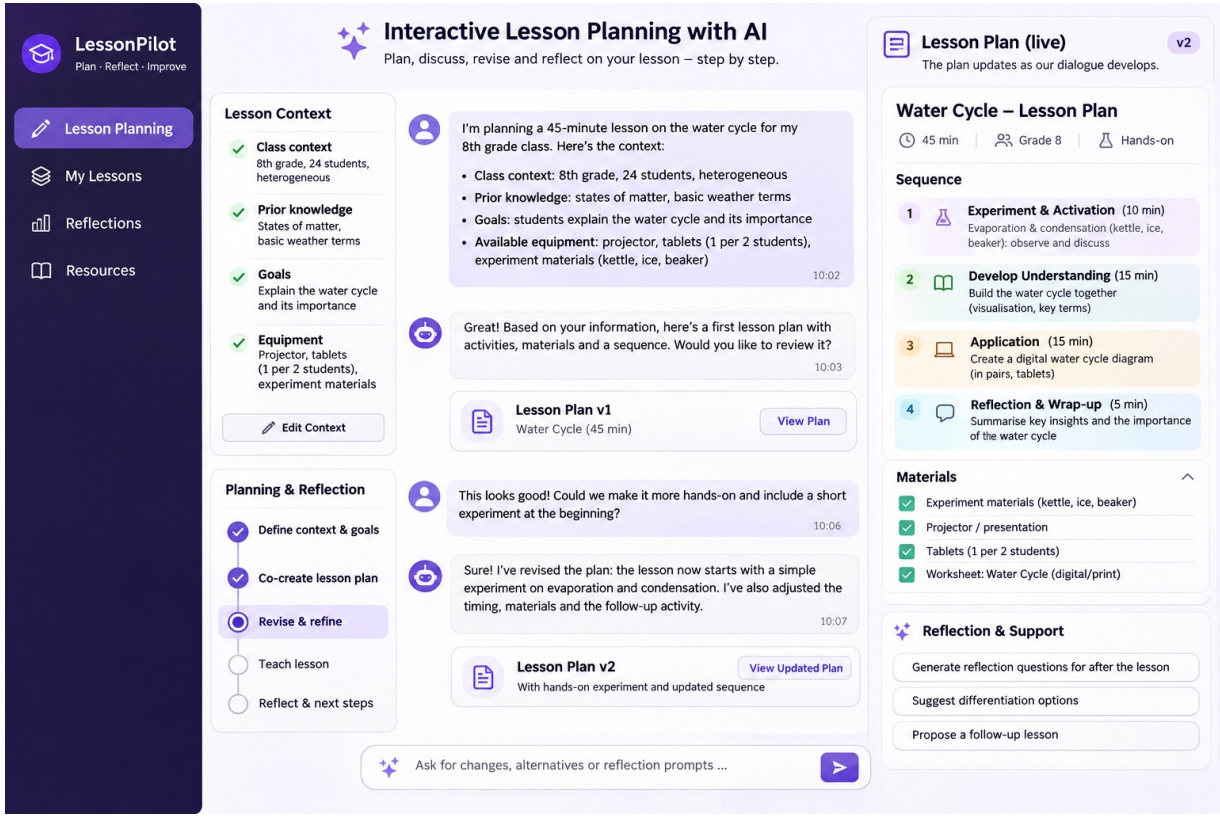
*Level of Autonomy and Interaction Scope of AI in Learning Design

D. The Smart Assistant

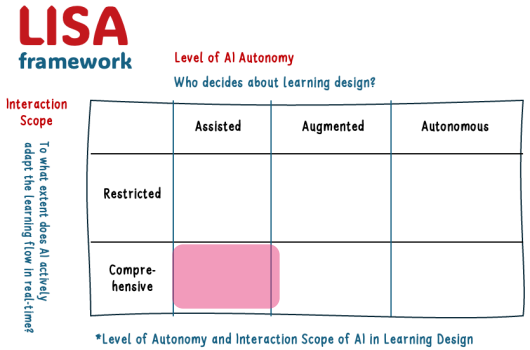
Assisted autonomy · Comprehensive interaction

Extended lesson planning

A teacher supplies class context, prior knowledge, goals and available equipment. The chatbot revises activities, materials and sequences as the dialogue develops.



This Mockup for such an AI app was generated with ChatPGT 5.6 11/2026 CC-0.



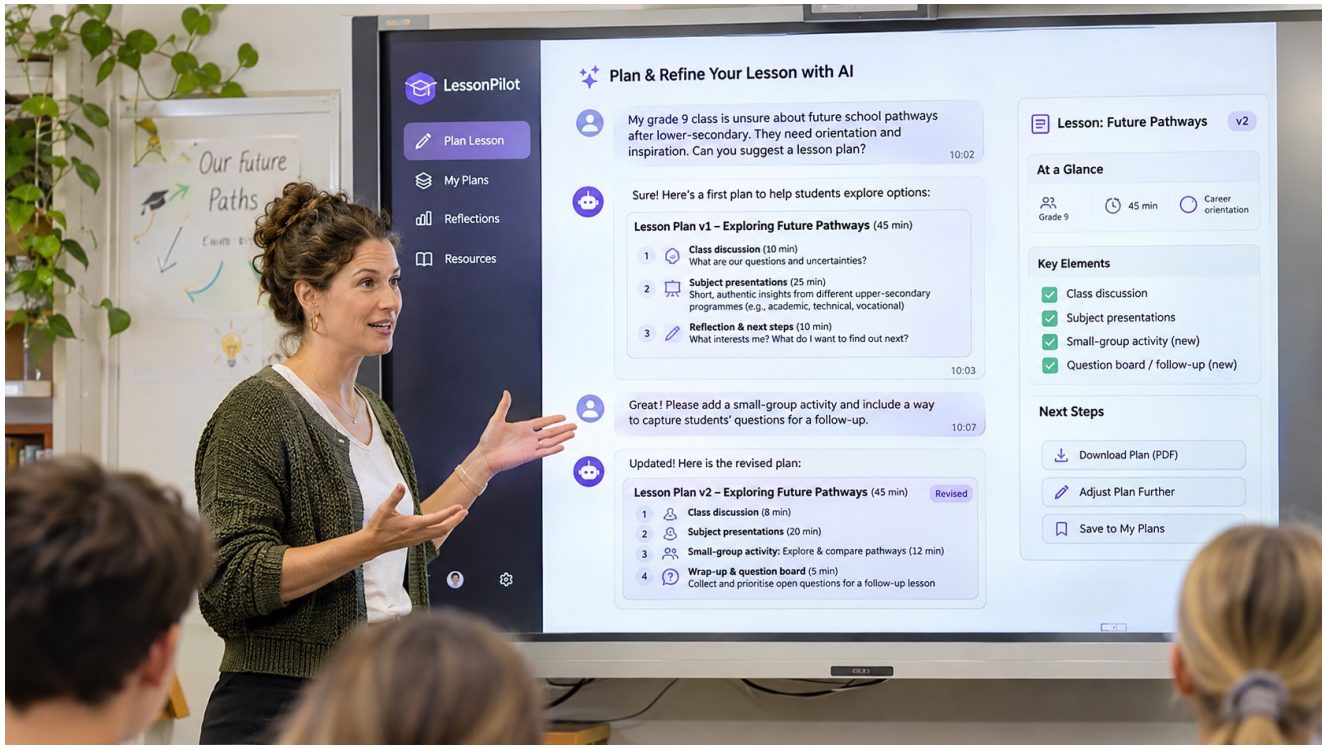
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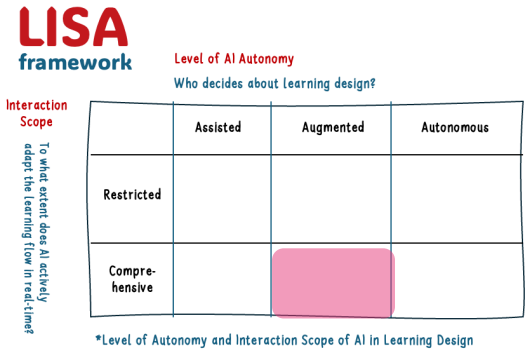
Assisted autonomy · Comprehensive interaction

Planning for school transitions

A lower-secondary teacher shares students' uncertainty about future school pathways. AI proposes discussions and subject presentations, then revises the plan using teacher feedback.



This image was generated with ChatPGT 5.6 11/2026 CC-0.



E. The Adaptive Partner

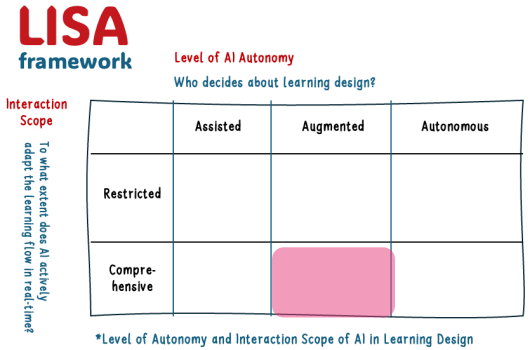
Augmented autonomy · Comprehensive interaction

Adaptive project tutoring

During project work, an AI tutor adjusts suggestions, reorders tasks or offers alternative approaches using learner input. The teacher monitors and can redirect the tutor.



This image was generated with ChatPGT 5.6 11/2026 CC-0.



*Level of Autonomy and Interaction Scope of AI in Learning Design

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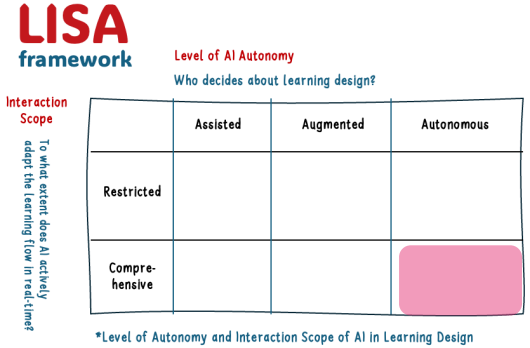
Augmented autonomy · Comprehensive interaction

A cardboard dragon

A primary-school child builds a dragon and discusses its story with AI. The child chooses a narrative direction. AI suggests adding a mouth and asks about available materials.



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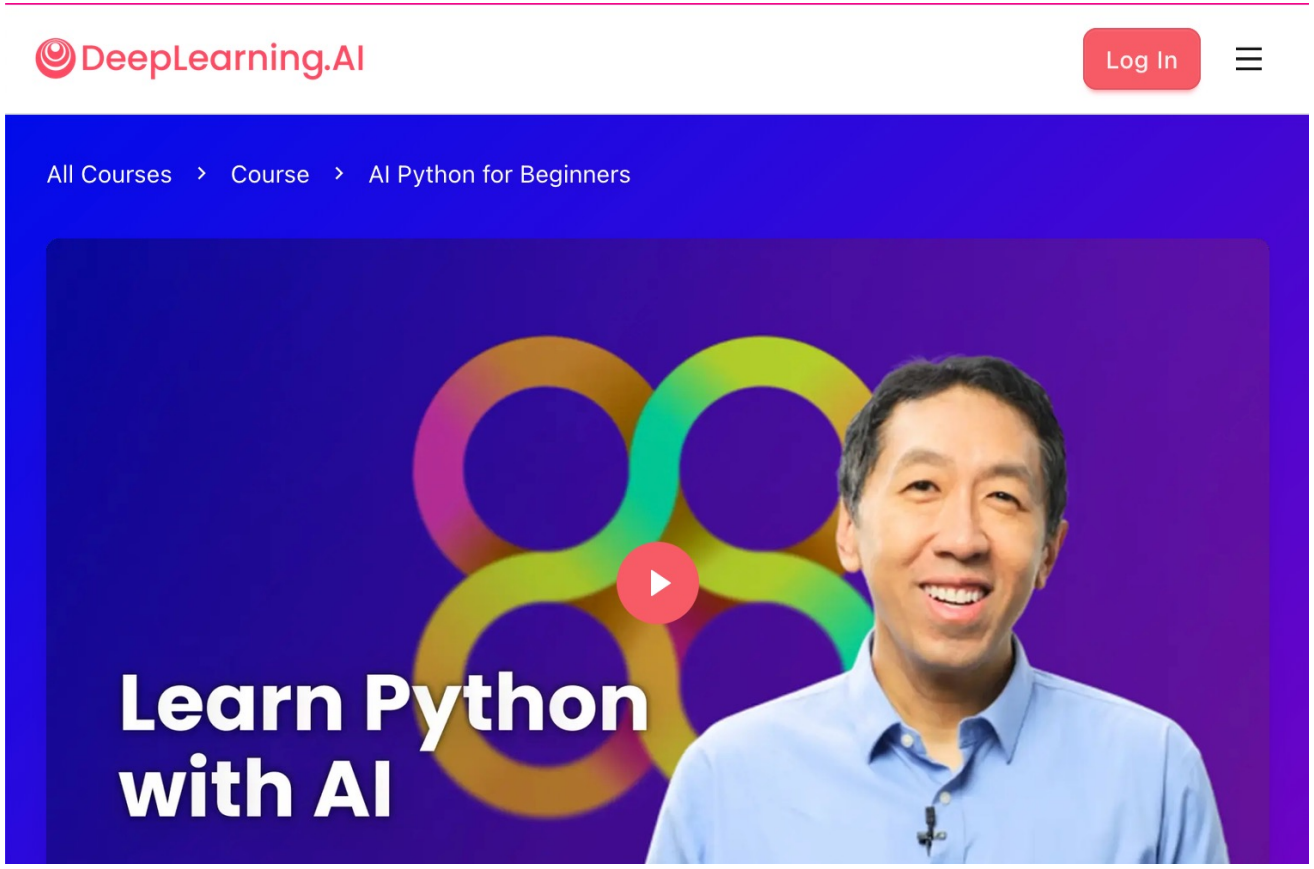


F. Autonomous Agent

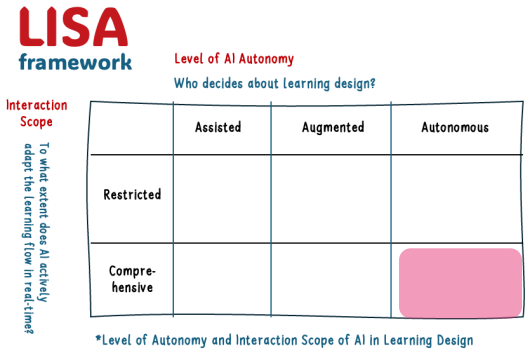
Augmented autonomy · Comprehensive interaction

AI-guided Python learning

A student starts learning Python without active teacher involvement. AI derives objectives, selects content and assessments, and adjusts pace and difficulty as the session progresses.



Screenshot: https://www.deeplearning.ai/courses/ai-python-for-beginners.
NOTE: We are unsure about how AI is used in this course to assess learners‘s progress, only an AI chat is currently described. Builiding upon this, this is currently no example for F. Autonomous Agent, it is just for illustration purposes how this could look like.



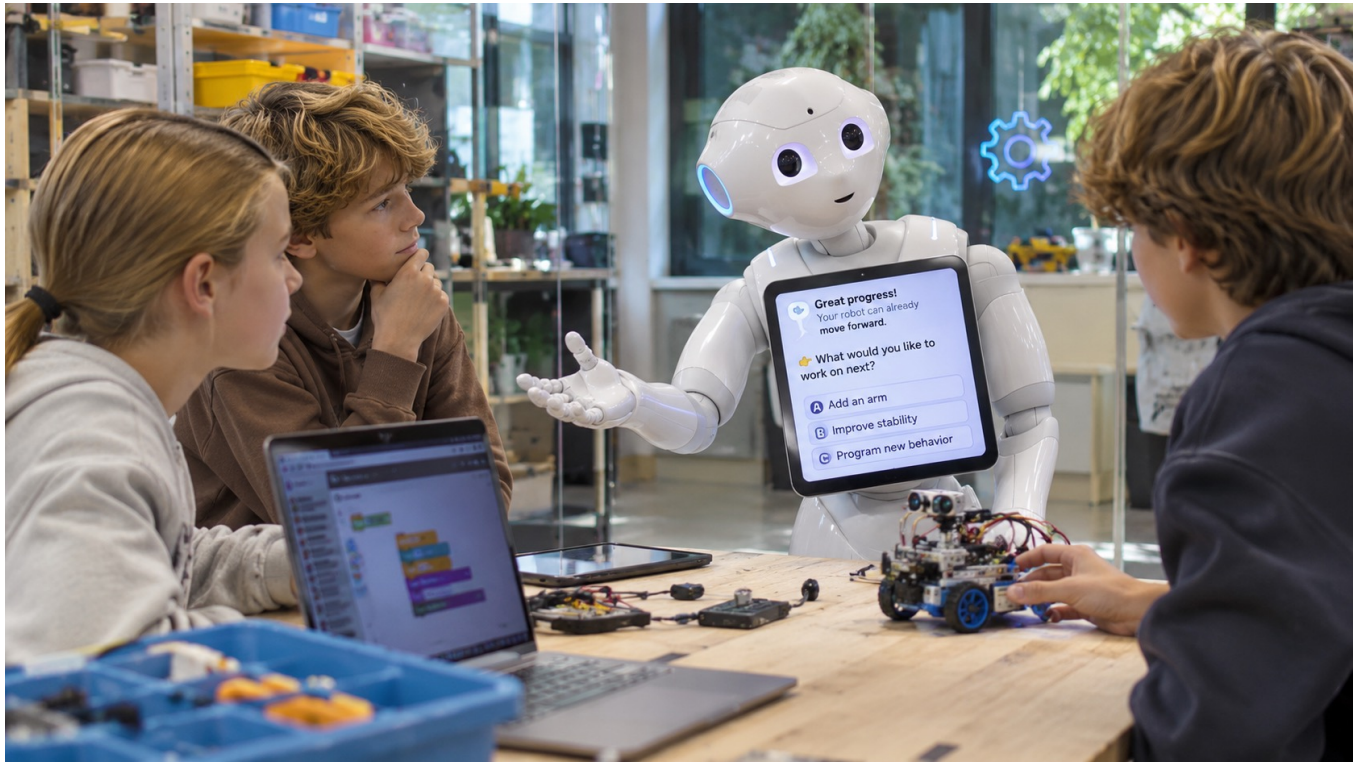
*Level of Autonomy and Interaction Scope of AI in Learning Design

F. Autonomous Agent

Augmented autonomy · Comprehensive interaction

Autonomous robotics guidance

In a future upper-secondary project, AI uses sensor data to track progress, choose tutorials, generate challenges and adjust support without teacher intervention.



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What are your thoughts on LISA?

We'd love to get your feedback

(by November 15, 2026)

https://www.umfrageonline.com/c/s9keewct

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Possible Usages of LISA

- In counselling and teaching
- (e.g. for DigiSET training)
- To discuss/mark LISA archetypes concerning typical aspects /risks



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THANKS

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