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It takes a village....

and we have many!

Workforce Partners

LOHP Safe Jobs. Healthy Lives.

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Ethics Advisory Board

CEDE

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Research Partners

ML4ED

EPFL LEARN Center for Learning Sciences

MONASH University

Digital Vocation, Education and Training (D-VET) Hub

WPI

UNICA UNIVERSITÀ DEGLI STUDI DI CAGLIARI

Data Science Education Partners

Berkeley College of Computing, Data Science, and Society

Yale

UNIVERSITY OF MICHIGAN

UNIVERSITY of WASHINGTON

UC San Diego

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"Wide-scale investment in upskilling has the potential to boost GDP by **$6.5 trillion by 2030**".

WEF, 2020

In a PWC survey of 32,500 workers: **77% are ready to learn new skills or completely retrain** and 74% see training as a matter of personal responsibility.

PWC, 2021

learn data science interactively

online courses

(from reputed institutions)

all of these solutions target “learn how to become a data scientist”

and not “how can I directly use data science in my daily routine”

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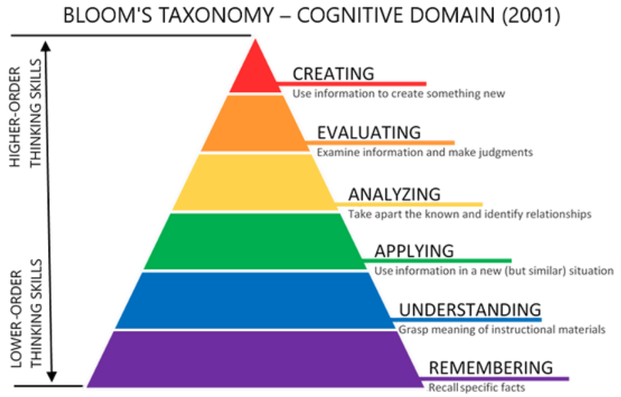
Efficacy

scholé
Learning Engineering

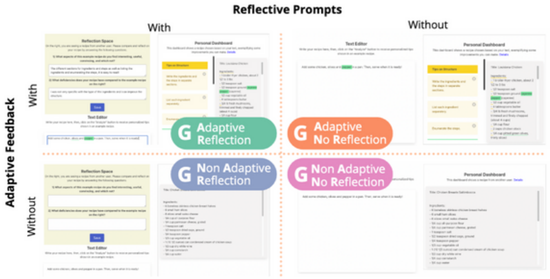
Learning Objectives

Co-designed per topic with educators according to Bloom's Taxonomy.



Evaluate the tool's impact **per topic and difficulty** using the quizzes and extracting skill mastery level (knowledge tracing, e.g. [1]).

Factorial design experiment to evaluate the impact of **specific features** (similar to [2])



Controlled study on effect and perception of **prolonged usage.**

[1] Swamy, Vinitra, et al. "Deep Knowledge Tracing for Free-Form Code Progression", AIED, 2018.
[2] Mejia-Domenzain, Paola, et al. "Enhancing Procedural Writing Through Personalized Example Retrieval: A Case Study on Cooking Recipes". IJAIED, 2024

Efficiency

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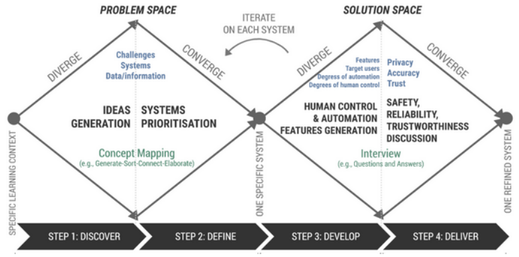
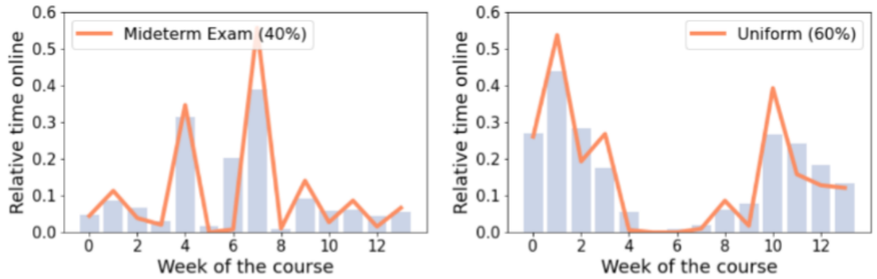
Learning Engineering



Double diamond model for

human-centered design

- Co-design sessions [1]
- Iterative design [2, 3, 4]



Trace data analysis

- Time series analysis of clickstream [5, 6, 7].
- Macro and micro SRL processes [8, 9, 10].

[1] Swamy, Vinitra, et al. “Trusting the Explainers: Teacher Validation of Explainable Artificial Intelligence for Course Design”. LAK, 2023 (Honorable Mention).
[2] Mejia-Domenzain, Paola, et al. “Enhancing Procedural Writing Through Personalized Example Retrieval: A Case Study on Cooking Recipes”. IJAIED, 2024
[3] Mejia-Domenzain, Yazci, et al. “GELEX: Generative AI-Hybrid System for Example-Based Learning”. CHI EA, 2024.
[4] Mejia-Domenzain, Paola, et al. "Visualizing Self-Regulated Learner Profiles in Dashboards: Design Insights from Teachers." AIED LBR. Cham: Springer International Publishing, 2023.
[5] Swamy, Vinitra, et al. “Meta Transfer Learning for Early Success Prediction in MOOCs.” Learning @ Scale, 2022.
[6] Asadi, Swamy, et al. “RIPPLE: Concept-Based Interpretation for Raw Time Series Models in Education.” AAAI Educational Symposium, 2023.
[7] Swamy, Vinitra et al. “MultiModN -- Multimodal, Multi-Task, Interpretable, Modular Networks.” NeurIPS, 2023.
[8] Mejia-Domenzain, Paola, et al. "Identifying and comparing multi-dimensional student profiles across flipped classrooms." AIED. Cham: Springer International Publishing, 2022.
[9] Mejia-Domenzain, Paola, et al. "Evolutionary Clustering of Apprentices' Self-Regulated Learning Behavior in Learning Journals." IEEE Transactions on Learning Technologies 15.5 (2022): 579-593.
[10] Mejia-Domenzain, Paola, et al. "Navigating Self-Regulated Learning Dimensions: Exploring Interactions Across Modalities." AIED. Cham: Springer International Publishing, 2024.