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Exploring the potentials of AI in e-learning – case study of ITB Uni HB

Co-funded by the Erasmus+ Programme of the European Union

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Vivian Harberts, Andreas Saniter, ECER 2024, Nicosia, 27.08.2024

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Agenda

- The project
- Our approach
- Achievements and challenges so far

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The project

- Centralised E+; “forward looking projects”
- Running from 01.11.2022 till 31.05.2025 (2.5 years)
- Participating countries: Spain, Portugal, Slovenia, Germany
- Webpage: https://www.ai4ed-project.eu/

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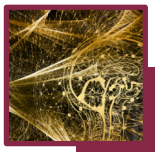
The project

2 Definition of the AI strategy in educational processes



3 Identification of data structure for the implementation of AI

4 AI4Ed Capacity Building for teachers and students

5 Toolkit development and Use Case Implementation

6 Validation and Evaluation

Picture of Gerd Altmann auf Pixabay

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The project

2 Definition of the AI strategy in educational processes

- Implementation of active learning pedagogy in AI driven processes
- AI Ethics and Transparency
- Design and development of 3 AI (transparent and ethical) models

Picture of Gerd Altmann auf Pixabay

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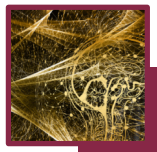

3 Identification of data structure for the implementation of AI

- Defining the data requirements to standardize AI4Ed
- Implementing AI4Ed in line with European Data protection standards (Data Management Plan)
- Digitalizing teaching-learning content in the right format to be included in the AI systems

Picture of Gerd Altmann auf Pixabay

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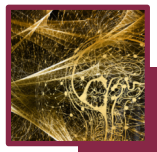

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4 AI4Ed Capacity Building for teachers and students

- Program for capacity building on digital transformation skills
- Pan-European training framework for re- and up-skilling AI4ED orchestrators

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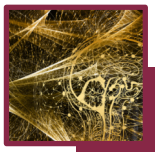

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5 Toolkit development and Use Case Implementation

- Design and implementation of a toolkit for demonstrating solutions for reliable AI in education
- User studies design and development
- Implementation of use-cases

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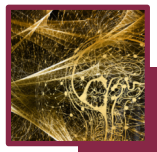

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- Organizing user studies, focus groups and evaluation workshops for use-cases
- Provising technical support to the use cases

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The project

- Main research questions:

  Has AI the potential to learn from navigation patterns of students/apprentices in an e-learning?

  Is AI capable to develop customized support for learners to avoid dropping-out?

  Is this support fruitful?

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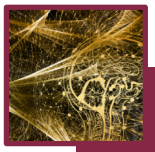

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Our approach: Operationalization of the project aims in our use case

- AI4Ed is about ***active learning***, ***individualized tutoring*** and ***drop-out prevention***.
- Our approach uses ***active learning*** to identify ***navigation patterns***, that allow ***individualized tutoring*** to ***prevent drop-out***.
- We use the metals e-learning for our use case: https://metals.mobil-lernen.com/en/elearning

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Achievements and challenges so far

- Any hints on how to improve performance on moodle: Very, very welcome!

- We performed a pilot with ~20 apprentices.

  => moodle tracked 24 *.csv files.

  => Are those of added value for IT/AI experts? (next slides)

  => Any comments on how to improve/change data collection/use other plug-ins: Again, very welcome!

  => Unsure whether further data collection currently makes sense.

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4 sets of data

- Entry questionnaire
- Final questionnaire
- Tests after each module

=> These 3 are comparable to the data collected by IMH.

Initial questionnaire

What is your highest level of education?				
☐lowest school-leaving certificate	☐ intermediate school-leaving certificate	☐ Advanced technical college certificate	☐ Gymnasium	
In which educational pathway are you?				
☐ Apprenticeship Metal	☐ Apprenticeship Electro	☐ Other apprenticeship	☐ Higher education	
In what year of training/study are you in?				
☐1	☐2	☐3	☐4	☐5
Is German your native language?				
☐ Yes.	☐ No.			
Do you like to learn via online platforms?				
☐ With many pleasures	☐ With pleasure	☐ Neutral	☐ Rather without pleasure	☐ Without pleasure
What experience with additive manufacturing do you have?				
☐ None	☐Basic knowledge	☐ First experiences	☐ Advanced user	☐ Expert
What interest do you have in the topic of additive manufacturing?				
☐ Very great	☐ Great	☐ Neutral	☐ Low	☐ Very low

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4 sets of data

- Navigation patterns:

page_1	time_spent_1	page_2	time_spent_2	…	page_8000	time_spent_8000	
identifier of page	How long was the apprentice on the page? (in seconds)	identifier of page	How long was the apprentice on the page? (in seconds)				
Integer	Integer	Integer	Integer				
1-500		1-500					

? Is this kind of data processable by the AI?

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Many thanks for listening, questions and suggestions!

Now

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Or later:

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