AI PIONEERS

AI and the future of Education

December 2023

Issue 2

WELCOME

The AI Pioneers project, under the ERASMUS+ Forward Looking Projects, is a multifaceted initiative aiming to promote Artificial Intelligence (AI) in education, particularly in Adult Education and Vocational Education and Training (VET).

The project successfully started in January 2023 under the EU Erasmus+ program with 10 project partners from Italy, Portugal, Greece, Spain, Cyprus, Estonia and Germany. As the first year of the project draws to a close, we would like to present a brief overview of the results achieved so far in our project in this newsletter. Before reading more about the various work packages in the project in the included contributions, please find below a brief summary of the project objectives.

The project focuses on building a network of pioneers from the education sector who are actively involved in the field of artificial intelligence (AI). This will involve trainers, stakeholders, policy makers and educational planners to promote the use of AI in VET and adult education. Involving relevant stakeholders such as companies and vocational schools is at the centre of the project. The project will continue to focus on policy recommendations, toolkits and implementation guidelines for AI pioneers on the use of AI, as well as the identification, development and piloting of AI use cases in education. Furthermore, the development of a supplement to the Digital Competence Framework for Educators (DigCompEdu) is addressed. Finally, the development of guidelines (in line with existing EU policy) for the ethical and trustworthy use of AI in education is foreseen in the project.

Co-funded by the European Union

The AI Pioneers project has been funded with the support of European Commission within the framework of Erasmus+ programme call Partnerships for Innovation - Forward Looking Projects (ERASMUS-EDU-2022-PI-FORWARD)

SUPPLEMENT TO THE DIGCOMPEDU FRAMEWORK

OUTLINING THE SKILLS AND COMPETENCES OF EDUCATORS RELATED TO EDUCATION

The supplement seeks to enhance the existing DigCompEdu framework from the European Union by incorporating essential AI competencies in education. It acknowledges the significant impact of AI on teaching and learning, emphasizing the need for educators to acquire skills to effectively and responsibly use AI technologies.

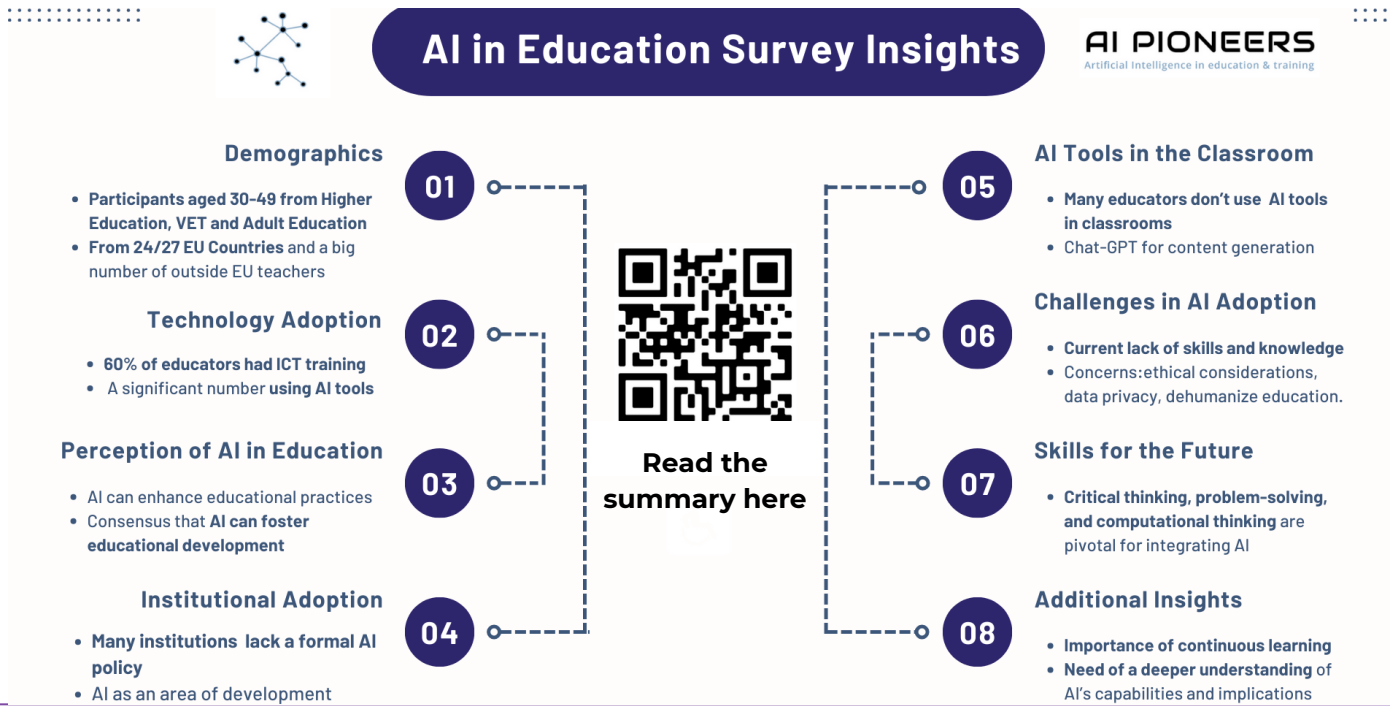
To do this, the **supplement integrates AI competencies into DigCompEdu's six key areas**: Professional Engagement, Digital Resources, Teaching and Learning, Assessment, Empowering Learners, and Facilitating Learner's Digital Competence. It explores AI applications in these areas, offers activities for skill development, suggests competency progression levels, identifies possible challenges and provides strategies to overcome them.

Key **AI competencies highlighted include data literacy, computational thinking, AI-based curriculum design, ethical AI use, and preparing students for an AI-dominated future.** The supplement uses DigCompEdu's six-stage progression model, from Newcomer to Pioneer, for seamless integration and consistency.

The **supplement also outlines challenges in AI integration in education**, such as **data privacy concerns, algorithmic bias, unequal AI technology access, evolving educator roles, and the need for ongoing professional development in line with AI advancements.** It underlines the necessity for ethical, human-centered, and responsible AI use in education.

In summary, the supplement offers a thorough guide for integrating AI competencies into educators' skillsets, preparing them to effectively embrace AI's evolving and transformative role in various educational settings. It focuses on leveraging AI's potential to enhance learning while addressing associated risks through ethical and considerate integration.

Scan and read the Supplement to the DigCompEdu Framework



INSIGHTS FROM THE LITERATURE REVIEW OF EMPIRICAL RESEARCH ON AI IN EDUCATION

RESEARCH BACKGROUND

The review covers 30 items, including bibliometric analysis, historical reviews, and systematic literature reviews, across various educational domains. These items acknowledge the rapid changes in education and the growing importance of AI in teaching.

AI TOOLS & USES

AI tools such as intelligent tutoring systems, machine learning, natural language processing, virtual reality, and augmented reality are prevalent in education. They are applied in tutoring, assessment, personalized learning, and improving the engagement and accessibility of education. AI's role in personalized instruction and its positive impact on academic performance, especially in the Science, Technology, Engineering, and Mathematics (STEM) education, are highlighted.

BEST PRACTICES

The review identifies best practices for AI in education, including the effective use of with proper introduction and motivation, the careful introduction of translation technology and generative AI, and the creation of a hierarchical structure for AI tools.

THE STRENGTHS & WEAKNESSES OF AI IN EDUCATION

Strengths of AI in education include personalized tutoring, improved learning outcomes, enhanced motivation, efficient assessment, and early intervention to prevent dropout. However, challenges include equipment availability, staff training, potential biases, data protection, and transparency concerns. Cultural and ethical considerations, as well as mixed findings in student performance, also play a role.

Full report is available on the project website

HOW CAN WE EVALUATE THE ETHICAL USE OF AI IN EDUCATION?

DEVELOPING THE AI PIONEERS EVALUATION SCHEMA

As part of the AI Pioneers' fifth work package, we are reviewing relevant documents on ethical issues surrounding the use of AI in education. The goal is to transform these documents into practical questions that can be integrated into an **evaluation schema**, applicable to any educational center interested in using or currently utilizing AI.

While numerous guidelines exist (e.g., UNESCO´s recent 'Guidance for Generative AI in Education and Research'), translating them into actionable criteria poses challenges. For instance, the UNESCO '***ChatGPT and Artificial Intelligence in higher education: Quick start guide***' (2023) offers an exception with its AI Audit, featuring questions such as *'How often is data collected?'* and *'To what extent is the AI technology overcoming equity concerns?'* (p.14).

We aim to compile and refine such questions into a comprehensive evaluation schema. Your insights on monitoring AI use in education are valuable – feel free to get in touch. We welcome your input!

AI PIONEERS NETWORK

2ND CONSULTATION SEMINAR WITH AI PIONEERS IN VET AND ADULT EDUCATION

AI Pioneers in Education and Training had its **2nd Consultation Seminar** on 27 November 2023, gathering **36 Pioneers** - **teachers and IT experts** from VET Schools from Cyprus, Estonia, Germany, Greece, Italy, Lithuania, UK, Portugal and Spain.

During the seminar, George Bekiaridis and Graham Attwell presented the "***Supplement to the DigCompEdu Framework - Outlining the Skills and Competences of Educators related to AI in Education***". Next, Ludger Deitmer led a discussion and consulted Pioneers, allowing them to share their experiences in deploying AI in VET.

The Reference Network of AI Pioneers: **The Mastodon platform** was presented, inviting participants to register and continue discussions online. The Pioneers joined the platform and agreed to share documents and practices dealing with the deployment of AI in education.

WHY DO WE USE MASTODON FOR THE AI PIONEERS REFERENCE NETWORK?

Mastodon, an increasingly popular social media platform, has gained significant attention in recent years as an alternative to mainstream social networks. It stands out due to its unique decentralized architecture and community-focused ethos.

Moreover, Mastodon provides a unique combination of privacy, community focus, customization, and a collaborative environment that aligns well with the needs and values of an AI Pioneers network. This makes it an attractive alternative to more mainstream social media platforms for professional networking and community building in the field of AI.

The main features affected our decision for choosing were:

Scan and join AIPioneers network!

Networking and Collaboration:
Mastodon's structure is conducive to forming tight-knit networks, ideal for AI professionals and educators to share knowledge, collaborate on projects, and exchange ideas.

Resource Sharing:
The platform can serve as a hub for sharing educational resources, research updates, and industry news.

Community Building:
Its emphasis on community and user control makes it an attractive option for building a supportive and engaged educational community across Europe.

USE CASES OF AI IN VET IN NORTH-WEST GERMANY

A team of researchers from the Institute Technology and Education (ITB) of the University of Bremen worked on **identifying use cases of AI in VET in north-west Germany over the year of 2023**.
Research was carried out using literature, desk research, and exhibitions. Contact was made with a number of educational institutions. Six schools invited and presented their use cases.
A broad spectrum of use cases emerged, which can basically be differentiated according to whether AI is used as a teaching aid or as the content of the lesson.
As an aid to the teaching process, materials such as *worksheets are primarily created with the help of AI services*; another use case is a *research task for the students*, in which the students are instructed to use Chat GPT for their research.
The most widespread use case of **AI as lesson content** has proven to be courses in robotics. AI is used to *analyse image data* and *use it to control the movements of the robotic arm*. Some schools with similar use cases are already cooperating in a small local network, while other schools operate independently. We hope to welcome as many of the schools we visited as possible into our network.

BRIEF OVERVIEW OF THE FIRST PROJECT YEAR

During the first year of the project, a large number of the project's planned objectives have already been started and some have already been realised. The focus was always on an active dialogue with the project's target groups in order to reach the planned and already implemented projects in the field of adult education and vocational education and training on the use of artificial intelligence to involve them directly in the project activities. In addition to transnational networking events, numerous interviews took place in the partner countries in order to align the project activities as closely as possible with practice. Presentations have already been held at conferences and the first publications have been published. With the conclusion of the first project year, further key results of the project will be shared with the community dealing with AI in education, in particular via our project-related networking and exchange platform and website, in order to initiate a lively exchange.

We hope you enjoy this newsletter and find inspiration in the advancements and opportunities offered by Artificial Intelligence in the field of education! Together, we are creating a smarter and more accessible future for education and professional learning.

AIPIONEERS' BLOG POSTS

AIPioneers' Podcast series hosted by Graham Attwell has started!

Check out the recording of the "AI and the Future of Adult Education and VET" session presented at the European Open and Digital Learning Week (EODLW)2023.

Contact us:

Project website
https://aipioneers.org/

network.aipioneers
ai-pioneers-network
AIPioneers2023
AIPioneers - AI and the future of education