



What about data in Education?

To examine the role of data in Education, let's consider the example of personalised learning which is identified as one of the major promises of AI-based services in the field of Education¹:

"AI will play a pivotal role in helping to realize the promise of personalized learning (i.e. the ability to tailor the delivery, the content and the pace of learning to the specific needs of each individual student). The ability to ingest data from multiple data sources, interrogate that data and to derive insights (using tools such as predictive analytics and machine learning) is what makes AI such an exciting advancement in education technology and why its use will prove transformational for all stakeholders, from individual students to Ministries of Education."

The implementation of such AI-based personalised learning systems requires collecting, displaying and analysing different types of quantitative and qualitative data (like assessments and learning records, interests, health, behaviour, or demographics including age, gender, country, etc.) from the students throughout their learning paths. With the analysis of these data, AIED tools make recommendations intended to help students enhance their learning experiences and improve their learning outcomes.

To compute these personalised recommendations, an educational software uses computational methods for autonomous decision-making. It uses models on pedagogical knowledge, content knowledge and students profiles. Based on these models, an algorithm can then determine what kind of actions are taken for the next learning step.

Several concerns about educational data and decision-making applications have been identified in the Joint Research Centre report on Emerging technologies and the teaching profession:²

"What data would the application use and for what purposes? How are the data models constructed, based on which theoretical constructs, and how traceable are the decisions made by the software (e.g. explicability)? Moreover, what values and assumptions are reflected in these data models, and who sets them?"

"How much harm would a wrong decision, based on computational methods used for autonomous decision-making, cause?"

And from a General Data Protection Regulation (GDPR) framework point of view: *"A balance between collecting digital data and intruding into one's personal sphere in education and training should be safeguarded."*

1. "AI in Education: Change at the Speed of Learning". UNESCO IITE Policy Brief. Author: Steven Duggan. Editor: Svetlana Knyazeva - ISBN : 978-5-6046449-2-8. [↩](#)



2. "Emerging technologies and the teaching profession: Ethical and pedagogical considerations based on near-future scenarios"- Vuorikari Riina, Punie Yves, Marcelino Cabrera - Joint Research Center report - 2020. [↩](#)