AI IN EDUCATION:

HOW DOES IT CHANGE A LEARNING ENVIRONMENT ?

Which AI systems are used in education and what are the results? Who is (in)directly involved in the development and use of those systems, and with what data are they fed? Read more about it in this brAInfood, along with what you as a teacher can do with AI and what you should pay attention to.

This brAInfood was developed by the Knowledge Centre Data & Society, the Knowledge Centre Digisprong and the research group imec-MICT-UGent.

WHAT AI SYSTEMS EXIST IN EDUCATION? WHAT IS THEIR IMPACT?

AI systems are already being used in education. The impact of those systems on you as a teacher, the students or the school depends on the type of system, its purpose and the data it is fed with. For example, you have systems to ...

- **teach students**, such as a tutoring system where the student follows a set of tasks and the system provides individual feedback and instructions,
- **support student learning**, such as automatic feedback on writing tasks of students,
- **support teachers**, such as automating and speeding up administrative tasks,
- **support learning trajectories**, such as a system that recommends further education after the 6th grade.

AI technology can offer many benefits, but the advent of AI also raises important questions. What **role** do we want AI to play? What **competences** should we teach our students? And what **impact** will AI have on my role as a teacher and on other actors in education?

We do not yet have the complete answer to these questions. The number of AI systems in education still remains fairly limited, and new AI systems are constantly being developed. What we can say is that AI cannot do everything at the moment (or in the future). Nor are AI systems infallible. Teachers need to **keep an eye at all times**. Blindly relying on AI is certainly not a good idea.

head teacher's office

classroom

school

classroom

staffroom
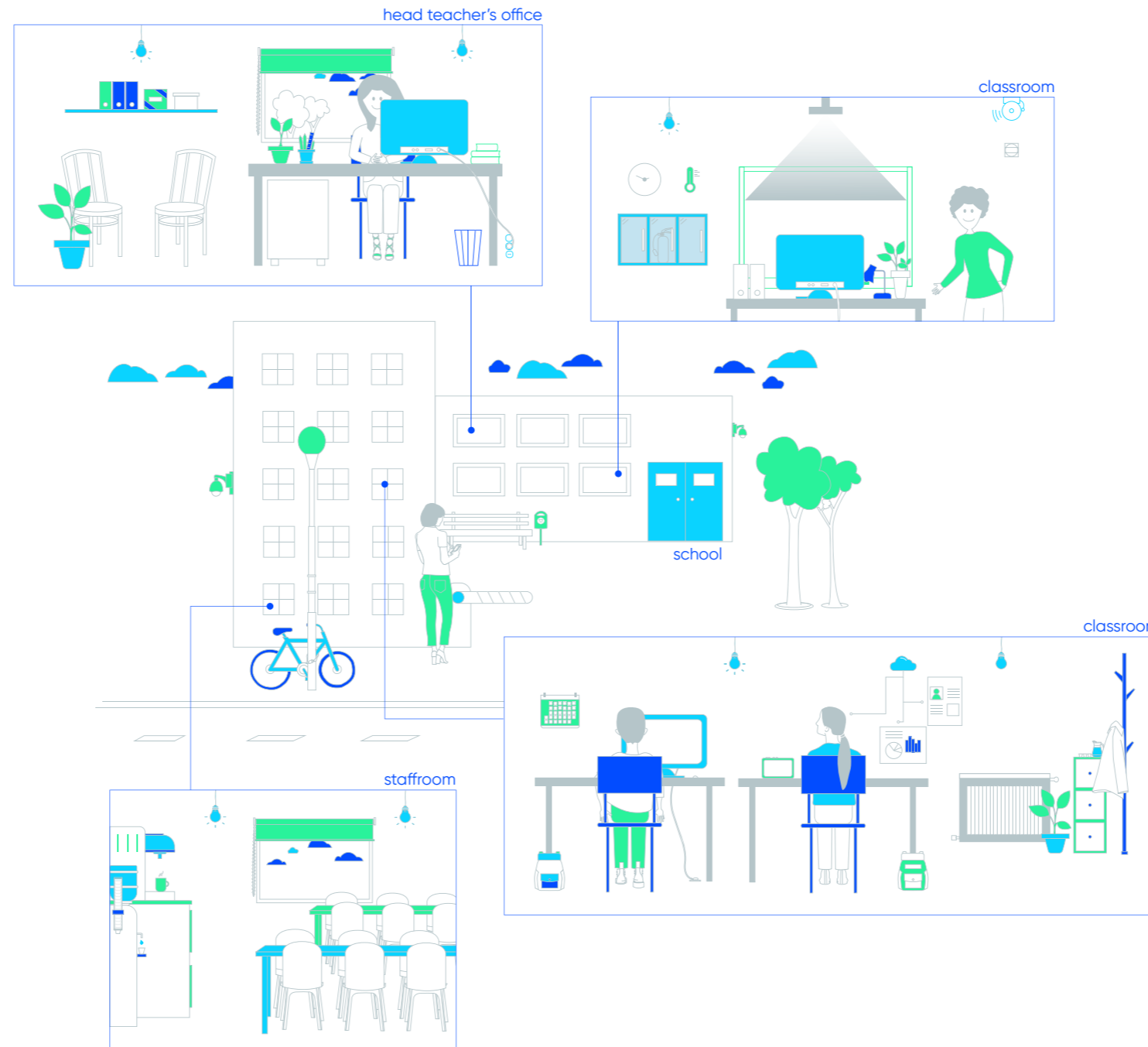
WHAT DATA IS COLLECTED, AND USED IN AI SYSTEMS FOR EDUCATION?

AI systems use a large amount of **data**, to also increase their **reliability**. What data is being used depends on the system.

'Educational data' on the student's knowledge, such as grades and other results, can can be used for teaching and supporting the student and developing personal learning trajectories. **'Personal characteristics'** such as interests and age and so-called **'tracking data'** generated or collected during the use of digital systems (e.g. the learning platform) such as mouse clicks, the time, frequency and intensity of interaction with the system can be used.

Even within different specific systems, AI applications with different purposes will be able to use different data. It remains important to determine **what data may be used for what**.

All this data can be linked to the **student's personal profile** and different **learning objectives**. It can then be used to analyse the **learning process**. Based on this analysis, a tailored **learning trajectory** can be developed. This data was previously collected 'on paper', but by using it in AI systems, more data is available, which also gives us additional insights.

WHAT ARE RISKS AND CONCERNS WITH AI SYSTEMS IN EDUCATION?

As with other technologies, there are some **concerns** when AI is used. Therefore, it remains important to **monitor and supervise** AI systems.
- An AI system uses data to operate. It is best to consider whether this data is **fair** to everyone. For example, the system may misjudge a non-native speaker newcomer who may not yet have understood the questions but has mastered certain content.
- An AI system works by finding structures in a lot of data. When the system does not have certain data, it might see wrong **relations**. For example, an AI system may draw wrong conclusions for students who have already seen certain content because the teacher had some time to spare last year.

WHAT CAN YOU DO WITH AI AS A TEACHER?

First of all, you can use AI as a **tool** in your own classroom. You can, for example, create a suitable image for a presentation or have an answer to an original question generated. You can also use AI to provide **customised exercises** to your students.

Like you would discuss the **dangers and possibilities** of the internet with your students, you should also do so with AI. Together with your students, evaluate when and for what you can trust AI systems. There are things AI systems can do well, and things they can do less well.

AI can also make mistakes, and therefore it is important that the teacher remains in control. When AI is used to **teach students**, **support the learning process** or **support the learning trajectory of students**, the decisions should be made by you, the teacher, and not by the AI system. As a teacher, you remain **responsible** for your students.

WHO IS INVOLVED IN AI SYSTEMS IN EDUCATION?

AI systems raise many questions that are often difficult to answer due to the complexity of the systems and a lack of transparency. AI systems are usually provided by **(commercial) actors** with mainly technical expertise. These actors often lack the specific knowledge about educational, pedagogical and organisational idiosyncrasies of the school. **Good cooperation** with these actors is important. Do not just partner with any supplier, but consider together beforehand what the possible consequences of the system are, what (educational) values you deem important and how the system can be deployed 'responsibly' at school. Do not forget to involve those directly involved, such as **school management, students, parents and teachers**. In this way, you will develop your ideal AI system together.

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