Project proposal: AI & the future of learning at UM

Introduction

Maastricht University is well known for its problem-based learning (PBL) approach. Since its establishment in 2015, UM's Centre for Teaching & Learning, EDLAB, has observed, analysed, developed and innovated the design, delivery and assessment of PBL education at UM. It is a fundamental part of EDLAB's mission to follow trends in higher education and mirror those with the UM educational philosophy.

PBL and the educational *zeitgeist*

in 2018, EDLAB initiated the EDview project to assess the state of PBL at UM, which had then existed for over 40 years, and to improve internal coherence in its vision and practice. The project findings resulted in a re-calibration of PBL, emphasising constructive, collaborative, contextual and self-directed learning (CCCS) as overarching learning principles. Next to that, the project conclusions gave room for a more diversified and creative practice of PBL, in line with the CCCS principles, encouraging teaching staff to go beyond the standard 7-step approach.

Similarly, in 2021, as a response to the COVID-pandemic, EDLAB initiated a research project, called EDvance. The project investigated the functioning of PBL-CCCS practices, formats and tools within a hybrid/online setting. The findings of this report were shared with our community for inspiration purposes and expanded the arsenal of CCCS-proof educational conduct in the digital age. In the post-COVID years EDLAB also assisted in developing integrated visions on assessment and global citizenship education with respect to PBL-CCCS education.

The rise of AI in education now calls for an extrapolation on the future of learning at UM. Firstly, we envision a study dealing with a number of fundamental questions to re-affirm the university's *reason of being* amidst speedy developments in AI and impact thereof on education and research. Next to that, we envision the study to also focus on the impact of AI on CCCS education and its design, delivery and assessment (as connected within the constructive alignment triangle). The combined study allows us to take a pro-active stance with respect to AI & learning, in which we depart from our educational philosophy rather than being maneuvered into a reactionary position. The project will hence culminate into a position paper "the future of learning at UM" and guidelines to support and inspire educational design, delivery and assessment activities in the era of AI.

PBL & AI

Late 2022, the launch of ChatGPT impacted society as a whole, marking a revolutionary step in the development and use of (Gen)AI. Over the past 2,5 years, the rapid development of AI has become a key asset in the 'fourth industrial revolution' and has subsequently become a strategic factor within geo-political dynamics and economic growth.

With regards to higher education and UM in particular, AI already has and will have a lasting imprint on several basic foundations in higher education, a.o. epistemology, knowledge acquisition, didactics, design, delivery and assessment of education. Ultimately, it may alter the role and functioning of higher education institutes themselves. In the near future, UM continues to see value for campus-based CCCS-PBL (as shown in the development of UM's digitalization strategy), despite some dominant technological deterministic future scenarios for (higher) education. While there are plenty of dystopian and utopian future forecasts on the impact on AI, it is meaningful to extrapolate the development of its technological capacity. Recently promoted by the NY Times, the *AI futures project* shows that it is not possible to make realistic predictions beyond 2027, the year in which 'Artificial General Intelligence' (AGI – AI surpassing human intelligence) may be reached. Whereas any future predictions can be off because of the many unpredictable variables, the *AI futures project* does indicate that when purely looking at technological progression, there is no *mid-long term* with regards to AI and future planning, policy and decision-making. With regards to education, both UNESCO and the OECD numerously report on the game-changing impact AI has on education. UNESCO has reported on controversies, ethics and regulation with regards to AI and education. The recently published OECD trend report 2025 predicts three future paths for the world: continuation, transformation or collapse. The increasing impact of AI plays a large role in all three future global scenarios. Unsurprisingly, education plays a key role in preparing humans to live in a world characterised by conflict, polarisation, uncertainty and technological disruption. Particularly, education helps young people to navigate through different 'truths' & fake news, develop a societal voice, empower democratic citizenship and manage their 'digital' and 'physical' lives.

At UM, we also notice several opportunities and threats regarding AI that slowly solidify within our education, research and operational activities. From a policy point of view UM aims to attain an *early majority* position, approaches AI & learning as *permissive, not restrictive,* and has shown adaptivity to the rise of AI through trying out new learning scenarios, assessment adaptivity, (self-) professionalisation of teaching staff and the growing community and exchange activities around the theme of AI & education. One lesson stands out: PBL-CCCS education provides flexibility and a source for creativity

and innovation in learning, hospitable to testing and integration of advancements in learning in an early stage.

As the institutional responsibility to act in response to the adverse impact of AI will increase, the agility and response level of the organisation with regards to (tech) disruptions is key. Not only does the rapid rise and impact of AI call for a check for educational re(design) on course and programme level, it also forces us to reflect/take a stance on more profound questions regarding *the future of learning*, *the role of knowledge (acquisition), the role of universities* and *the changing labour market*. These and other fundamental questions will guide the first part of this project.

Constructive Alignment and the impact of AI

In an effort to bridge the above fundamental questions to the educational practice, it is meaningful to study how our knowledge and practice of constructive alignment (COAL), connecting intended learning outcomes (ILOs), teaching & learning activities (TLAs) and assessment methods (see figure 1), can be further progressed with the rise of AI. Especially ILOs can function as micro indicators for the way we look at learning and a university learning experience. A study of the COAL-triangle in light of AI can provide overarching insights and input for conduct with respect to programme and course design. At the same time, it allows us to check for possible differences in AI impact on different academic disciplines, observe useful cross-fertilization and showcase good practices. The questions below will guide the second part of this project.

Key questions:

- What type of ILOs gain importance in light of AI? How to operationalize those?
- How to rate the importance of ILOs with regards to the effect on *learning* vs *learned* (e.g. seemingly obsolete ILOs in terms acquired skills/knowledge vis-à-vis importance of ILOs for learning process)?
- How to approach Bloom's levels of learning with regards to AI?
- How to prevent over-reliance of AI in on-campus, small-scale teaching and learning activities?
- What assessment methods can be distilled from UM's vision on assessment in light of AI?
- How can programmatic assessment methods best be utilized to mitigate unwanted impact of AI in education?
- How can a faculty best approach (procedurally) curriculum and course revision with regards to AI and constructive alignment?

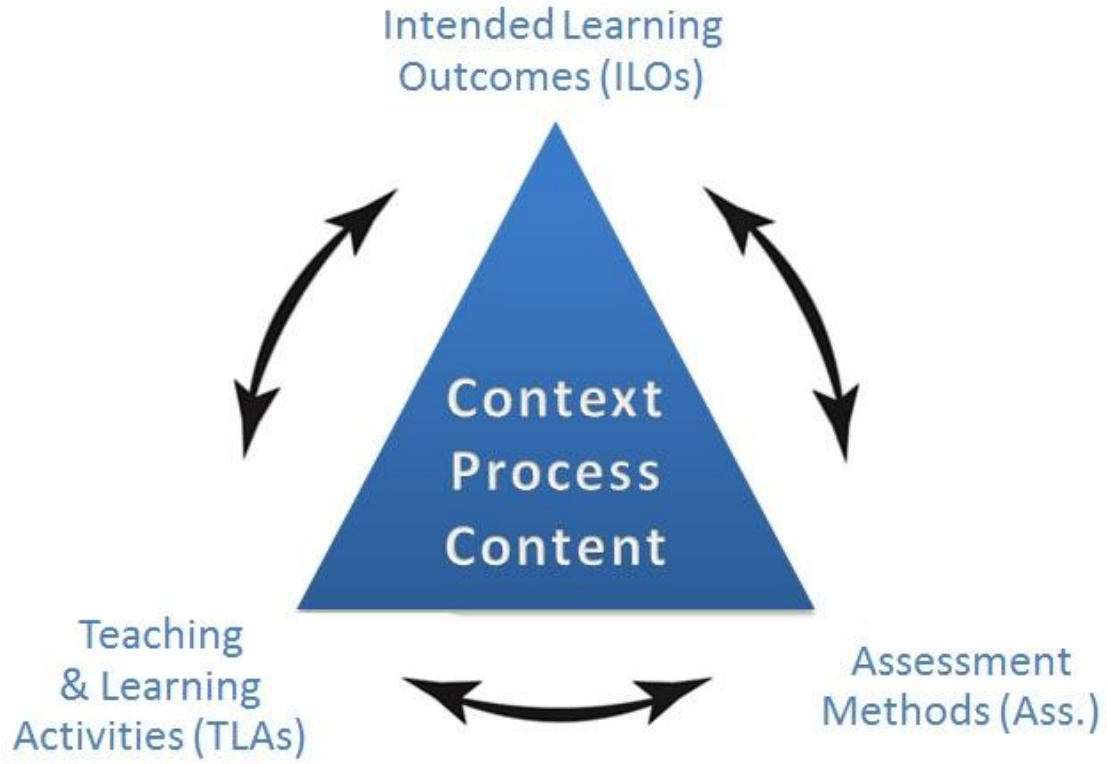

Figure 1. Constructive Alignment triangle

Operating within a straitjacket – education innovation in 2025

Higher education in the Netherlands faces unprecedented budget cuts and decreasing (international) student numbers amidst a perception of unattainable workload (i.e. Smarter Academic Year programme, developments in flexible and agile education) and pressures on student and staff well-being. Within this dynamic, educational experimentation, exploration, innovation and implementation are more difficult to realise. With large disruptions such as AI, we have no doubt that the institution ultimately naturally progresses with the challenge at hand, yet a culture and coordination of innovation and implementation is more difficult to sustain. The contemporary pressures on higher education tend to enforce a business mindset inducing cost/benefit decision-making. "Efficiency" then becomes a key aspect within organizational management dynamics.

EDLAB is wary of the discourse on organisational efficiency and its increasing impact on one of UM's core activities: education. *Efficiency* and *Education* are not two sides of the same coin, especially not in a PBL university. PBL is a labour-intensive system and there are no simple or quick didactic or technological tricks to circumvent that without dismantling the core qualities of the educational system or affecting the student learning experience. Additional didactic and technological innovation calls for

substantial financial investment, a time-consuming implementation and activation phase, and can only be sustained if the organisation is ready to structurally absorb such changes (e.g. a changing role for teaching staff). Related to that, we should also tread carefully when equating *Efficiency* and *Innovation*. Efficiency measurements that are presented as education innovation (e.g. substituting contact hours for more self-regulation or outsourcing on-campus social learning activities to technology) could contain didactically interesting novelties yet also will affect the student learning experience, and teaching staff engagement. In the long run, they could confront UM with the question 'what type of university do we want to be?'.

Project *AI and future learning @UM*

Why

The combination of the observations and developments mentioned in this proposal make us reflect daily on how education at UM will be impacted and how to best prepare for that. There is an institutional consensus that PBL-CCCS remains UM's educational model, also in a volatile future educational landscape. Yet, it is unclear how UM can continue to maintain high quality PBL education, keep it relevant and meaningful and offer a rich learning experience considering the development of AI. The educational sector may enter a perfect storm where challenges regarding AI are aggravated by increased work pressure, lower student numbers, budget cuts and a nationalistic public discourse (on education). The questions rises how can UM best maintain its unique PBL-CCCS learning experience under these pressures? The project takes 'AI' as a main focus but may connect to contemporary societal and educational challenges to arrive at realistic future scenarios for learning at UM.

Goals

To start exploring the questions raised in this proposal, EDLAB aims to initiate a project that takes the *impact of AI on learning at UM* as a point of departure. We propose to develop **two connected project lines**: 1) a focus on fundamental questions regarding the future of learning and the role of universities instigated by the rise of AI and 2) a focus on AI and the *why, what and how* of ILOs, TLAs and assessment, as connected within the constructive alignment-triangle. The goal is to a) arrive at **position paper** containing **future scenarios for education at UM** and connected implications for teaching & learning, students and teaching staff and b) produce **guidelines and examples for AI-COAL** focusing on instructional design, delivery and assessment for UM education and the process thereof.

Scope

The project brings together insights from current and past research, UM practices, external developments and initiates (action) research and community activities to cover existing knowledge gaps. To maintain a realistic scope, this project deliberately does not include the following topics: support infrastructure, learning -and IT infrastructures, student/staff motivation, emotional support and well-being of students, and the development of alternative educational learning models (e.g. flexible, agile, personalized learning.). The project will connect to UM initiatives, knowledge and expertise regarding these topics when needed. The project does not start from scratch since it can for example rely on outcomes from recent EDLAB (research) projects & activities, the development of the Digitalisation strategy, relevant UM working groups, Npuls activities and the development of the *smarter academic year* programme. When

relevant, we do feel the need to bring current insights together and be prepared for unavoidable questions and challenges that PBL education and UM will face in the mid-long run.

Schematic project timeline

Project line 1:

AI and the future of learning at UM – fundamental questions

Phase	Activity	Period
Phase 1	• Recruit project lead(s) & members • (SWOT) analysis to determine AI variables/concepts with regards to learning • Develop framework for analysis	May-September '25
Phase 2	• Question(s) articulation • Brainstorm/work session(s) with project team and UM community	October '25 – January '26
Phase 3	• Formulate position • Test position in community sessions • Extrapolate future scenarios	January – June '26
Phase 4	• Brainstorm/work session(s) with UM community and management • Position paper 'AI & the future of learning at UM' • Dissemination activities	July – December '26

Inform project line 2

Project line 2:

AI and the future of learning at UM – constructive alignment

Phase	Activity	Period
Phase 1	• Recruit project lead(s) & members • Create inventory of past and current AI activities in faculties • Active labeling of current and future activities in line with project variables/concepts • Identify knowledge gaps	May-November '25
Phase 2	• Study 'learning/COAL and AI' – research and inventory • Gather input curriculum revision groups • Brainstorm/work session(s) with UM teaching staff	December'25 – March '26
Phase 3	• Apply position and future scenarios project line 1 to COAL at UM	April – June '26
Phase 4	• Guidelines for AI-COAL • Dissemination activities	July – December '26