

DIGIEDUHACK SOLUTION CANVAS

Title of the solution:

Team name:

Challenge addressed:

Transform Futures of Higher Education through Analytics in Action

Challenge category:

Data-Driven Education

Background of the team:

(multiple selections possible in case of mixed teams)

Higher Education Students

Researchers

Professionals

Teachers

Primary School Students

Secondary School Students

Others (please specify)

Solution description

What is the final product/service/tool/activity you're proposing? What are its main elements, technologies and objectives? Could you please include a brief implementation plan with some key overall milestones, resources required and eventual barriers foreseen?

How could your solution be used to enhance digital education nowadays? How could its success be measured?

The Unitylearn plugin for Moodle is an advanced analytics dashboard designed to foster social inclusion and collaboration. It empowers educators with actionable insights into the social dynamics of student groups, helping to identify participation gaps, ensure balanced contributions, and promote an inclusive learning environment.

By analyzing data on interactions, engagement, and communication patterns, the dashboard offers a comprehensive view of how diverse student groups interact, allowing instructors to monitor social inclusion, encourage meaningful participation, and make informed adjustments to group activities.

UnityLearn can recommend task modifications, suggest collaborative assignments for isolated students, introduce quizzes for low engagement, and add multimedia content for people struggling with text-heavy material. The system alerts professors to students at risk of dropping out and suggest follow-ups and targeted support strategies.

Context

What is the current or future problem you're trying to solve? How does your solution align with DigiEduHack 2024 annual theme?

How does your solution confront the challenge posed by the hackathon organiser and how does it address the challenge category?

Imagine you are a professor teaching online on Moodle AI basics to 300 diverse students with different backgrounds, hopes and needs. Some of them have disabilities, English is not their first language, and some combine work and studies. In this situation you would face challenges with procrastination, social inclusion, and consistent engagement.

Our solution, UnityLearn, addresses the growing challenge of social isolation and disengagement in online learning by leveraging real-time learning analytics to enhance student inclusivity and adaptive support on Moodle. In alignment with DigiEduHack's theme, UnityLearn provides personalized suggestions for course improvement helping professors to engage and connect diverse learners.

Target group

Who is/are the target group/s of your solution and how will they benefit from it? Why is your solution relevant to them? how do you plan to engage these groups so you fully meet their specific needs?

University instructors are the primary users of the "Unitylearn" plugin. This group includes professors, lecturers, and teaching assistants who facilitate team-based projects, collaborative assignments, and group discussions within Moodle. They play a critical role in promoting student engagement, ensuring fair participation, and fostering an inclusive learning environment.

Key Characteristics:

Tech-Savvy: Familiar with using Moodle and other digital tools for course management, though proficiency may vary.

Focus on Student Engagement: Interested in strategies to increase student interaction, collaboration, and active learning.

Diverse Teaching Styles: Range from traditional lecture-based approaches to active, student-centered learning methods.

Impact

How will your solution catalyse changes in education and what impacts will it have at social and environmental level? Could you provide examples or scenarios illustrating how such changes and impacts might unfold?

UnityLearn will drive meaningful change in online education by making it more inclusive, adaptive, and responsive. By using real-time analytics to address issues like social isolation and disengagement, UnityLearn enables professors to provide early, targeted support that improves retention, academic outcomes, and student well-being. For example, an isolated student might receive prompts to join study groups, while an ESL student could be offered multimedia resources to reduce the barrier of text-heavy content.

UnityLearn is centered around social impact, it creates a collaborative inclusive learning environment, where students have a sense of belonging and equal treatment. From environmental point, as a part online education it reduces the need for physical attendance and subsequent air and other types of pollution. This impact-driven approach helps us create a supportive learning experience that meets diverse needs and scales across institutions.

ETHICS - UnityLearn development requires careful consideration of ethical implications. Data privacy, bias mitigation, inclusivity, transparency, and human oversight are top priorities for us. Algorithms should be designed to minimize bias, ensure fairness, and provided insights should be explainable to maintain ethical decision-making.

Describe it in a tweet

How would you describe your solution in a short catchy way with maximum 280 characters?

UnityLearn is a Moodle plug-in that provides professors with data-driven insights to enhance student engagement, improve course design, and foster inclusivity. It helps create a more connected learning experience for diverse student needs. #EdTech #LearningAnalytics #InclusiveEducation

Innovativeness

What makes your solution different and original? Are there similar solutions or approaches currently available or implemented by education sector practitioners? If so, why and to what extent is your solution better?

Through this plugin, university instructors could access a specialized dashboard that collects data on social engagement, participation in discussions, and collaboration across various course activities. These analytics could also include diversity and inclusion metrics, showing, for example, how well different groups (e.g., language, ability levels) interact and perform in group settings. As a result, it provides useful recommendations for instructors in creating more inclusive and supportive learning environments.

Transferability

Can your solution partly or fully be used in other education/learning contexts or disciplines? Could you provide any example?

UnityLearn's socio-technical, analytics-driven approach is highly adaptable across various educational disciplines, especially in large, diverse online courses where both technical and social support are essential. Beyond AI, this model can be effectively applied to business and humanities courses. Leveraging performance and interaction data, UnityLearn can recommend specific task modifications tailored to individual needs, academic fields and audience. UnityLearn's adaptive feedback and personalized support are particularly beneficial in asynchronous courses with students from diverse backgrounds.

Sustainability

Once you have a prototype, what are your plans for a further development, implementation upscale and replication of the solution? How do you see it working in the mid- and long term?

Mid term : UnityLearn's first prototype with Moodle data will be tested with a small group of educators for usability feedback and ethics. Our pilot will expand the user base to professors across disciplines to assess the system's impact in different fields. We will refine the the platform based on feedback and scale it to support a larger user base, incorporating predictive analytics for personalized course suggestions.

Long term: UnityLearn will adapt to other LMS platforms like Blackboard and Canvas, ensuring adaptability. The goal is to create an AI-driven, fully integrated learning support system offering real-time insights and adaptive learning pathways. We will partner with top universities and LMS providers to foster a global learning community.

Team work

Present the members of your team.

Why are you the perfect team to develop this work and what are the competencies you all bring in so the solution is developed successfully? What is your expertise within the thematic field concerned? Are you planning to continue working as a team in the future? If so, why?

Our team consists of 3 specialists with diverse expertise to create inclusive, adaptive learning solutions.

Polina Kuzmina, a master's student in International Management (UNIBO) with a background in International Relations, brings a unique perspective on digital engagement and the socio-political dimensions of technology. Mona Emara, Ph.D., is a postdoctoral researcher in STEM Education at JKU Linz, focusing on learning analytics and educational data mining to improve learner modeling. Melike Nur Köroğlu, MSc., a PhD candidate in Digital Transformation in Learning (IT), specializes in AI and digital transformation, with skills in 3D modeling and robotics. Together, our diversity collaboration positions us perfectly to develop UnityLearn effectively and make inclusive online education real.