

DIGIEDUHACK SOLUTION CANVAS

Title of the solution:
Team name:
Challenge addressed:
Challenge category:
Background of the team:

(multiple selections possible in case of mixed teams)

Higher Education Students

Teachers

 Others (please specify)

Researchers

Primary School Students

Professionals

Secondary School Students

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?

We propose a two-sided, teacher-student digital learning platform designed for secondary education. The platform's core innovation is an AI-powered, adaptive homework and self-study challenge generation system that creates personalized learning activities based on combining the class learning objectives with each student's knowledge level, learning history, individual learning preferences (e.g. visual or auditory) as well as their language needs and accessibility considerations (e.g. dyslexia font), leaving no student struggling behind.

Core technologies include LLM-based content summarization, objective extraction and adaptive task generation. An initial data collection phase would be helpful to avoid a cold start problem. The main barrier to adoption is likely the teachers' willingness to use and populate the tool with their curriculum content. Success could be measured by engagement metrics as well as student academic outcomes.

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?

Our solution is designed for secondary education teachers and students (ages 12–18) in Luxembourg, which has one of the most multilingual and diverse student populations in Europe. Luxembourg's teachers face the challenge of managing the resulting highly diverse classrooms. Personalized differentiation is expected by the curriculum but extremely time-consuming in practice. Many students struggle because they come from different school systems or because the language of instruction is not their mother tongue. This tool gives every student tailored support in the language and style that helps them learn best. Due to its conversational nature, student attention is more easily captured. For teachers, the solution makes individualized homework practical, scalable, and teacher-controlled.

Context

What is the current or future problem you're trying to solve? How does your solution align with DigiEduHack 2025 annual theme?

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

Students increasingly rely on external AI tools for homework support, but teachers have little visibility into the accuracy, relevance, or pedagogical alignment of these interactions. Meanwhile, classrooms are more diverse than ever — with different languages, learning preferences, attention spans, and prior knowledge levels — yet teachers have limited time and resources to provide personalized guidance to every student. This leads to widening learning gaps, inconsistent homework quality, and unequal access to tutoring support.

At the same time, digital skills are becoming essential for future employability, but many students still experience learning through static, one-size-fits-all materials that do not reflect how young people naturally engage with technology today. Our solution turns everyday homework into a dynamic digital learning experience — enabling teachers to rethink instruction and enabling students to build the digital skills necessary for the future.

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?

Champions equity and inclusion by providing tutoring-like homework support for all students, especially those with special learning needs and those from multilingual or disadvantaged backgrounds in Luxembourg's diverse school system.

Makes students' AI adoption safer: Students already use chatbots for homework; the platform channels this behaviour into a controlled, curriculum-aligned, and teacher-supervised environment.

Data-driven teaching: The platform identifies common misconceptions and learning gaps, enabling teachers to adjust instruction and improve class-wide outcomes and used examples can be constructed to be more realistic, training students in real-world skills early on.

Describe it in a tweet

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

Say goodbye to one-size-fits-all homework! Our platform uses AI to create adaptive, multilingual assignments based on class materials and student needs. Teachers get insights, students get support, everyone learns better.

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?

While AI tools are increasingly used individually by both teachers and students, our solution provides a single, integrated platform where teacher-validated lesson materials, classroom recordings, and student interactions come together to generate adaptive, curriculum-aligned homework. Instead of being an external chatbot or a generic content generator, it is a closed, pedagogically controlled ecosystem designed specifically for secondary education.

Transferability

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

Yes, as long as there are instructors and learners involved, the solution can be easily adopted in other learning contexts, as the instructor can add necessary materials and adapt challenges to the specific context, such as on-the-job training.

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?

After a basic text-capable prototype and gathering teacher and student feedback through single class or school pilot, foreseeable further developments include for example:

- Extending homework formats to interactive exercise such as fillable forms and drawing boards)
- Adding multimodal lesson input (audio/video recordings)

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?

Maria is an IT consultant and life-long learning enthusiast currently enrolled as a coding student in the peer-learning school of 42 Luxembourg.

Nathan is working on designing sovereign AI solutions for the Luxembourgish education sector from the ground up, frequently exchanging with teachers and other actors of the education sector. Not knowing each other before, we were teamed up during the hackathon and would be happy to collaborate again.