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LÆRINGSFESTIVALEN

«One video fit for all» – Interactive online teaching in mathematics in STEM education

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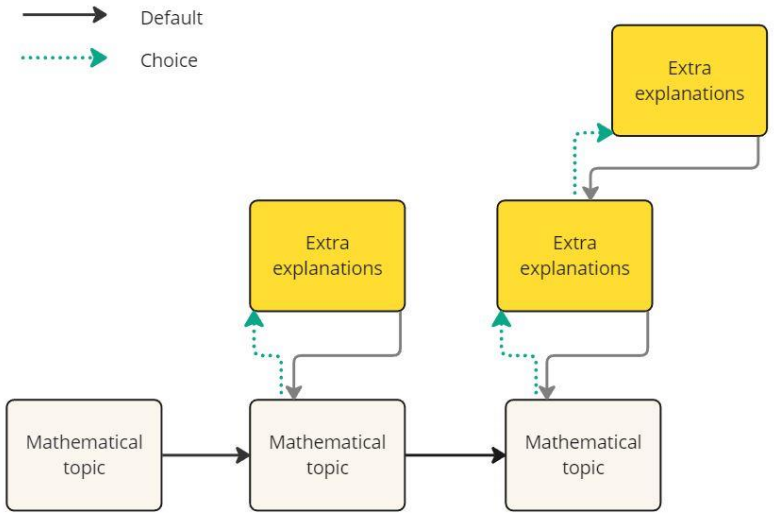
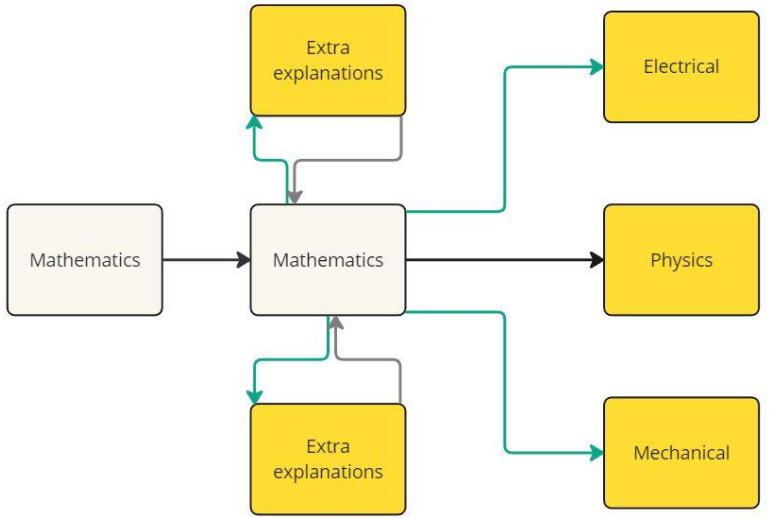
Challenges in Education

- How do we address the diverse pre-knowledge levels among students?
- What practical examples are suitable for engineering/business students?
- How can we efficiently update course materials?

Branching Videos in Education

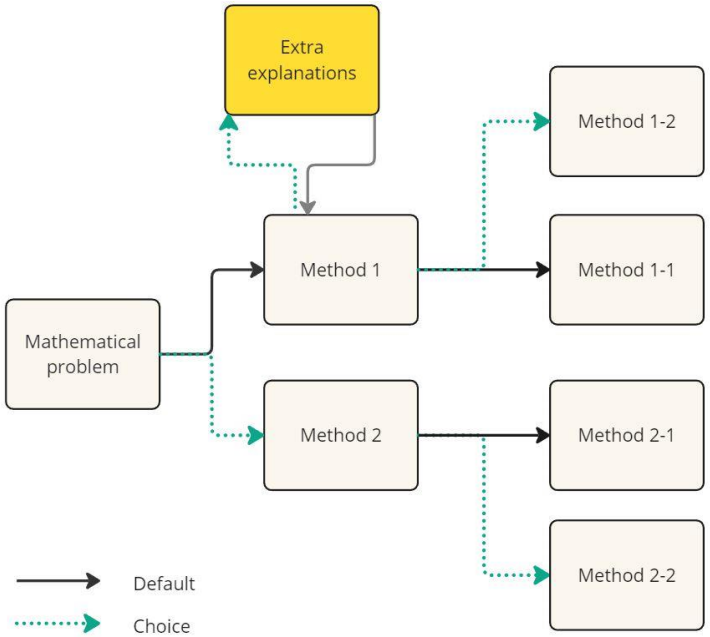
- Personalizes learning based on individual student needs.
- Applied in NTNU math courses for engineering and economics students in 2023.

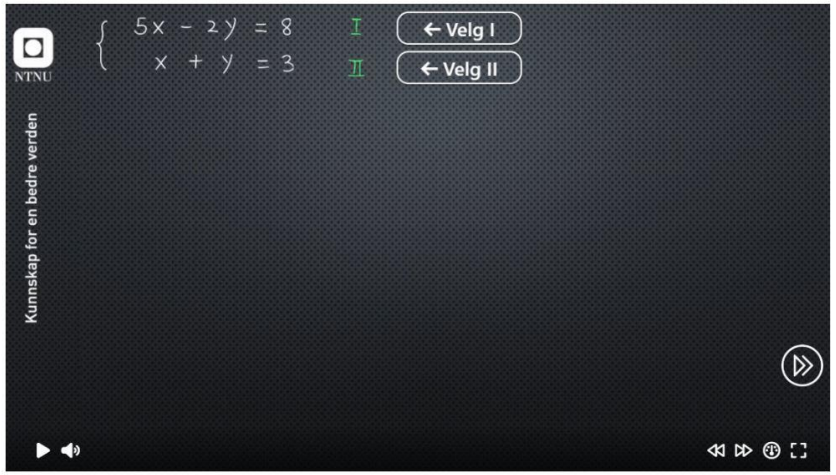




Enhancing Learning with Custom Explanations

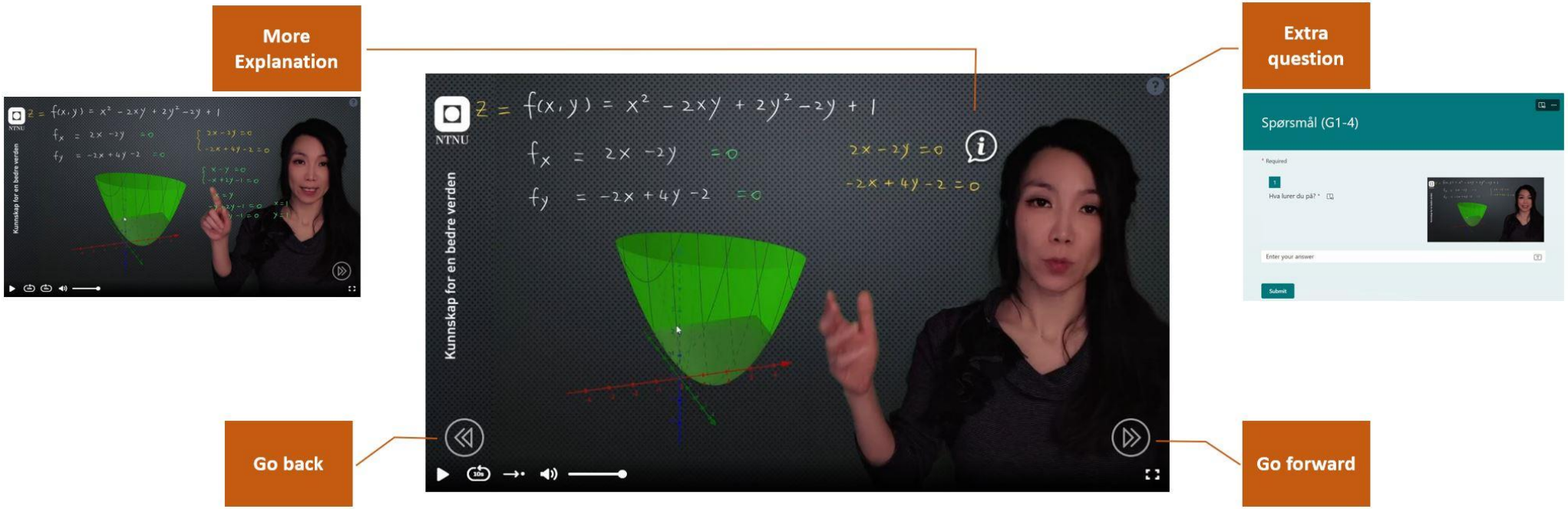
- Tailored explanations for individual student needs.
- Personalized problem-solving approaches.





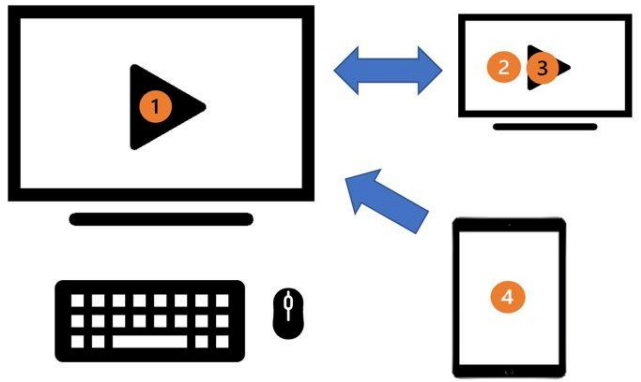
Interactive Student Experience

- Narvigate with clickable buttons or AI-powered voice control.



Technical Setup for High-Quality Videos

- Consistent visual and audio quality
- Studio-based 'Teach Us' method for recording.



1. Information display. Gathers information from (4) or other sources.
2. Camera. Captures image of the lecturer and transmits it to (1).
3. Preview display. Shows the content that the students see.
4. Writing surface (4). Content is mirrored in (1).

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Student feedbacks

The new video you sent the link to is approaching the **new gold standard** for online teaching in my opinion.

The quality of the videos you have produced is the **best I have seen** so far in the course and is very helpful for us online students. I hope Mathematical Methods 3 has something similar!

The videos were both very good. I really like that you go through so carefully and show it in a structured and orderly way. It is also very nice that you show the 3D plot so that it is easier to imagine. I understood much more from these videos than I did at the lecture here at Gløshaugen. Struggled a bit with the types of tasks that you reviewed in video no. 2, but now I understand after your review. You teach incredibly well, so I can't wait for you to make more videos! 😄

Really good videos, both these and the ones about conic sections. Your videos should have been used instead of lecturers. I study in Trondheim, but if there had been videos like this for the entire syllabus in IMAT2031 available, I would have much rather watched them than going to a lecture. Really good videos! :)

There is very good feedback on your interactive videos. We would therefore greatly appreciate it if we could get these sent to you as you make more, if that is possible.

A revolutionary format, which is well executed. **Inspiring work**! These videos should be posted somewhere easily accessible to all students; I imagine it would be useful not only for Math 2 but also for later courses.

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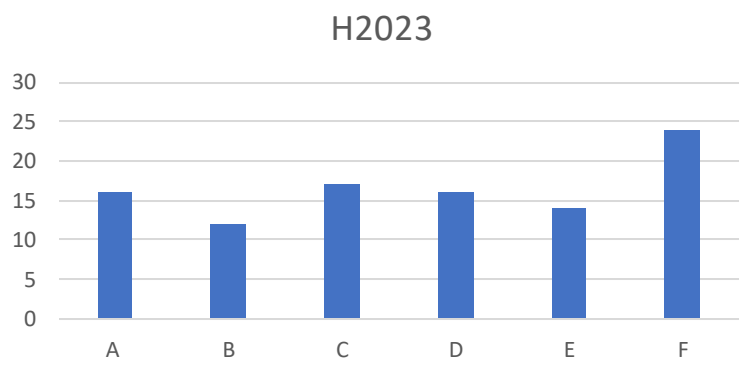
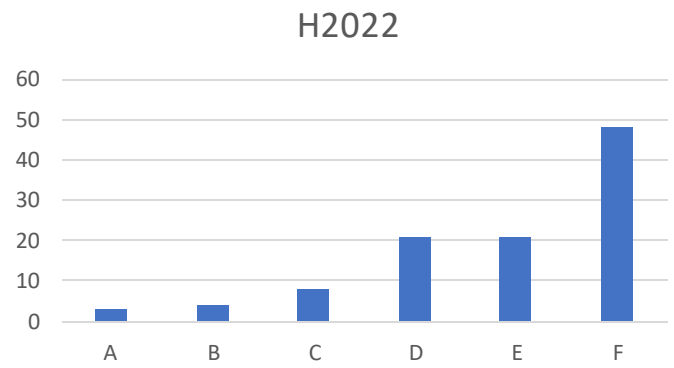
Impact on Student Performance

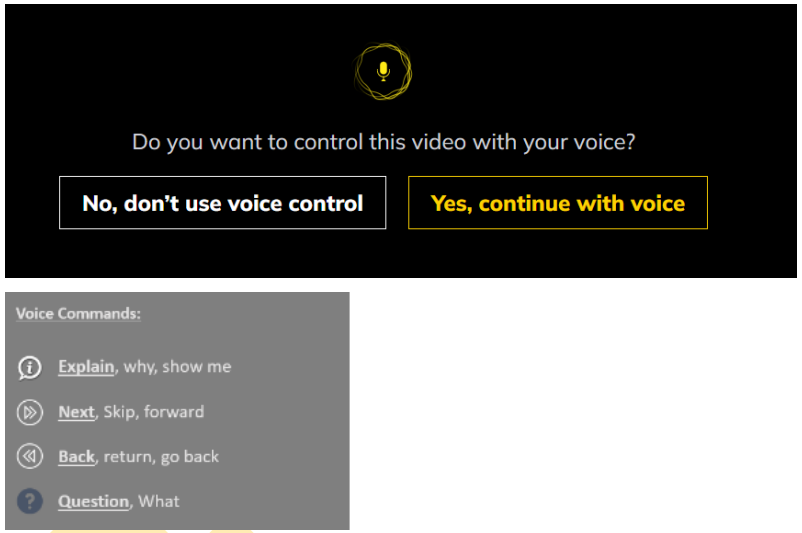
- Branching video was one of the mesures for Mathematics for economic students in 2023

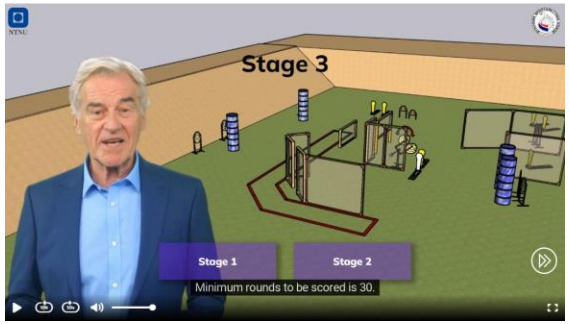




Future Prospects: AI in Education

- AI-powered voice control
- AI-avatars and chatbots for enhanced learning.





Questions and Demonstration

Demo video