

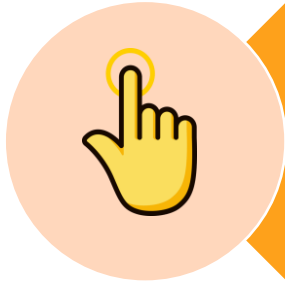
UNIVERSITY OF OSLO

ATLAS Prototype Testing I

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Goals



Usability - how participants interact with the prototype (navigation, ease of use, friction points)



Data comprehension - how participants interpret the data and what conclusions they draw from it



Technical performance - how well the prototype functions technologically

Method

Study Design

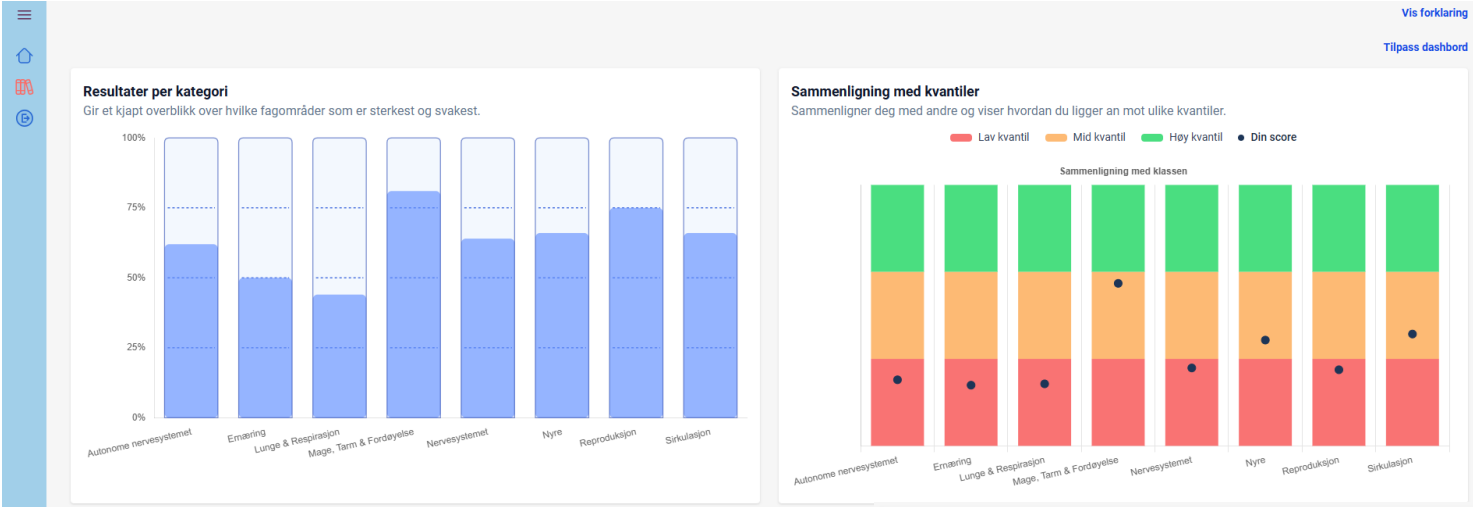
- Semi-structured interviews
- 5 participants
- 30-45 min per session
- 2 researchers

Session Structure

- Consent form
- Prototype interaction
- Interview
- Wrap-up
- Compensation

Theme	Question	Notes
Greeting and Intro		
Introduce ourselves	...	
Introduce the project	...	
Consent Form	Please sign this consent form ...	
Free exploration of the prototype		
3 min.		
Interaction with the prototype		
What	What did you do first when you started exploring this prototype? What did you do then? ...	
How / Why	<u>Did you choose to compare your scores to the score distribution of the class?</u> Why or why not? <u>What did you learn from that?</u>	
Warm-Up Opinion	<u>What is your first impression of the system?</u>	
Data interpretation		
Interpretation	Pick one graph that caught your attention. What does it show? Can you explain ...? How would you interpret this element ...? ... Is there something you did not understand about the graph? <u>To what extent do you agree with the comments/explanations given by the system?</u> <u>What would you change about them?</u>	
Negative Emotion	Focus on a particularly low score. Imagine it was your exam score. How do you like the way this score is presented? <u>Does it evoke any emotion?</u> Why? / Why not?	
Positive Emotion	Focus on a particularly high score. Imagine it was your exam score. How do you like the way this score is presented? <u>Does it evoke any emotion?</u> Why? / Why not?	
Turning insight into action		
General	If this were your own real exam data, what conclusions would you draw from this? After seeing these results, would you change something in how you prepare for your exams? If yes, how?	
Goal Setting	What goals would you set based on this? <u>To what extent does that match the goals you usually set for yourself?</u>	
Planning, Monitoring etc.	How would you act on these goals?	
Technology Acceptance		
Perceived Ease of Use	How would you evaluate the difficulty of navigating this system? <u>Did you come across any troubles in navigating this system? If so, which? (How) were you able to solve them?</u>	
Perceived Usefulness	How would you evaluate the usefulness of this system? <u>How would (much) it help you improve your learning process? What can it help you with? What can it not help with?</u>	

The Prototype



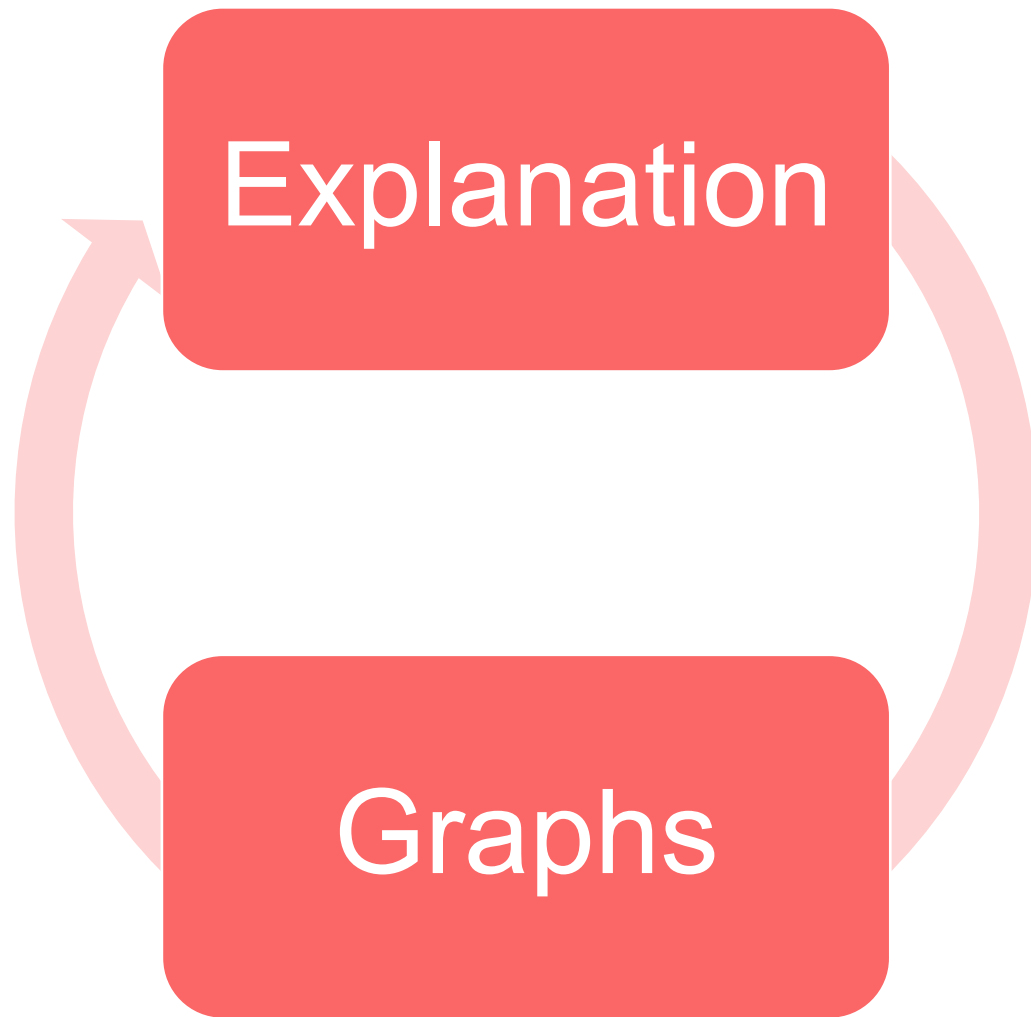
Interview Results

Some common denominators

All interviewees agreed on these points:

- The first two graphs receive most attention and are perceived as most useful
- Dashboard is most useful after failing an exam
- Barplot missing a line at the passing grade
- Using the dashboard to identify subject areas that need more attention
- General interest in comparison with others

Navigating the dashboard



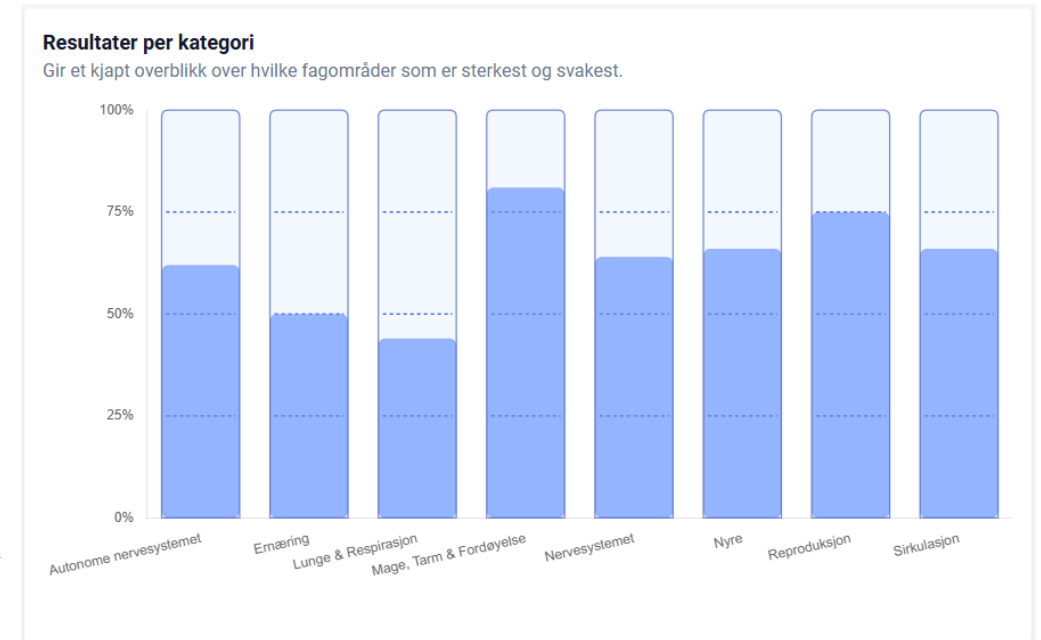
- Tendency to explore the page top-to-bottom and left-to-right
- Interviewees **actively used the explanation** text at the top to understand the graphs
 - Most looked at the explanation first, and then went through each graph
 - Some looked at the graphs first and then checked their understanding using the explanation
- Noone adjusted the dashboard view
 - Usually because they wanted to keep the default (see slide 14)

The Barplot

- Most chose to talk about this graph (3/5)
- Placed value on **straight-forward** nature

"The first one is the most important for me because it presents my results and I can see where my weak points are."

- Students quickly grasp what it shows and how to interpret it
- **Lack of clarity on final grade**
- **Suggestions:**
 - **Passing bar** or weighted sum score to indicate passing at first glance
 - Merge with the second plot / add some element of comparison, e.g. median score line
 - **Adjust score comments** to passing score, e.g. "På god vei" at a score of 80 instead of 60 when the passing grade is 65

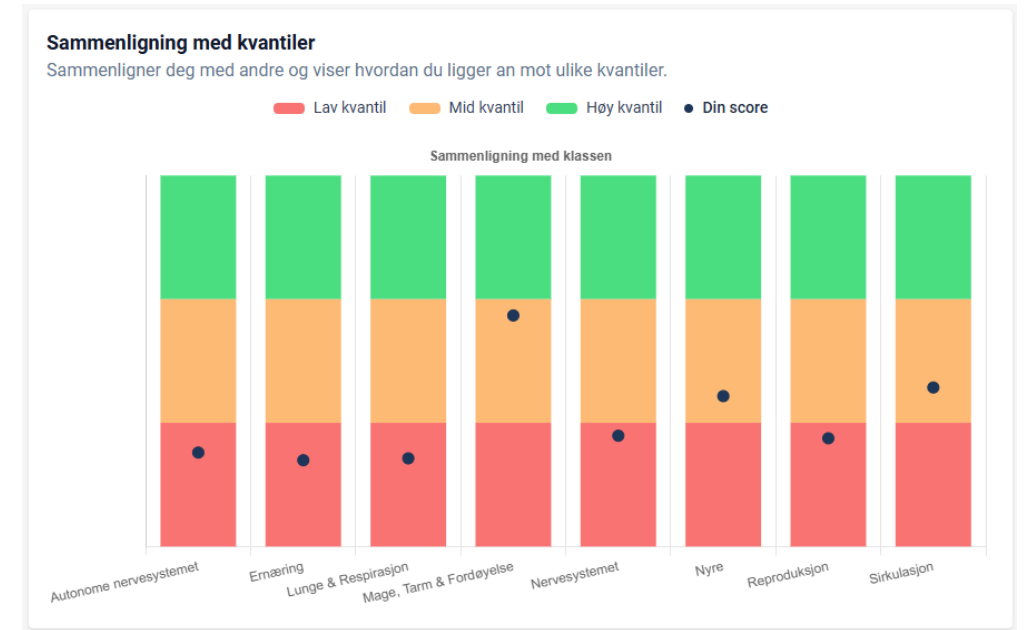


The Quantile Plot

- **Catches interest, but adds some confusion**

"It caught my attention first, then the others. I understand that the colours show how well I did and that I have to work on the ones in red and yellow and that the dots correspond to my score in the first graph, but I was confused that the dots are not on the same height."

- **Colour scheme helps** with interpretation in general
- But interviewees **struggled with the details**
- **Suggestions:**
 - Clearer **explanation of quantiles** (one interviewee drew a normal curve for clarifications)
 - Clearer explanation of how the dots here **correspond to the barplot**
 - Add **y-axis** labels



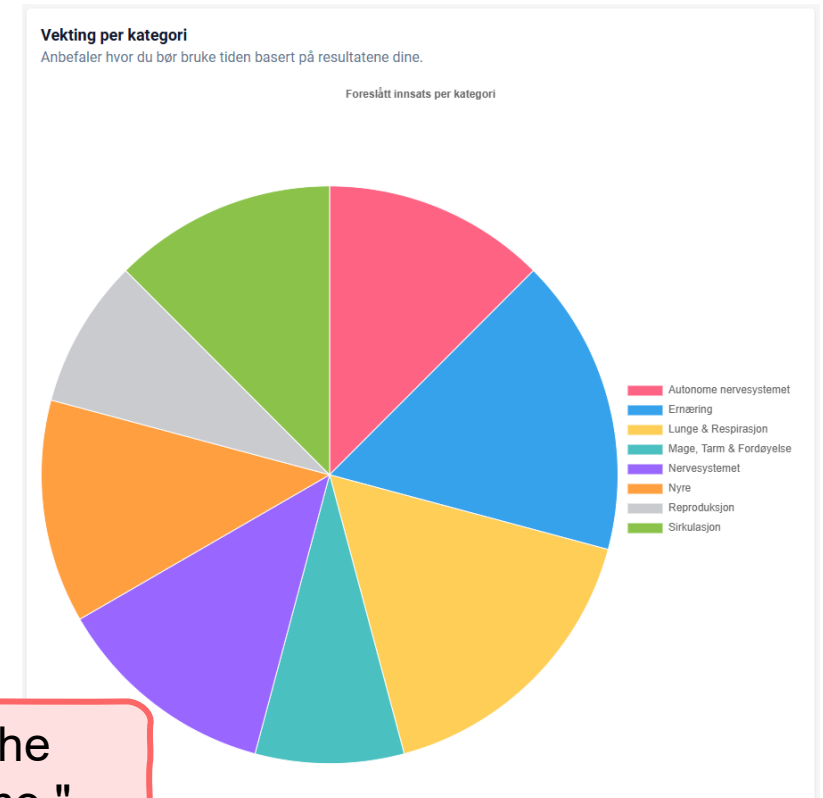
The Pie Chart

- Often **baffled** the interviewees
 - One asked about the weighting of scores and had not realised it is right here
 - **Common misconception**: Somehow presents the exam scores as well
 - Slices too similarly sized, lack information
 - Lack of clarity on what **conclusions** to draw from this

- Suggestions

- Add **percentages**
- Help students connect this to the other graphs
- → Help students draw **actionable** conclusions from this

"It's not directly clear what the anbefalt focus wants to tell me."



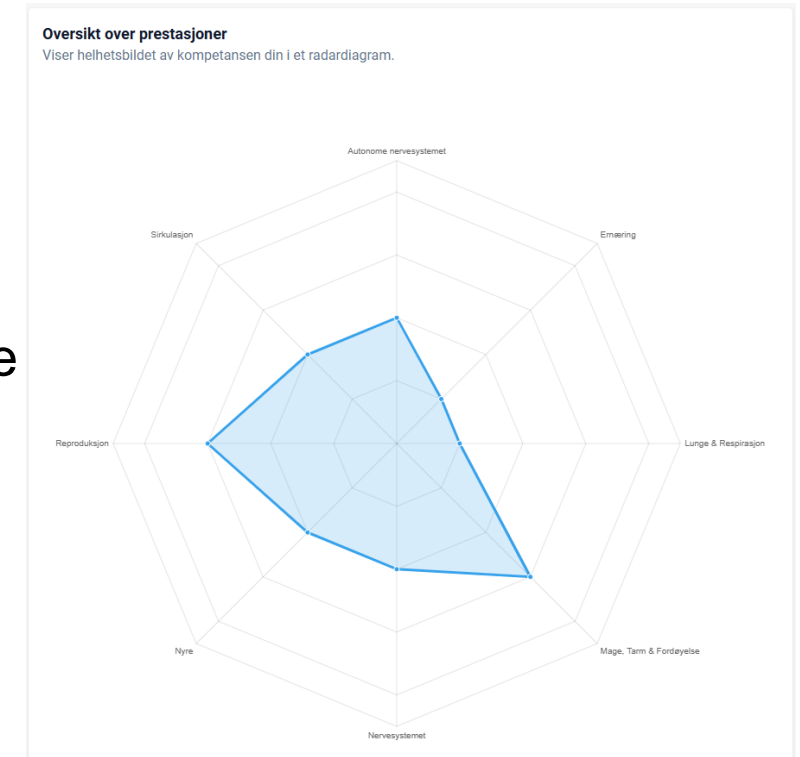
The Net

- **Appealing, but inefficient**

- Did not receive much attention
- Interviewees acknowledge its **visual appeal** as "cool" or "like a videogame"
- Interviewees **do not see any benefit** in this graph over the barplot
- Some struggled to understand this graph

- **Suggestions**

- No suggestions from interviewees



Comparison to the group

- All interviewees kept the group comparison in; usually to look at the default view
- 3/5 refer to mastery goals rather than performance goals, but are still interested in how they did in comparison to others
- When asked:

"I like to **know if I am on par with other students**. As long as I pass I don't care too much that I have to be better than others, but I like to know if I'm approximately on par."

"I would always choose to see the comparison because it gives me the most information, and I want to have **as much information as possible**."

Emotions

Negative

- When asked, students usually alluded to **light** disappointment

"If it came out of nowhere, I would be disappointed, **but it's not so bad.**"

"When I study I **already have this sort of traffic light system set up for myself** so this fits my study habits quite well actually and **I'm used to seeing these colours** and interpreting them in terms of what I should study more."

"I guess you would be disappointed to see a low score but for me I find it very helpful to see what exactly I did bad on. **I generally have no problems seeing a low score because that's just how it is.**"

Positive

Emotions

Negative

- In some cases, a bit more emotionality showed up later on

"I would look at the results either way but **it's harder for me to get over the frustration of not passing so I would need some time** before I look at it."

"I think [the quantile plot] could **hit my self-esteem more, and especially the color red**. The first bar where I am at 66% is actually a good score, but I'm still in the red so this would confuse and disappoint me a bit."

- **Suggestion:** Lighten the colours

Positive

- Interviewees did not say much about this question

"I would be very happy."

"I would feel good, that I succeeded at this subject at least and I would work that into my further studies."

Conclusions

- Interviewees conclude **what** they should work on and draw **no insight** on **how**

"I would think that I did quite well percentage-wise, but the comparison with the classmates would bug me because I would wonder what they are doing that I am not doing that I'm still in the lowest quantiles."

"I would know I have to do something, but it doesn't tell me what."

- Though some note they would **allocate more time** to the subjects with lower scores, **they do not draw this conclusion from the graphs**

"I would focus on the areas I did worst in when studying. (...) I would do more exam questions, read more about the theme."

"I would start on the red parts or the lowest scores and prioritize those that are below 65% and pick it up from there."

"I'm competitive and I like doing well so seeing that I performed mid would make me want to study more."

Goals

- Mastery goals are most common:

"I would set the goal to **raise my scores and do better next time** (...) This would motivate me to push a little more."

"**Pass the exam** and try to get a **decent average**, with **less up and down between subjects**."

"Personally I **don't really like to set a specific number as a goal**. I would personally like to **focus more on the progression I made instead of a hard goal** because I could be disappointed if I missed the goal by only a little."

- Only one interviewee referred to a performance goal in comparison to their peers:

"I would work harder to **get to the average performance** in the class."

Some additional points that came up

- **Simplicity vs. Multi-facetedness**

"I think it's a lot of graphs so it's hard to grasp what each one does. I think it would be **more helpful to combine the graphs** so that my scores are compared to others' scores together with the weighting in one graph."

"I think it's great because **now we only get one graph and a short comment**, like a simplified version of this. As it is now, I don't spend much time with the information I get because **it is too little to be really useful**. This version is more useful because I can look forward to getting the results to learn what I need to improve on (...) **The more information the better.**"

- **Suggestions regarding information-density:**

- Shorten the information text
- Give more info on the whole class
- More in-depth descriptions for each subject, especially for the broader ones

"Add some keywords, like we have in the current solution."

- **Suggestion regarding inclusivity: Dyslexia font**

Some additional points that came up

- Interviewees look forward to formative assessment feature
 - It came up in 3 interviews

"(...) and then **I would take the exam and give the exam questions to AI to generate similar questions** for me to practice with."

"It could show me **what questions I got wrong**, that would really help me so I can see what type of questions I got wrong."

"Oh! That would be really helpful! I am so lost at this point, **I have no idea how the exam will be and how to study for specific exams, so if I could get access to exam questions beforehand, that would help a lot.** I just discussed with my colleagues that at this point in the programme we never know whether we'll pass or what to expect."

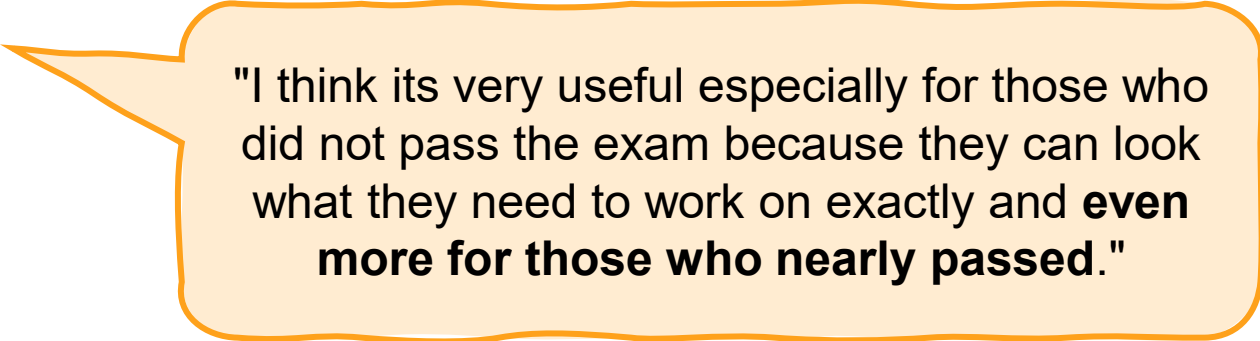
Concluding Remarks

Perceived Ease of Use

- Very few encountered issues
- Many issues could be solved by reading the text
- Remaining issues only regarding details
 - Unclear functionality of "tilpass dashboard"
 - Text not dyslexia-friendly

Perceived Usefulness

- Interviewees agreed the prototype is most useful for students who failed the exam
- Most do appreciate any additional information they can get



"I think its very useful especially for those who did not pass the exam because they can look what they need to work on exactly and **even more for those who nearly passed.**"

Concluding Remarks

Additional Q: Would you look at this if you passed the exam?

- **Most people agree**, but they would **spend less time and effort** and only look at it out of curiosity, not systematically

"Yes, I think so. Maybe I wouldn't do much with it because I did well enough, but I would still be interested to see what I did particularly good at and how I compare to the other students."

"Something like this would be very helpful for me. (...) Because just the grade doesn't really give a lot of information and **as a future doctor I would really like to know what I can do better.**"

Key Take-Aways for us



Bar plot is the clear favorite

Preferred by everyone as the clearest and most trustworthy graph. Suggested improvements: a passing-grade line and comparison elements are expected to have a big impact.



Quantile plot needs clarification

It draws attention, but details get confused easily: the dot-to-bar plot correspondence and missing axis labels caused issues.



Group comparison stays

All 5 participants wanted to keep group comparison, mostly as a motivator.



Formative assessment most anticipated

The most anticipated upcoming feature among participants.



Usability is solid

Participants found the current experience intuitive, and the "forklaring" (explanation) option was actively used.