User-centered design in practice
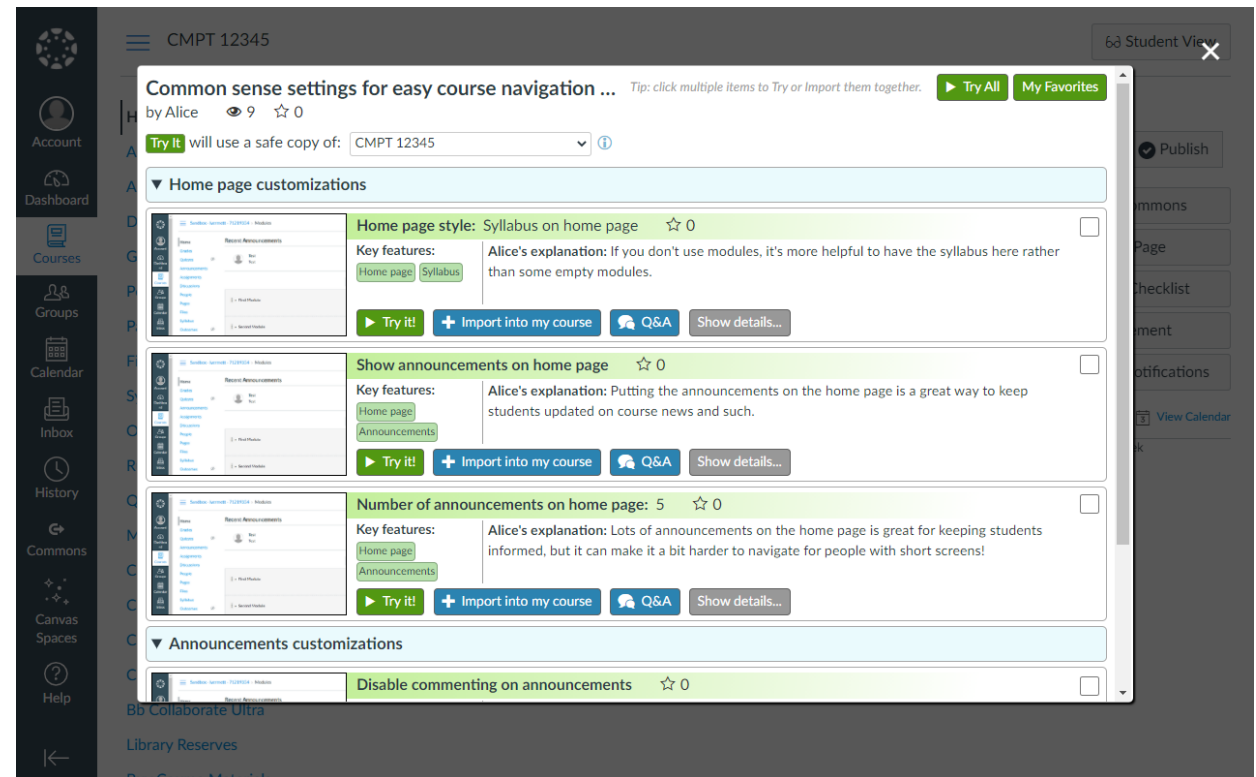## Helping educators customize their digital classrooms

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ixlab | interactive experiences

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SFU SIMON FRASER UNIVERSITY
ENGAGING THE WORLD

UBC

Learning management systems offer educators many features...

Blackboard LMS

Canvas LMS

Moodle LMS

...but creating effective courses can involve a steep learning curve.

Instructors need to **customize** their courses

Application settings

Course structure/navigation

External plugins

Bob

- Teaching 1st year math courses
- Trying out flipped classrooms
- Needs lightweight graphing tools built-in

It's common to seek social help from colleagues
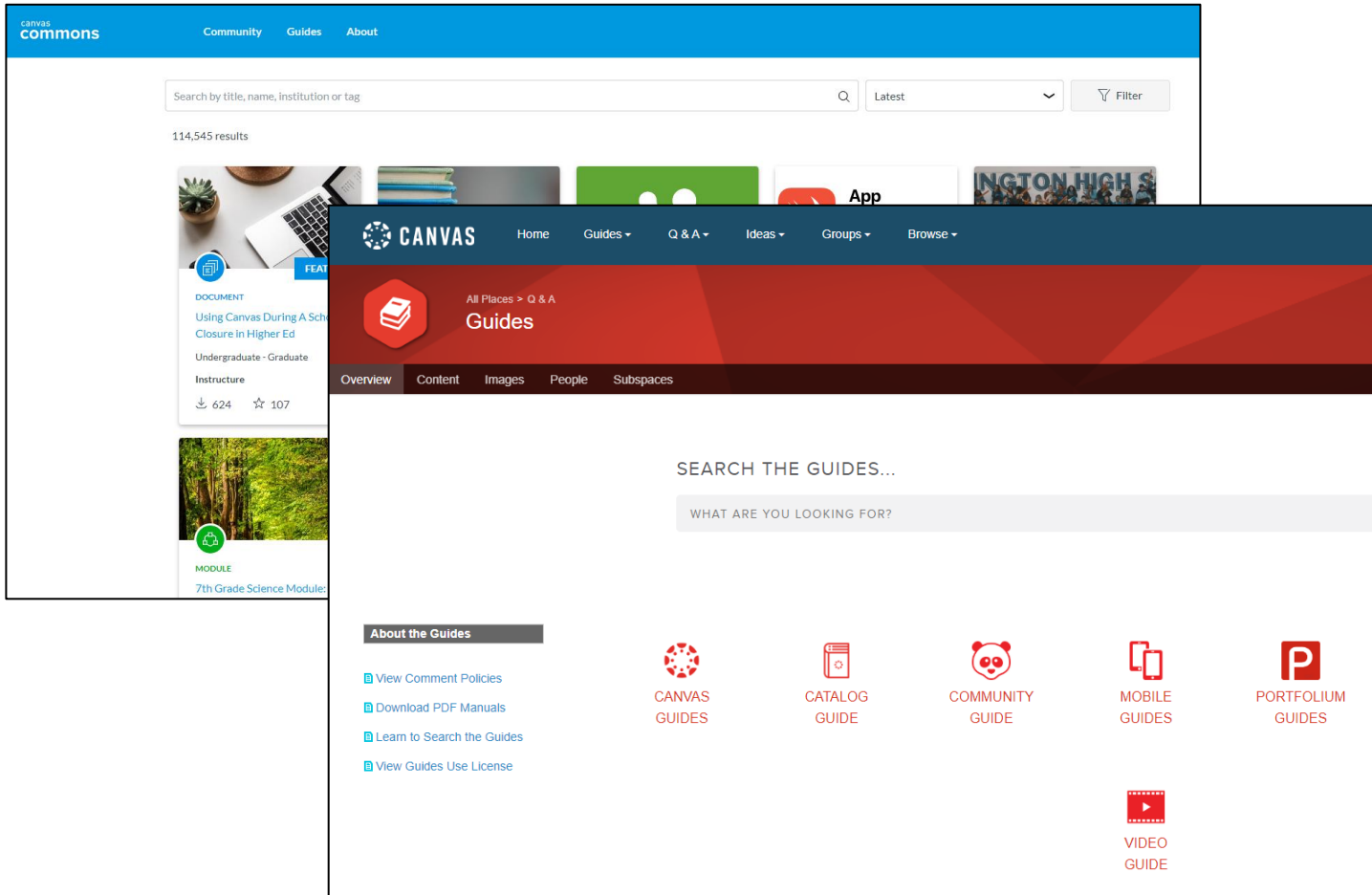
Online help & documentation

We wanted to better understand how instructors approach this problem...

Interviewed 10 post-secondary educators

Semi-structured: following a rough script, but also probing interesting lines of thought
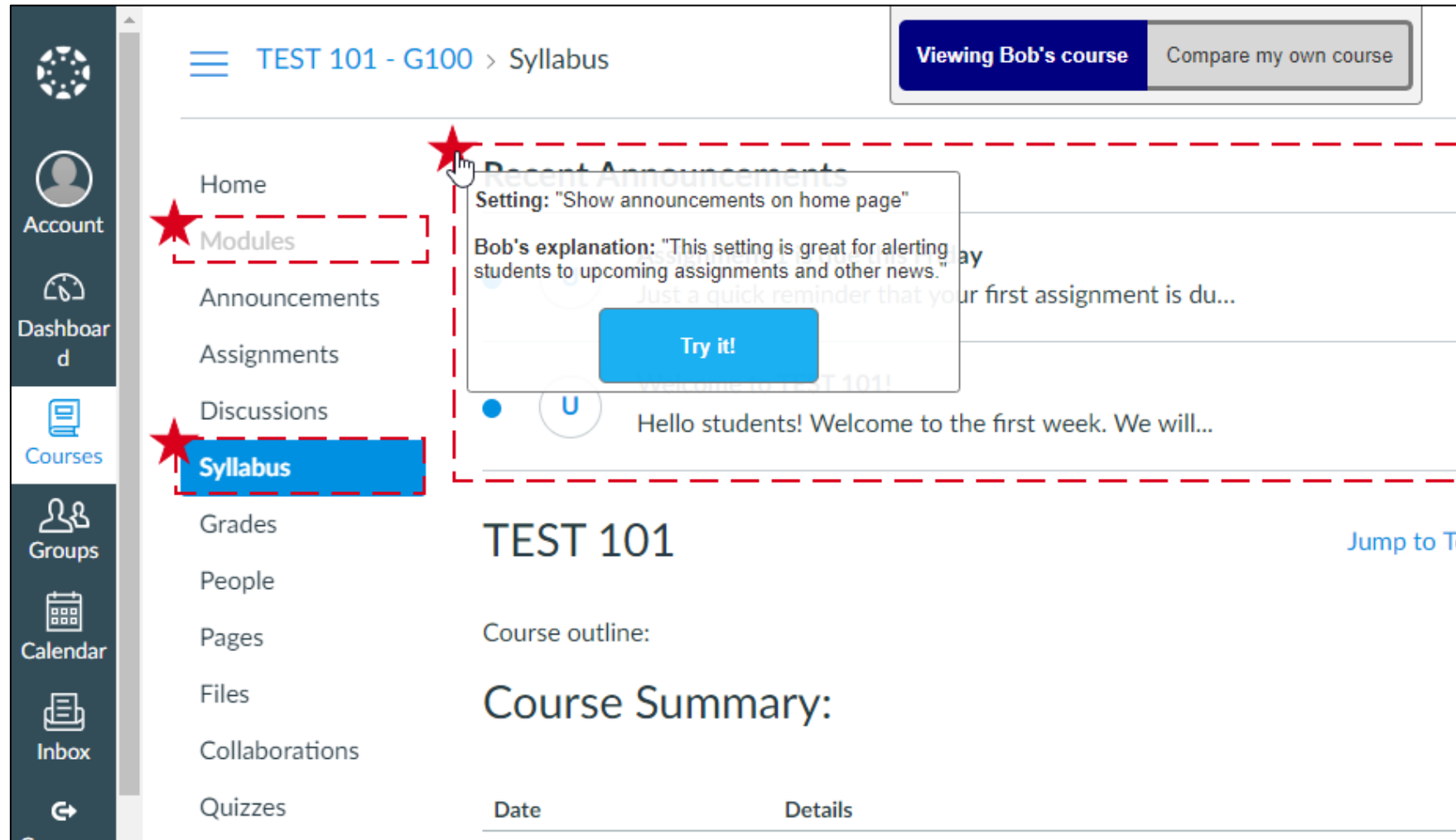
Qualitative coding: tagging snippets of the interview according to topics, sentiments, tasks, etc.

– Then collapsing these "tags" into higher-level **themes**

Key insights:

1. Very common to rely on **example customizations** for both *task-oriented help* and *inspiration*

2. Often end up engaging in **exploratory learning** (e.g., trial-and-error)
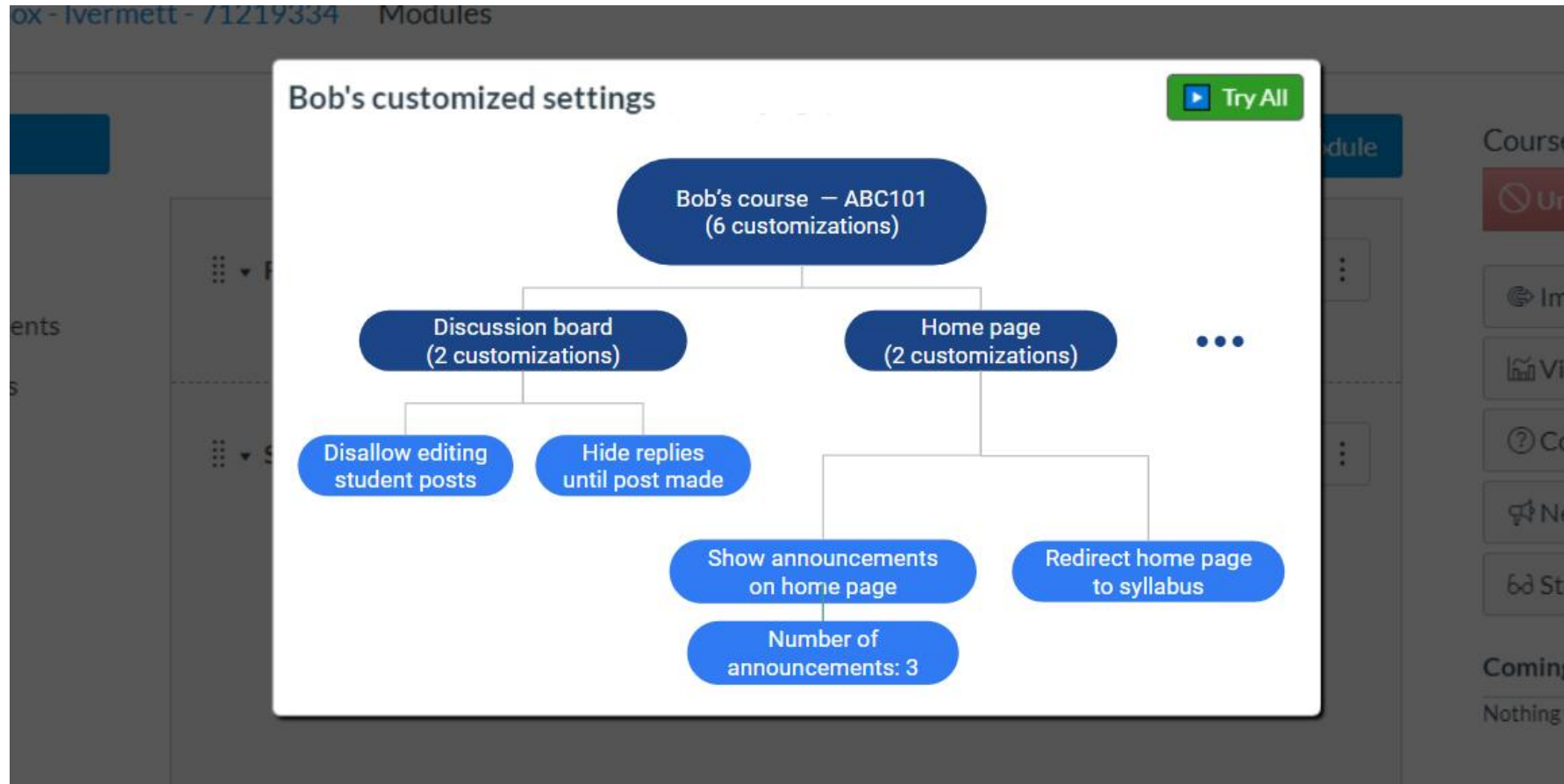   - But perceived as too risky in live/ongoing courses

Prototyping and participatory design
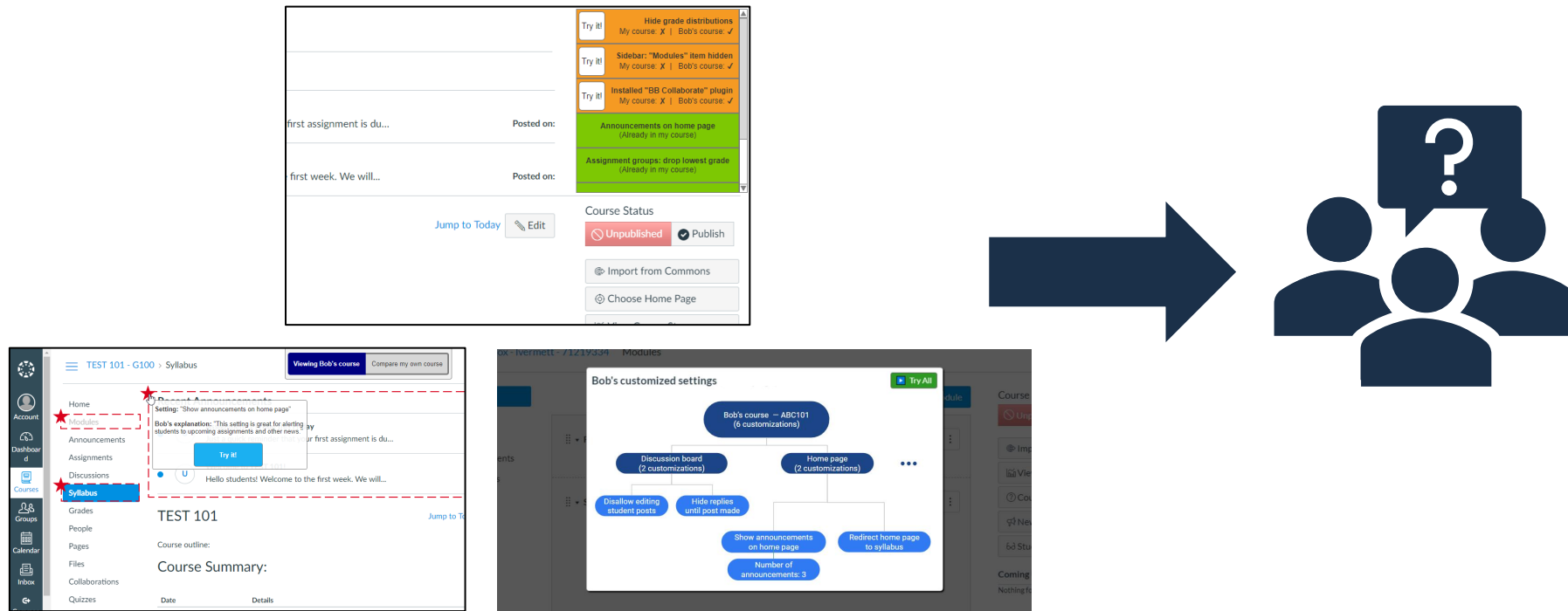
Prototyping and participatory design
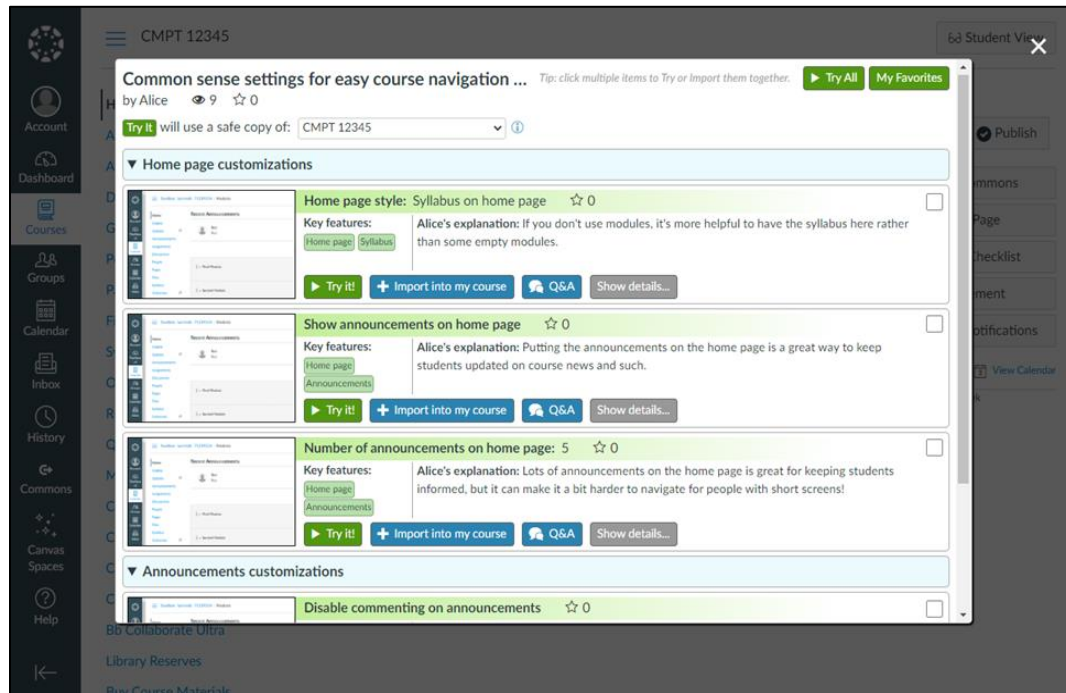
Prototyping and participatory design

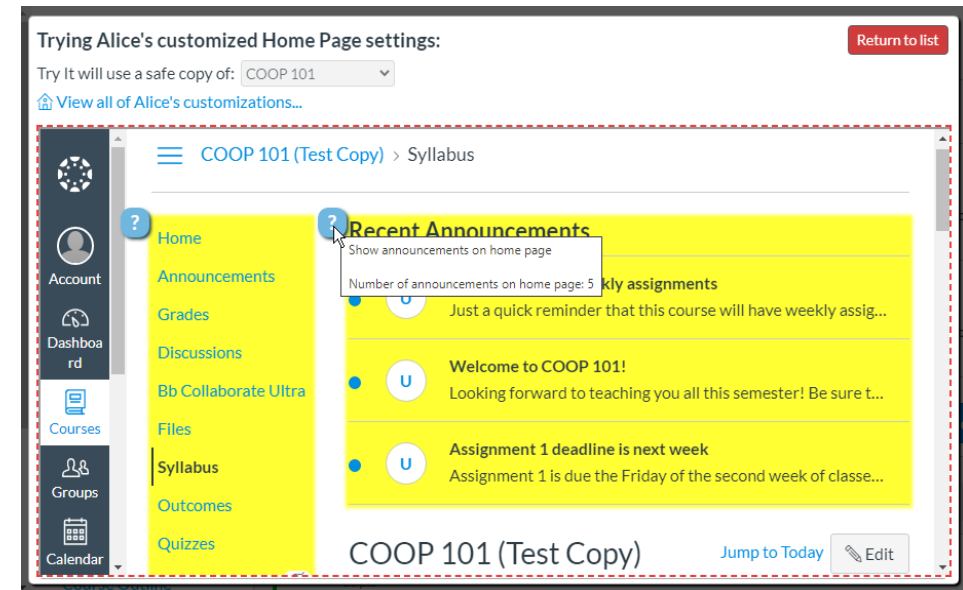# Prototyping and participatory design

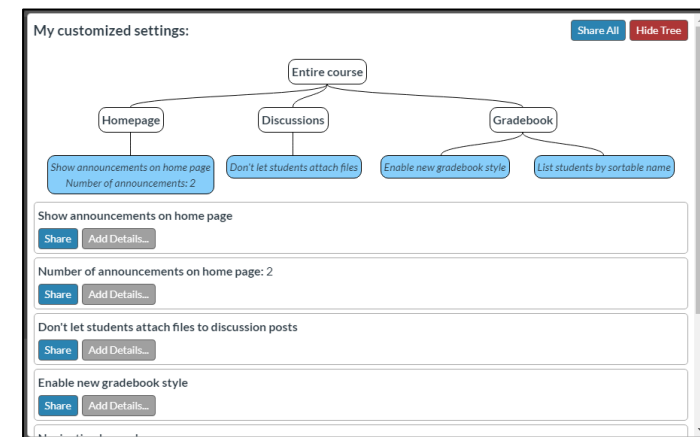Further 10 interviews, letting participants try the prototypes and offer feedback/ideas

Customizer: a platform for example-based customization sharing

Customizer's *Discovery Interface*

Customizer's *Exploratory Interface*

Customizer's *Authoring Interface*

Customizer: a platform for example-based customization sharing

Discovery interface for finding shared examples

Full demo video available at: https://dl.acm.org/doi/10.1145/3357236.3395507 (scroll down to supplemental materials)

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Browsing another instructor's customizations…

Exploratory mode to "try out" customizations in context

Authoring tools to review and share my customizations

A course with default settings only

Authoring tools to review and share my customizations

A course with several customizations

A few highlights from our usability study…

10 more participants (instructors & TAs) completed 3 usability tasks

Customizer's **context-based discovery** features were particularly intuitive
- Participants preferred using page context rather than search queries
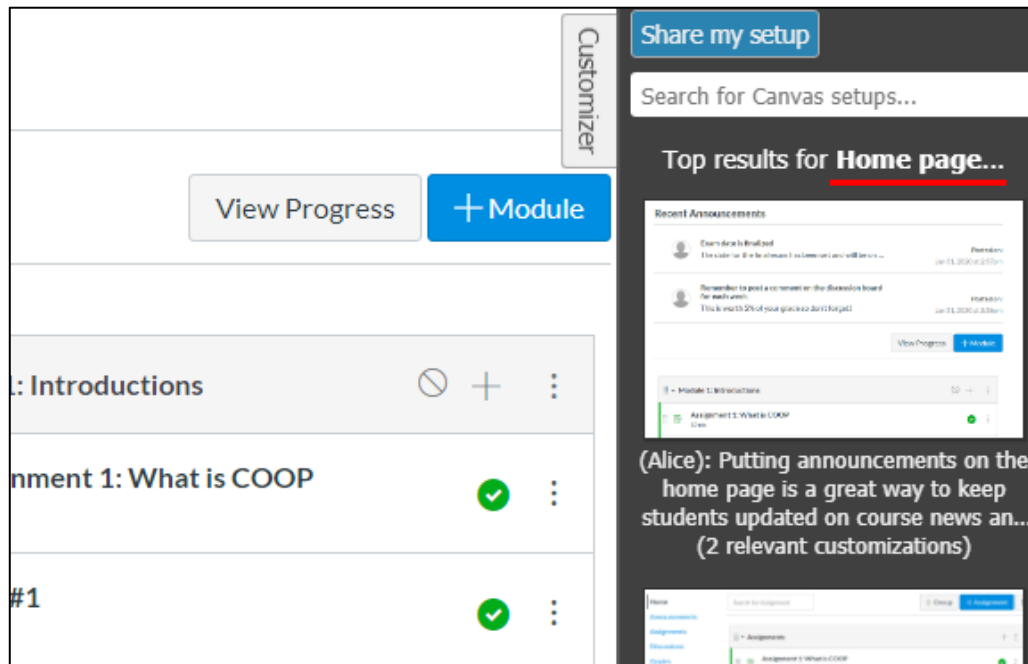
Participants were particularly fond of the exploratory mode

Similar to "guest" or "visitor" mode, but
with **full instructor permissions**

A variety of **interesting & surprising uses** for
the exploratory mode, e.g.:

– Confirming intuition about a customization's purpose

– Visually comparing two different instructor's courses

Some tips for prototyping & user-centered design

- Mock-up **lots of different ideas** and test them out with target users!
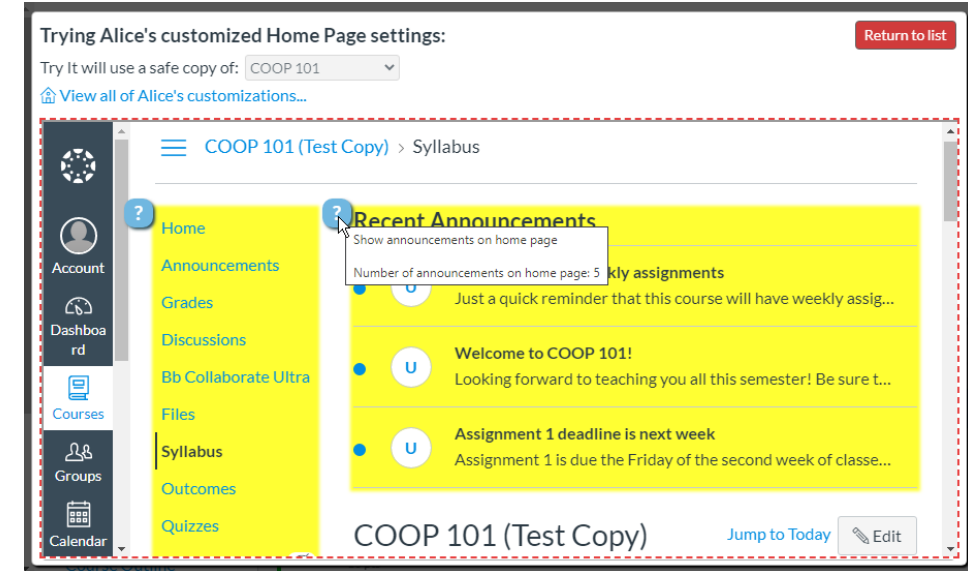
- Iterate frequently -- sometimes you need to "return to the drawing board" and rethink ideas

- You don't always need to use professional prototyping tools; sometimes it's easier to just kludge something together for quick feedback

Thanks for your attention!

Questions?