

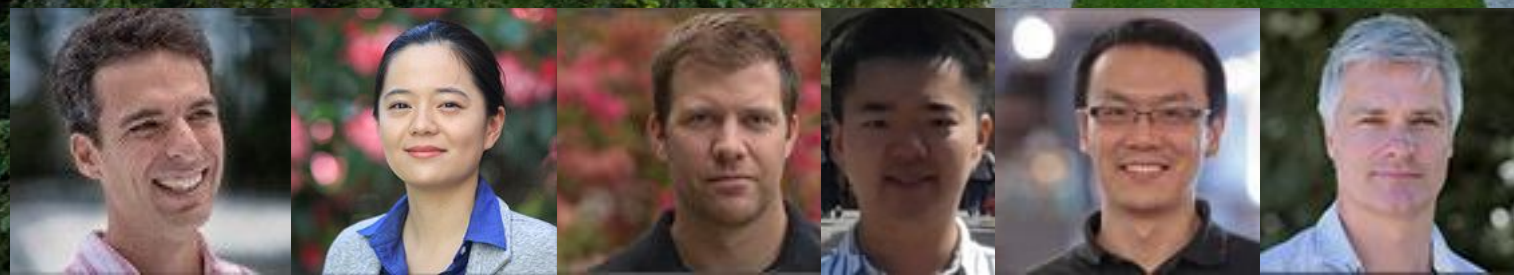
# Visualizing course data using VizIT

University of British Columbia

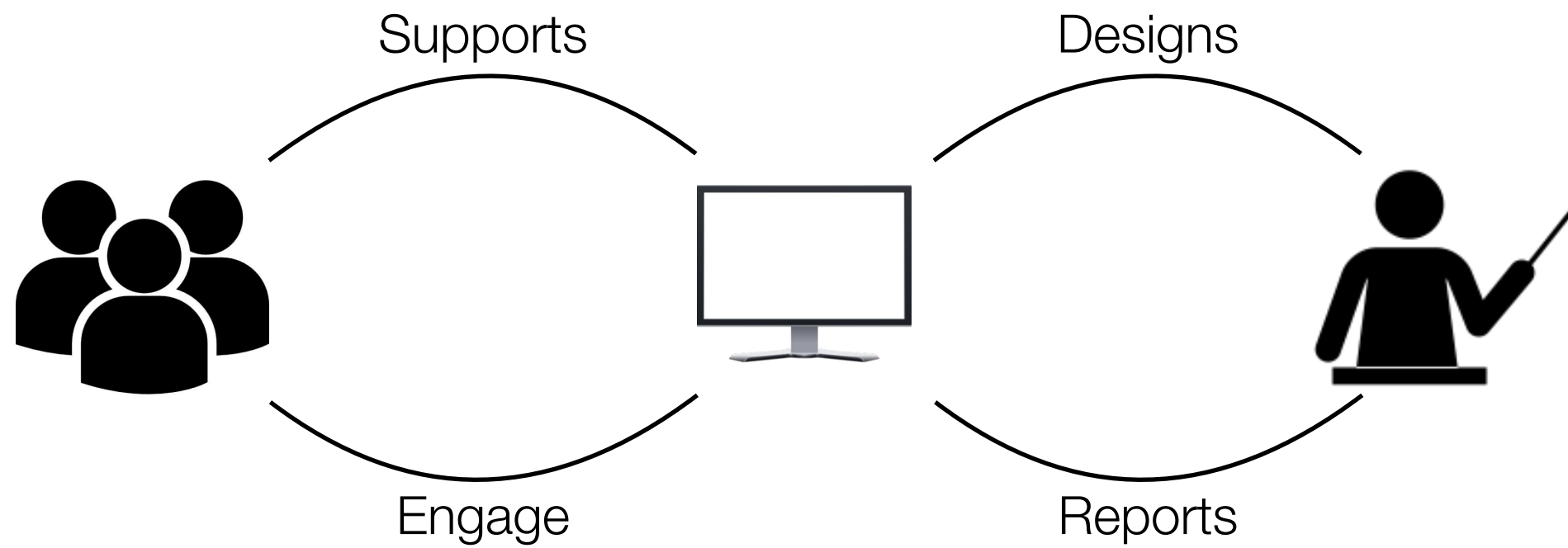
**Derek White & Pan Luo**

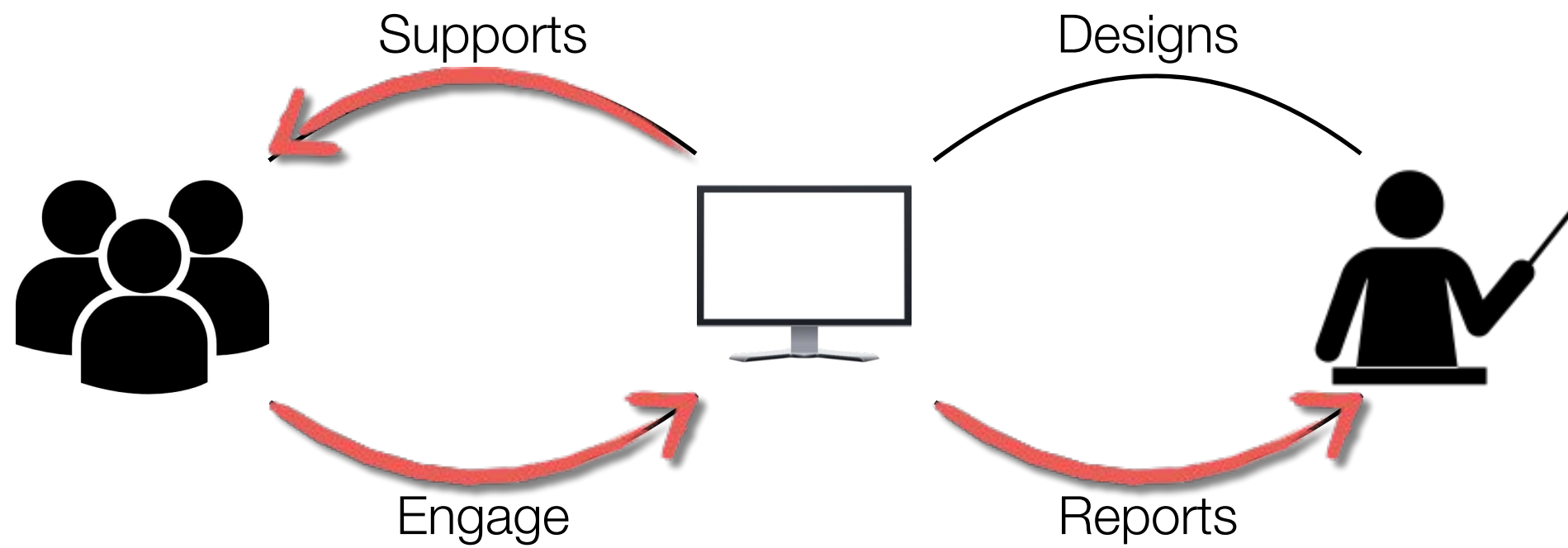


Ido Roll, Katrina Ni, Scott Mcmillan, Justin Leong

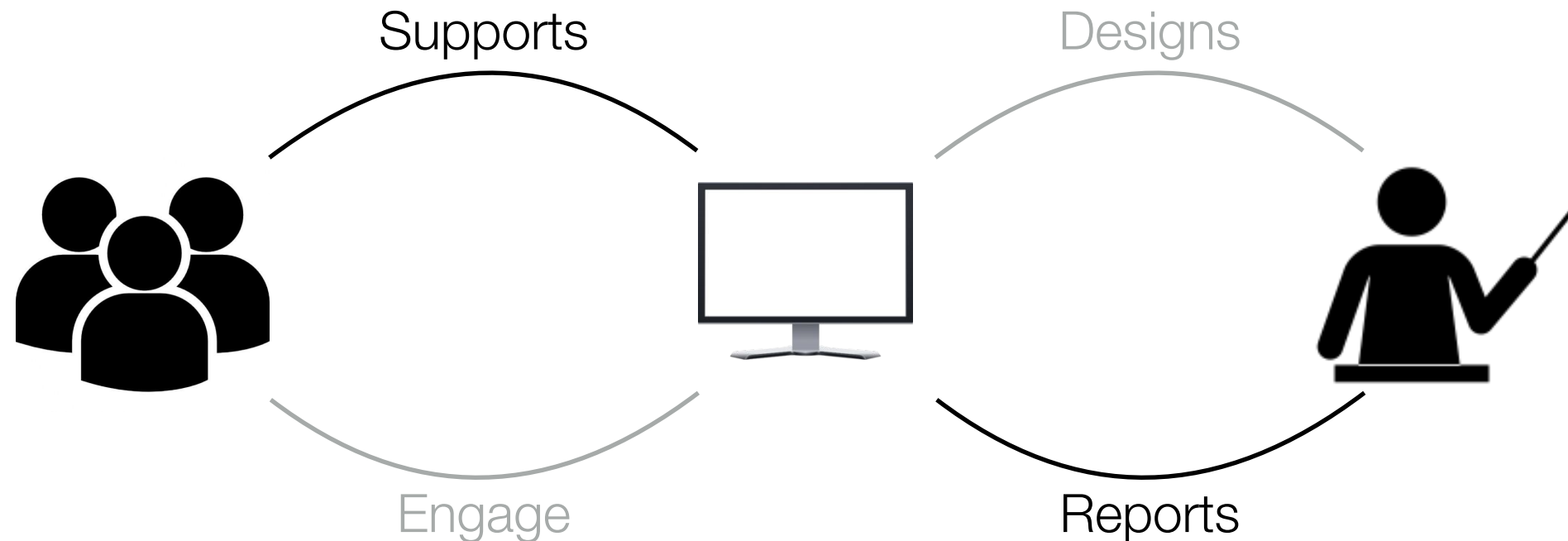






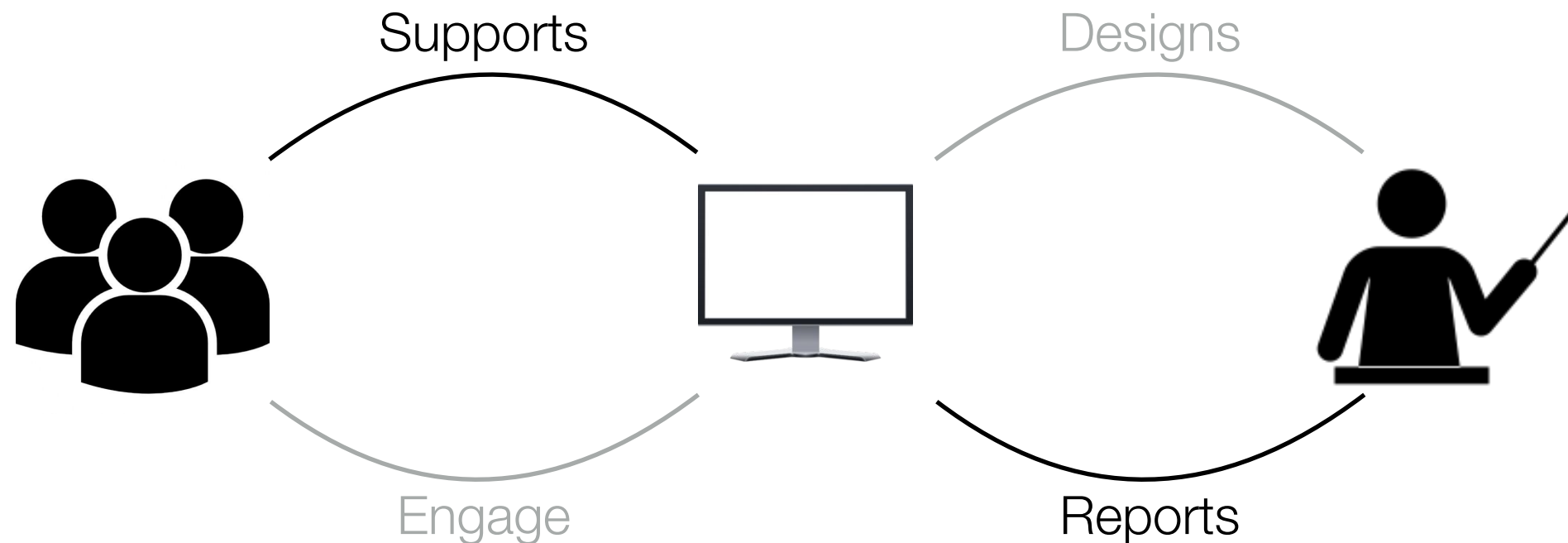


# Data Collection



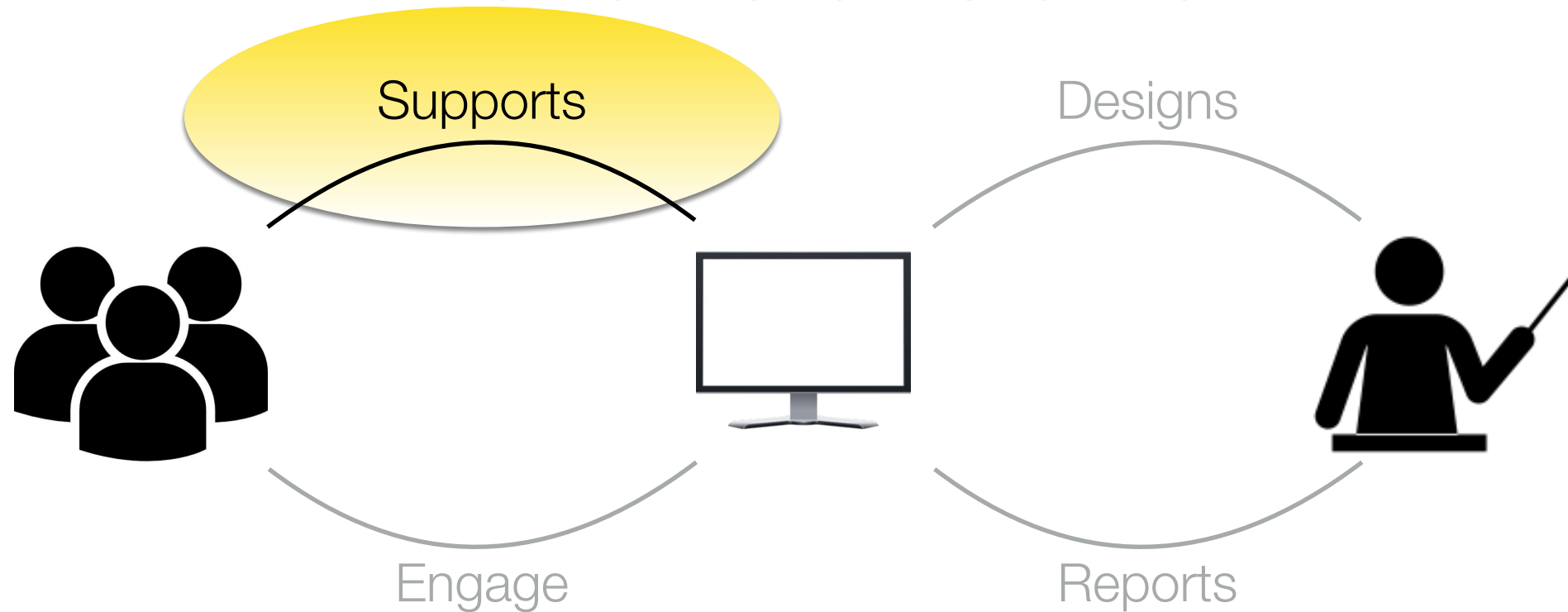
- Think of the MOOC you were the most engaged in. Did you...
  - Interact in any way with other learners?

# Data Collection



- Think of the MOOC you were the most engaged in. Did you...
  - Get what you wanted out of this experience?
  - Pass the course?
  - Complete the course?

# Data Collection



Learning in a MOOC is a solitary journey.

Submit to the Climate Change Map (External resource)  
(4.0 / 4.0 points)

Role of science in Decision Making?  
discussion posted 6 months ago by SaraEHarris

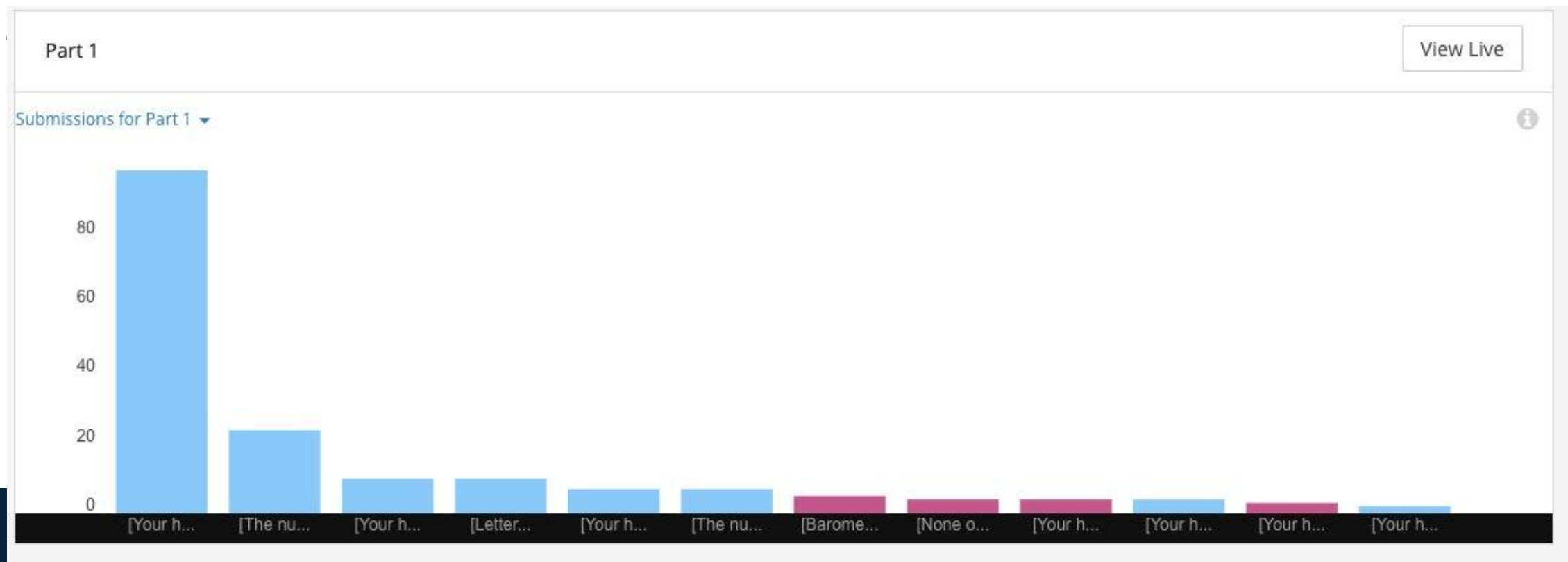
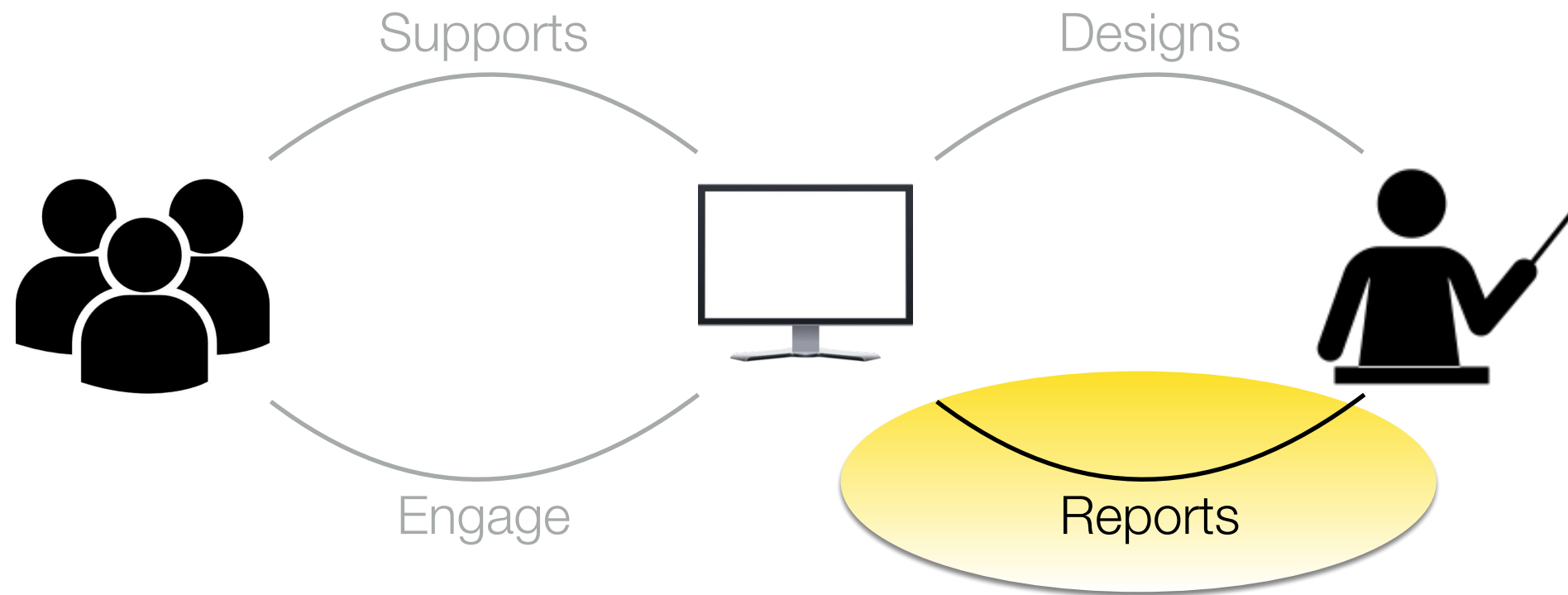
What role do you think science should play in decision-making?

Related to: Module Discussions / 1. Course Introduction - State of the Science  
This post is visible to everyone.

41.7%  
33.3%  
25.0%

50.0%  
25.0%  
25.0%

# Data Collection



# Goal: an Instructor-Facing Dashboard

- Acknowledges diversity of learners and goals.

- Different intents.
- Diverse backgrounds.
- High learner agency.

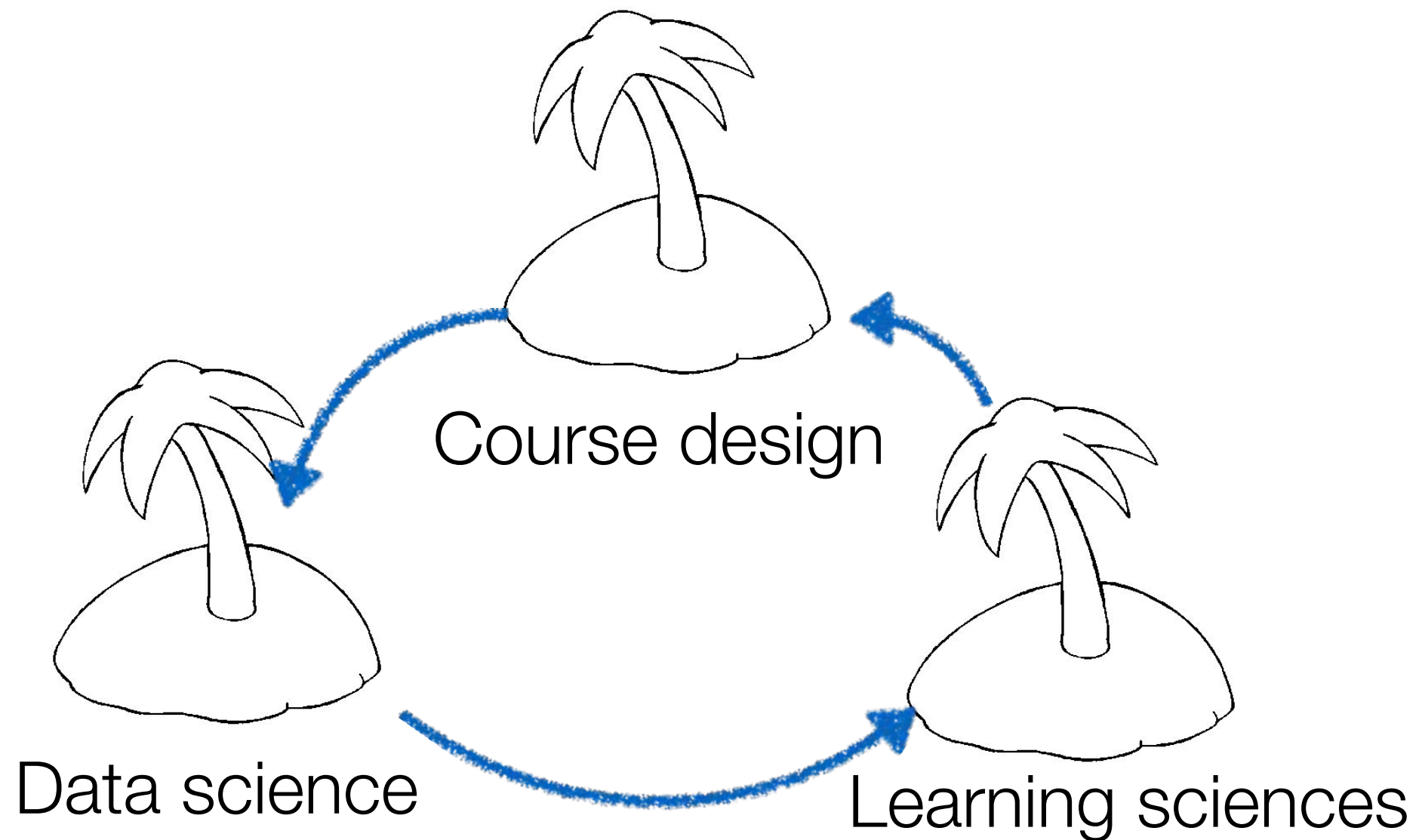
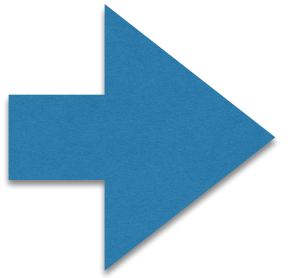


- Offers meaningful measures of learning.
- Provide information, not data.
- Institutional view, comparing courses



# Design Principles

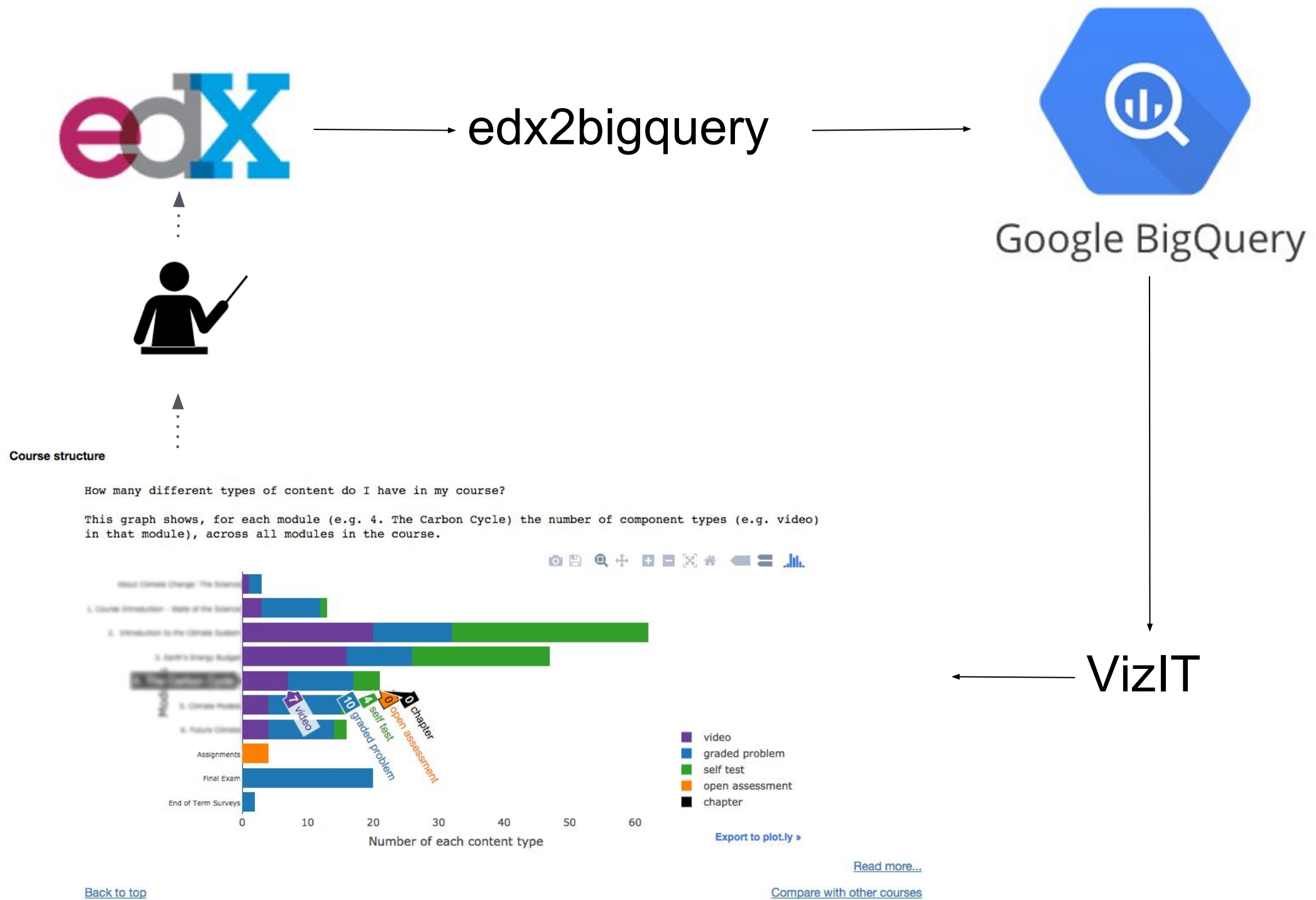
- Actionable information



# Design Principles

- Actionable information
- Course structure <-> engagement
- Big picture and details where appropriate
- Semantic information

# Data Flow



# Context

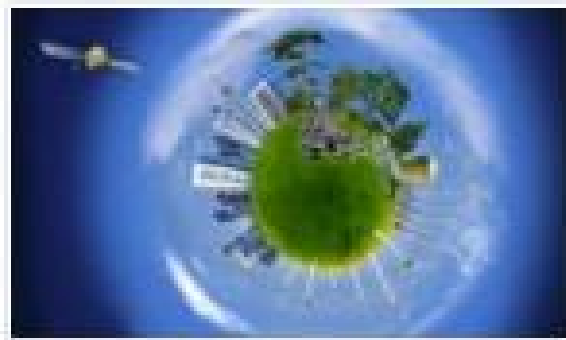


## Introduction to Marketing

UBCx - Marketing1x  
Started - Jan 05, 2016



[View Course](#)



## Climate Change: The Science

UBCx - Climate1x  
Ended - Jun 24, 2016



[View Archived Course](#)



## How to Code: Systematic Program Design - Part 1

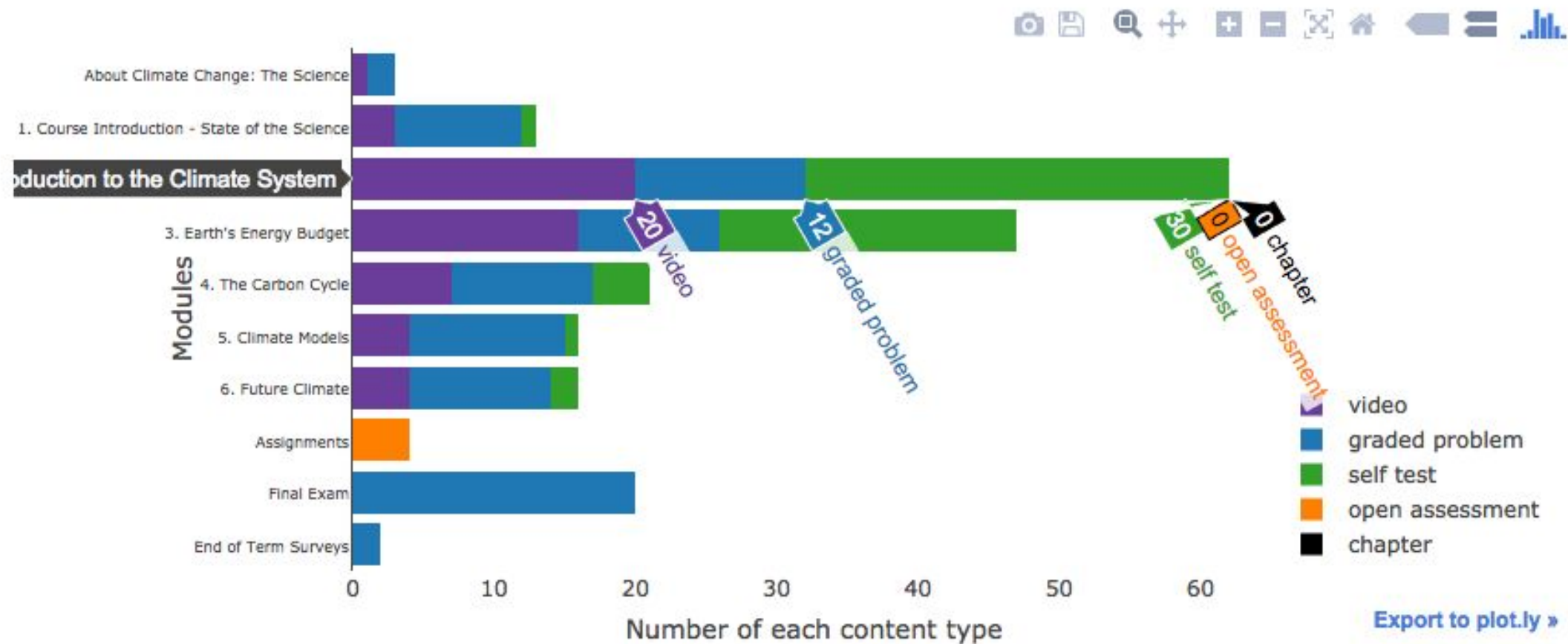


# 1. Overview

## Course structure

How many different types of content do I have in my course?

This graph shows, for each module (e.g. Final Exam) the number of component types (e.g. video) in that module), across all modules in the course.



[Back to top](#)

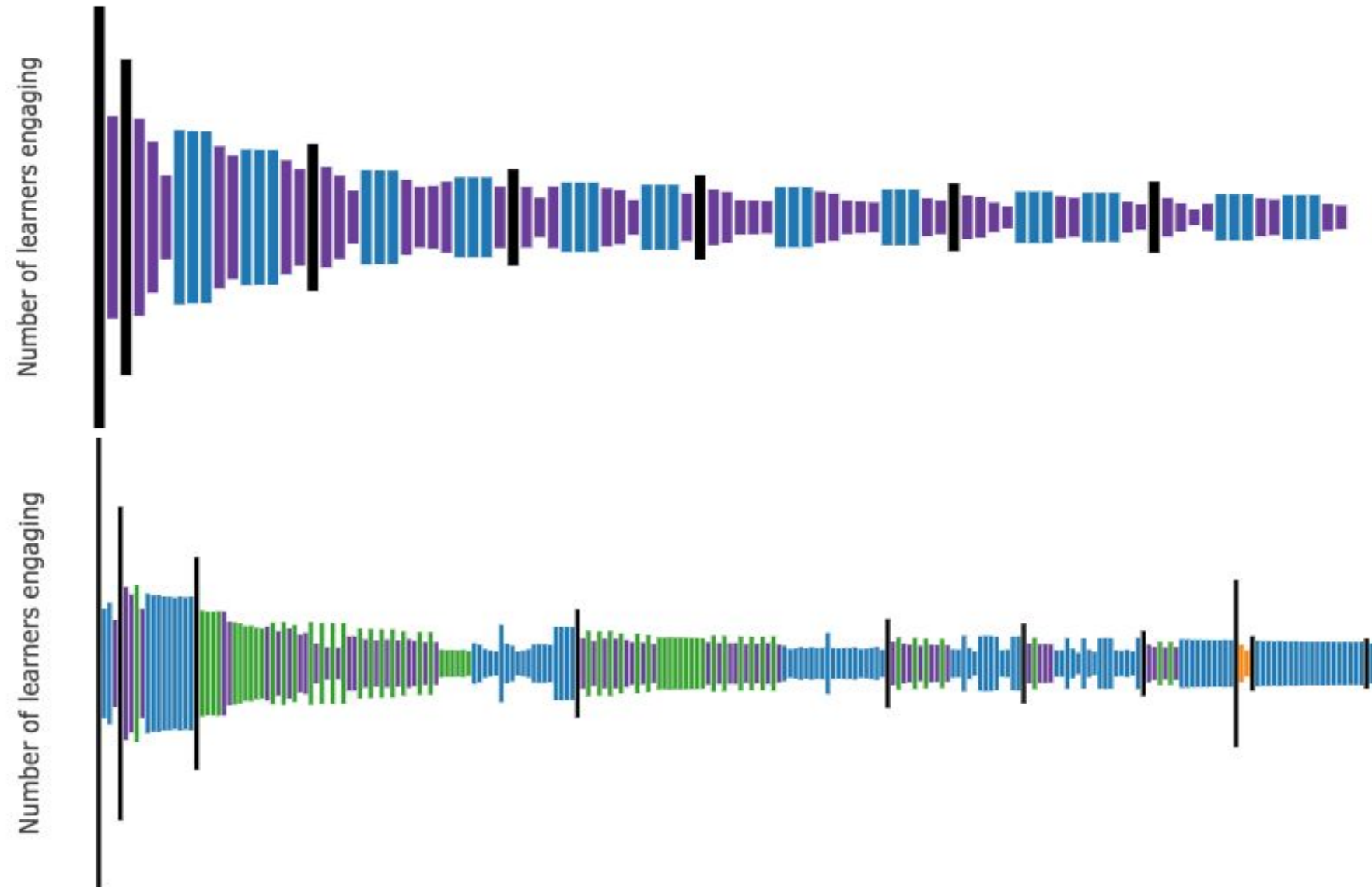
[Read more...](#)

[Compare with other courses](#)

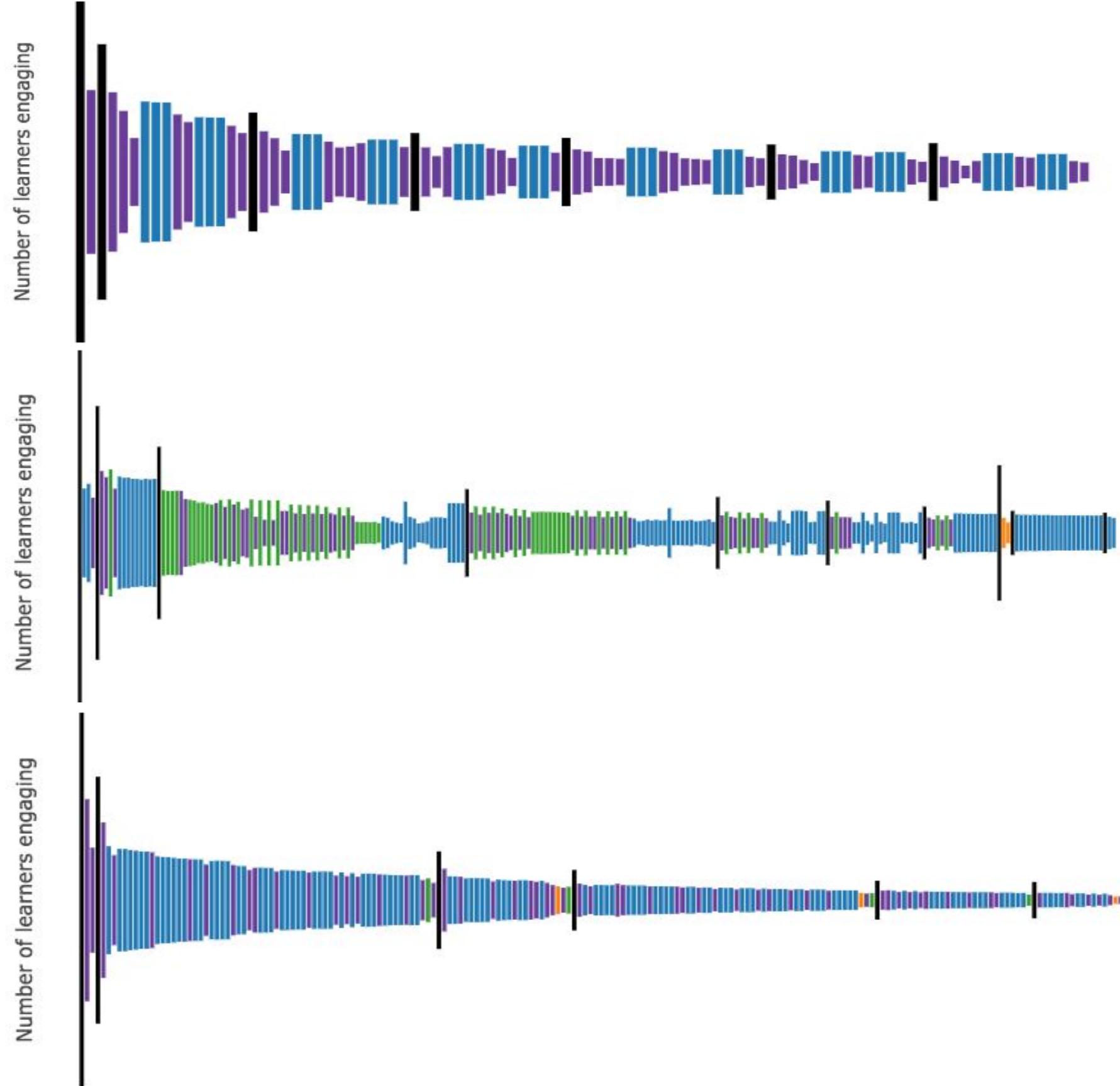
# 1. Overview



# 1. Overview

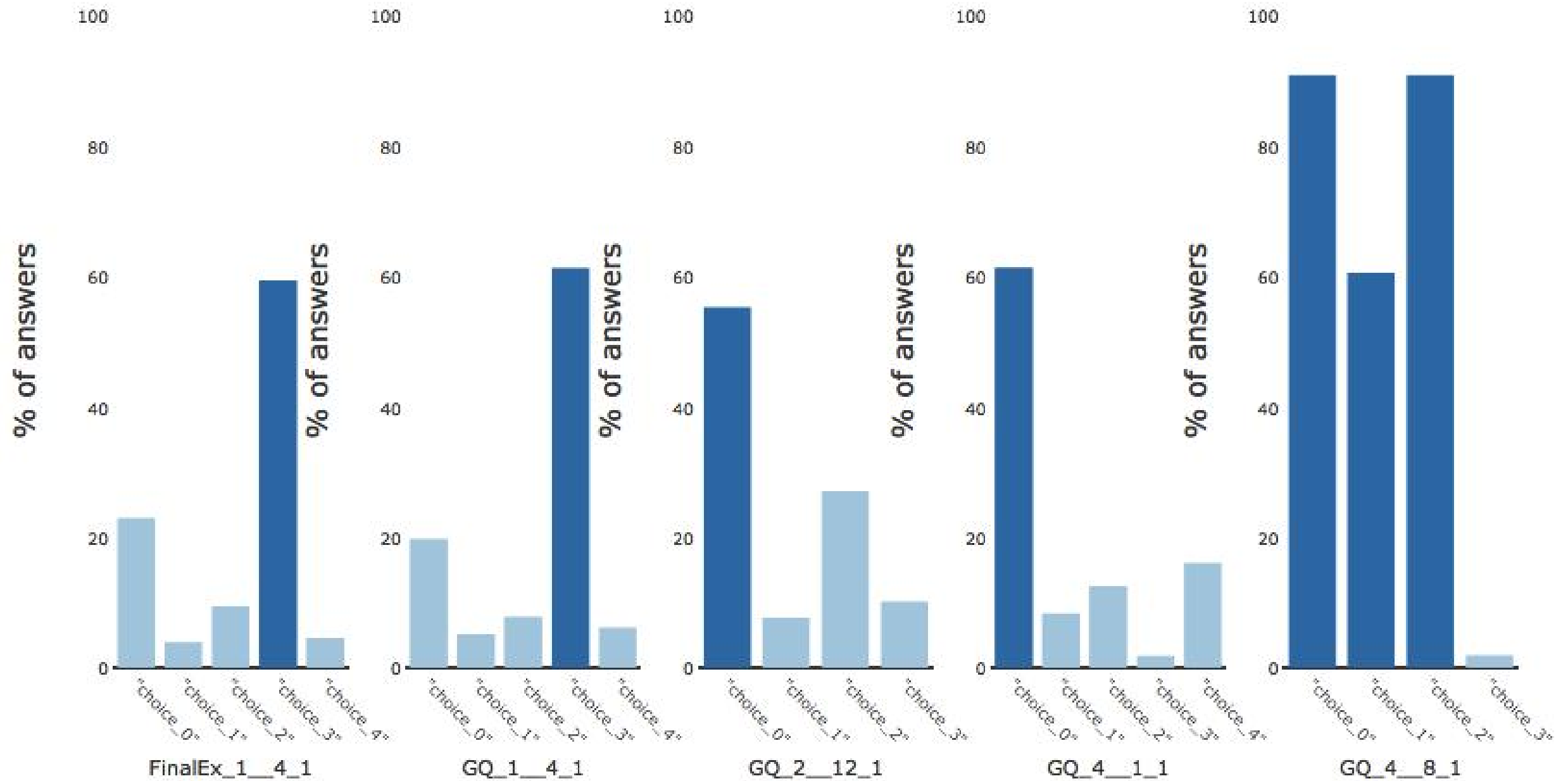


# 1. Overview

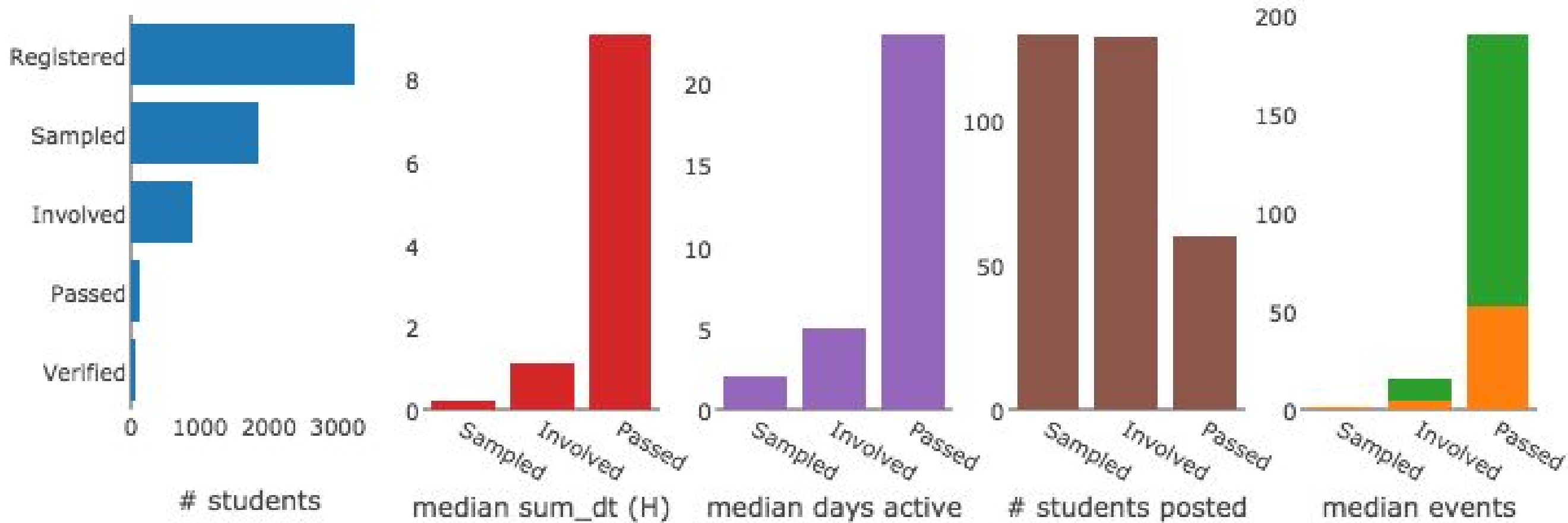




# 1. Overview

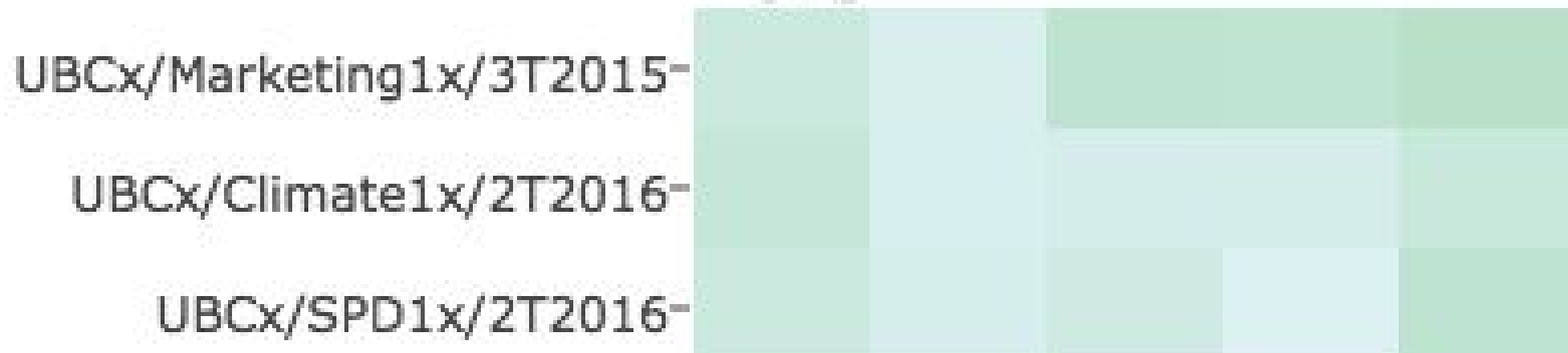


# 2. Involvement

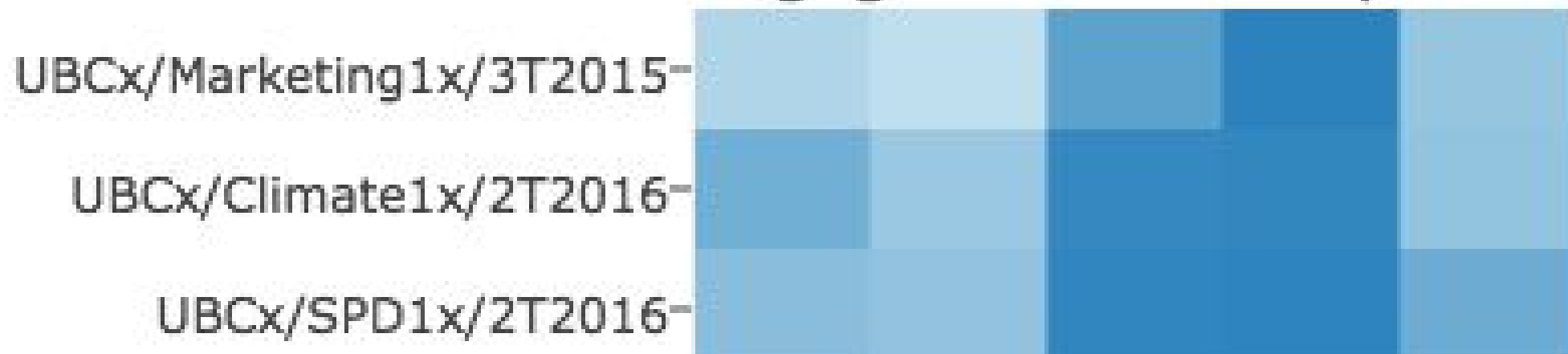


# 2. Involvement

Engagement for the involved

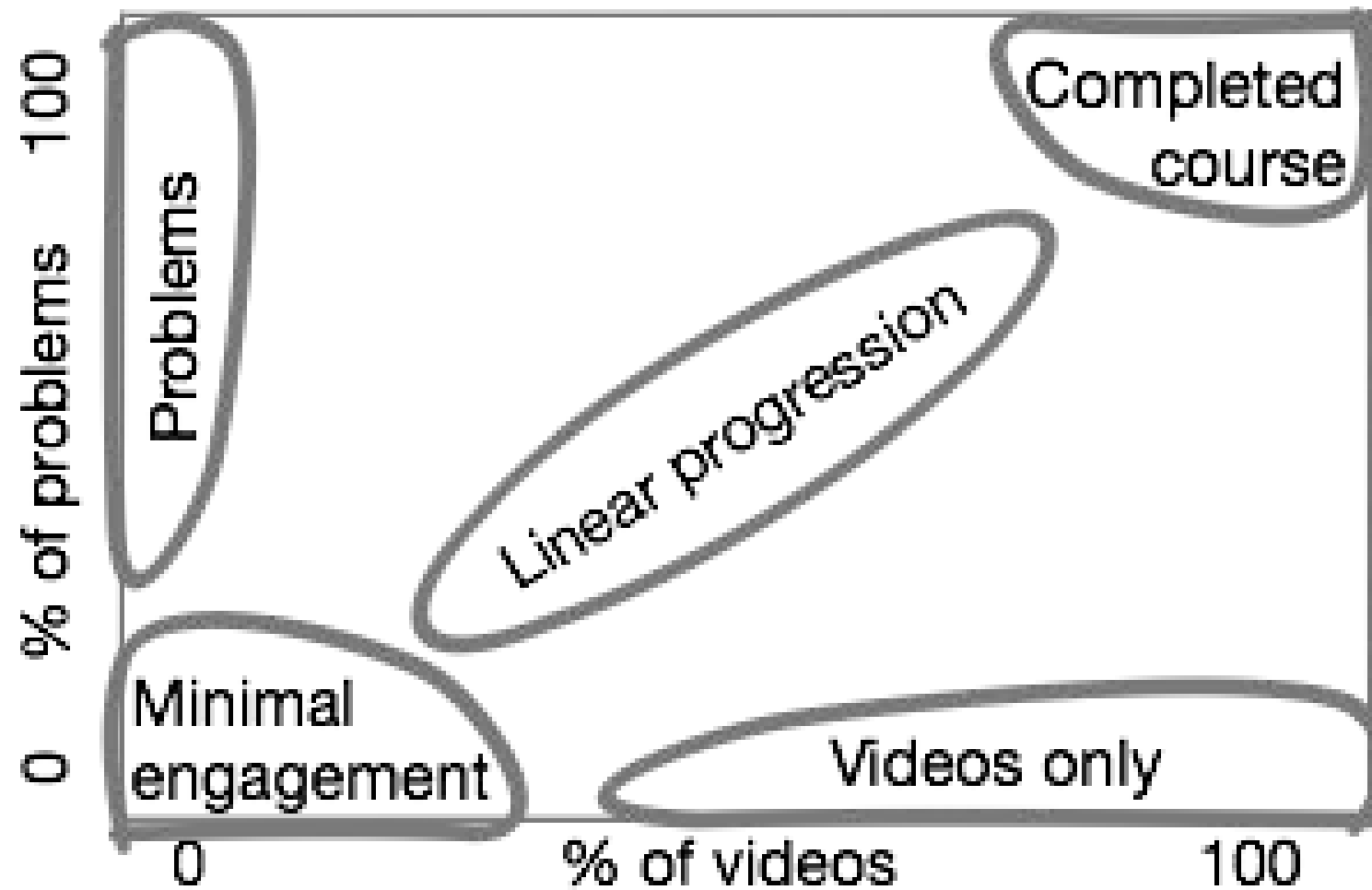


Engagement for the passed



median days active  
 median sum\_dt (H)  
 median % videos  
 % students posted  
 % problems

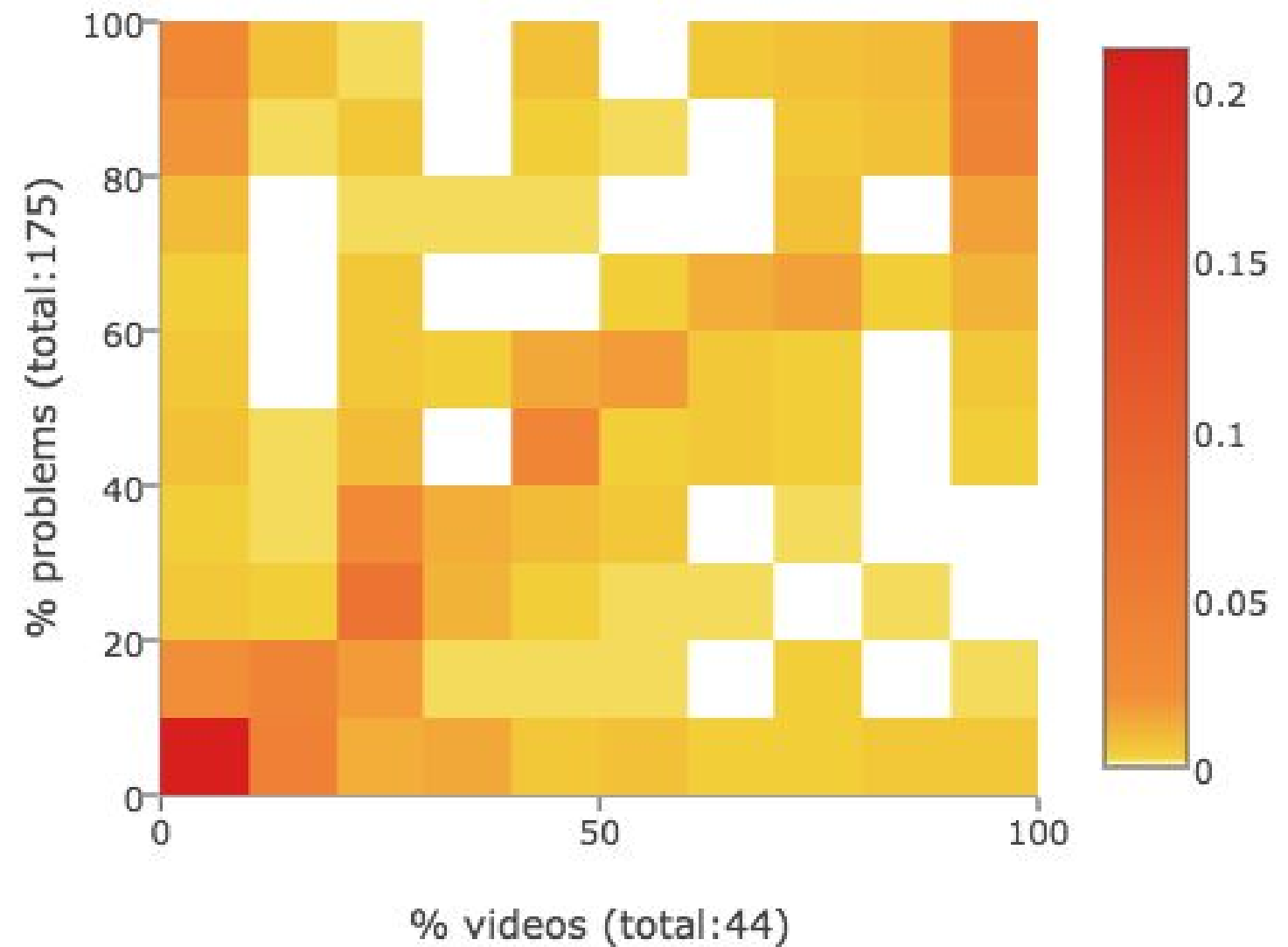
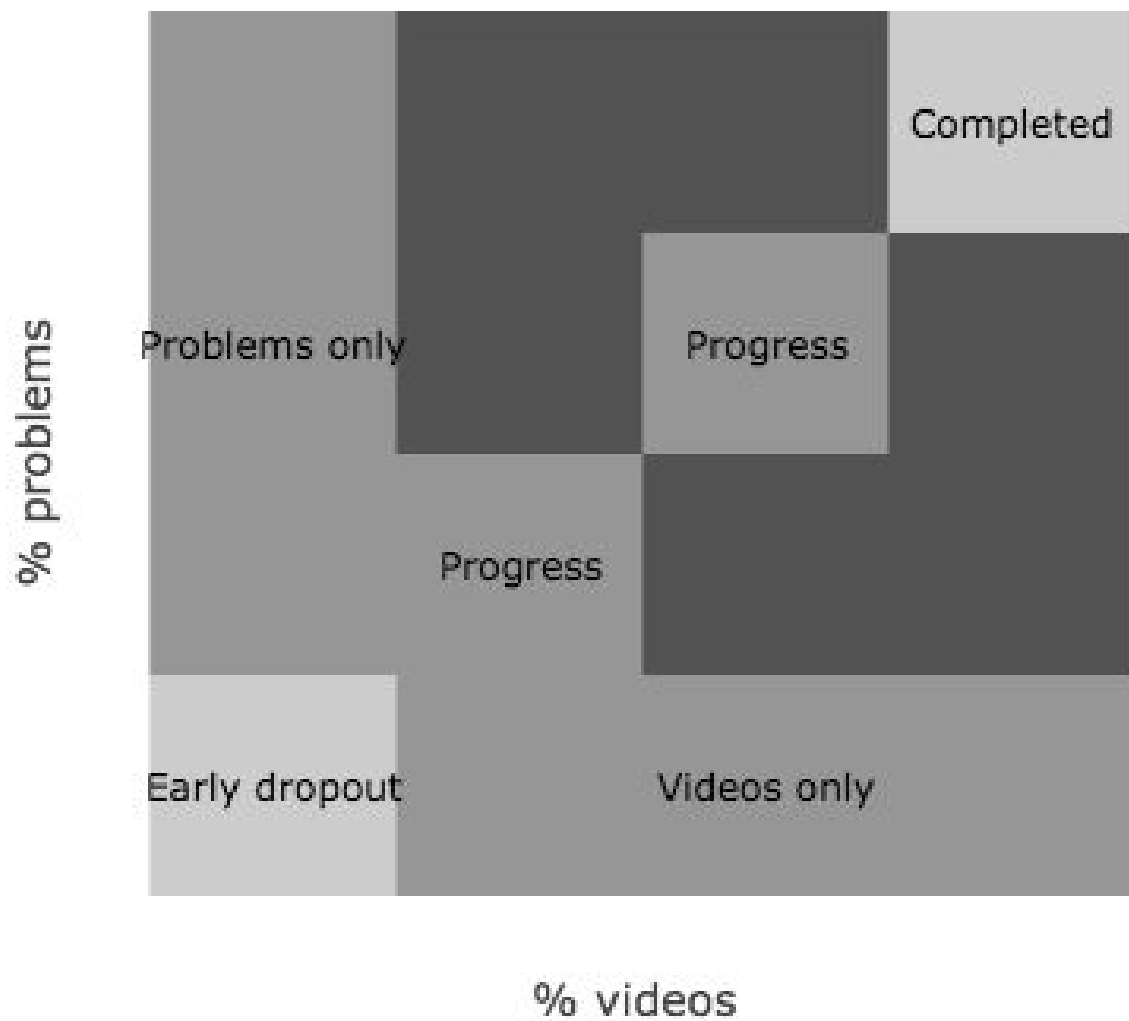
# 3. Engagement





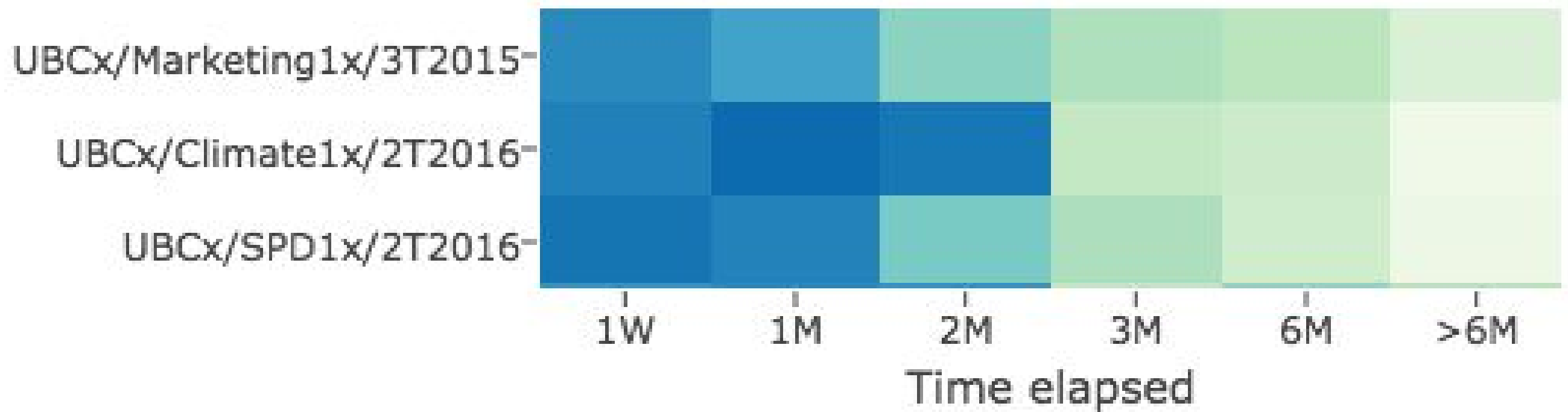
# 3. Engagement

Density map illustrating pattern of video and problem activity for the involved



# 4. Value

Time elapsed between first time and last time students accessed course items



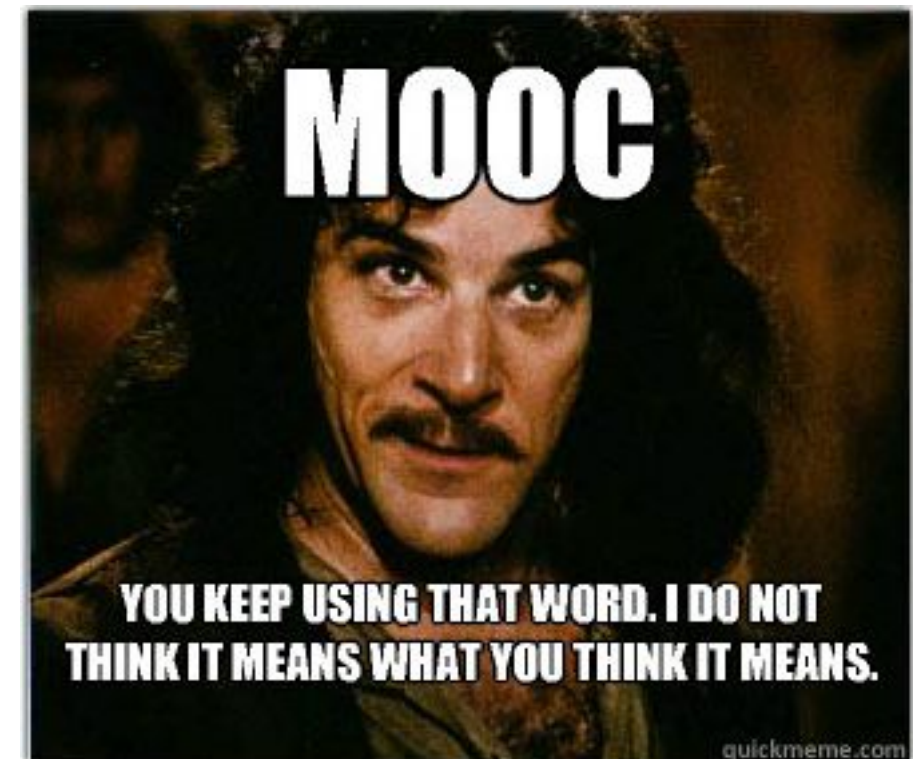
# What's Next?

- Discussion forum - sentiment analysis, word cloud (common word by week)
- Page views
- Transition information -
  - While in the course
  - Where students drop out
  - Where students pick up
- Filtering by cohort groups (e.g., paying students, non-English speaking students)
- Cleaning up labels and legends



# Summary

- MOOCs require a paradigm shift.
  - A course? A resource?
  - Reports need to address learning context
  - Value measured differently
  - Comparative visualization useful
- Bring back to university courses
  - High learner agency
  - Meaningful assessments





# Questions?

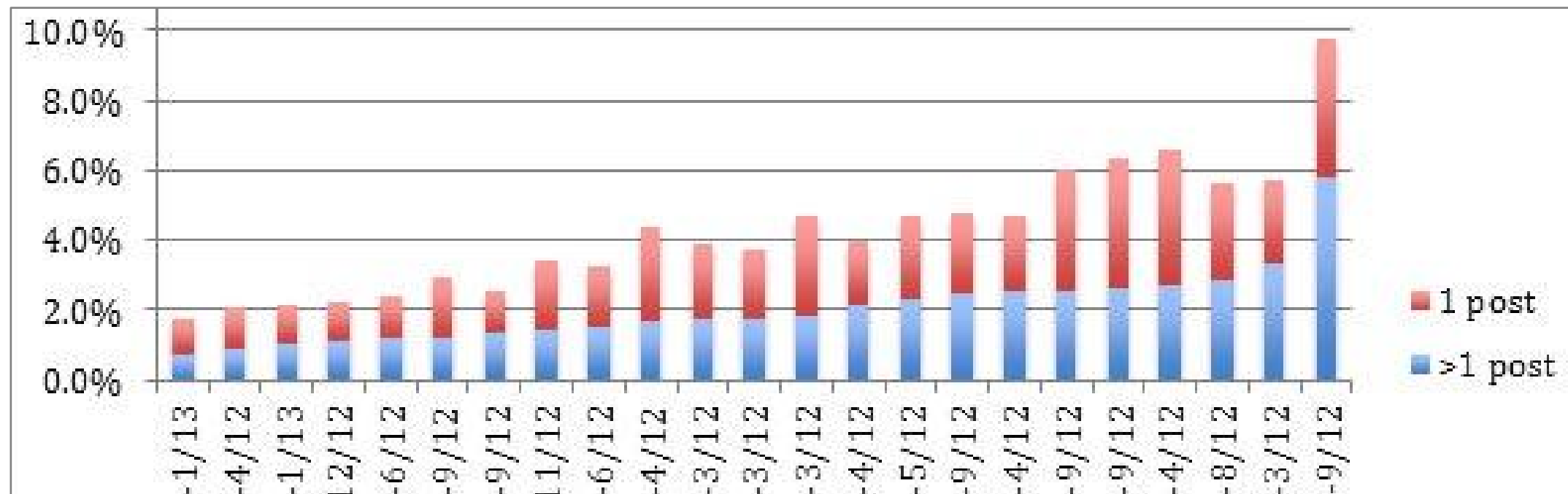
Github: <https://github.com/ubc/vizit>



# Learning in a MOOC is a solitary journey

<https://teachingcommons.stanford.edu/teaching-talk/how-widely-used-are-mooc-forums-first-look>

Forum posters as % of all registered students:

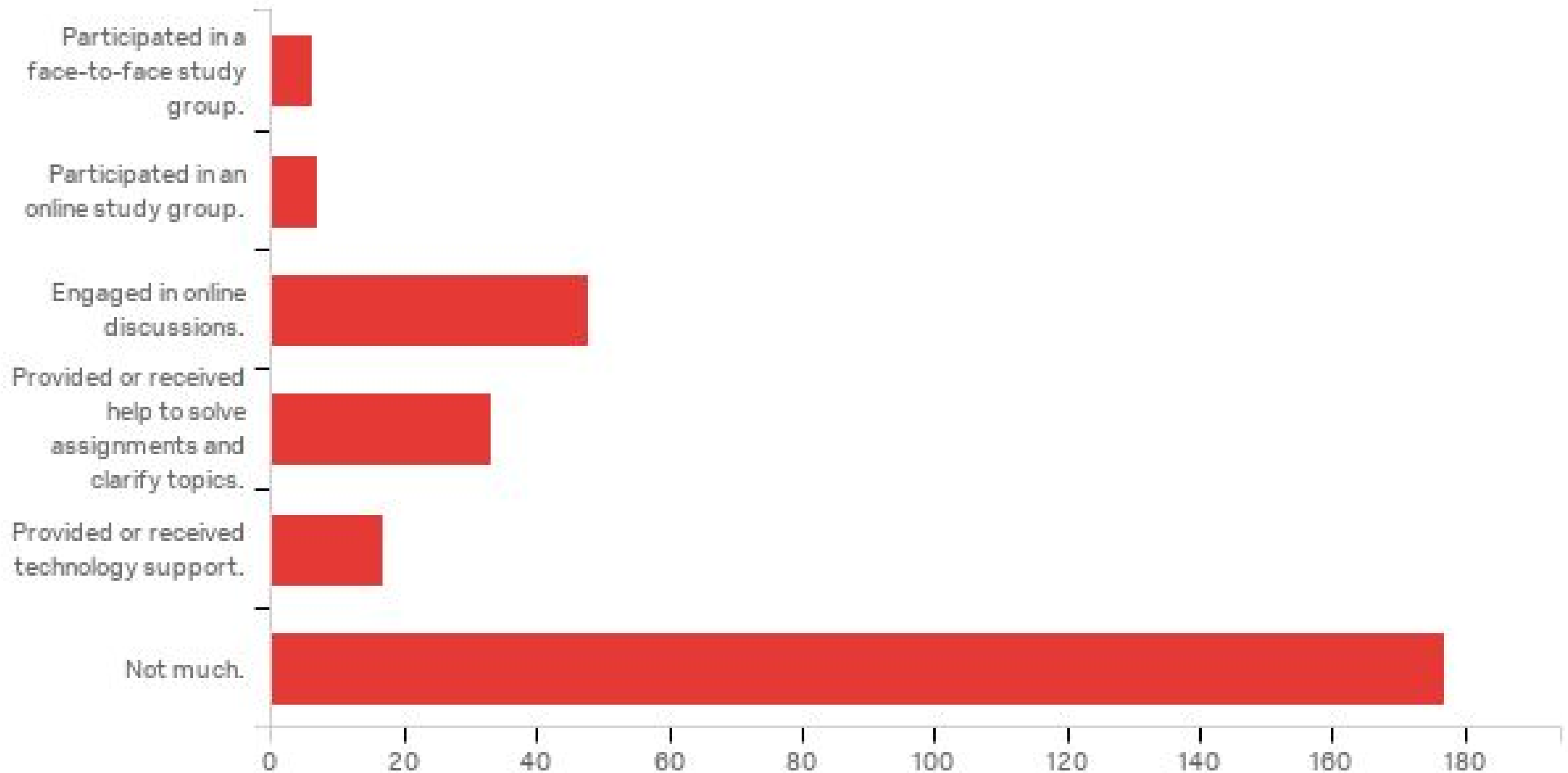


For students who score  $>.6$ , participation around 30%, mostly a single introductory post.



# Learning in a MOOC is a solitary journey

*Exit survey: What interaction did you have with your course peers?*



# Solution approach

**Ask, do not answer.** Facilitate elaboration, do not terminate discussions.

**Topical threads.** Seed modules with relevant discussions.

**Encourage diversity.** Invite observational, personal, and contextual responses.

## Your Personal Observations of Climate Change

discussion posted 5 months ago by [SaraEHarris](#) Staff

 Pinned

This course offers a unique opportunity to hear from people around the world about how they are witnessing climate change in their own environment. The course assignments give chances for participants to write about this in depth, but this discussion is a place for more informal personal observations of climate change, in whatever format you wish. Have you

Before

After

Number of Learners

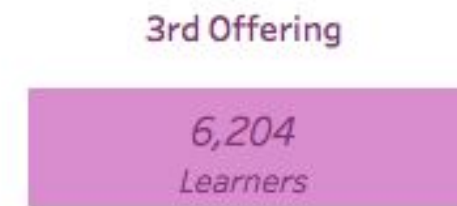
Dec. 2015



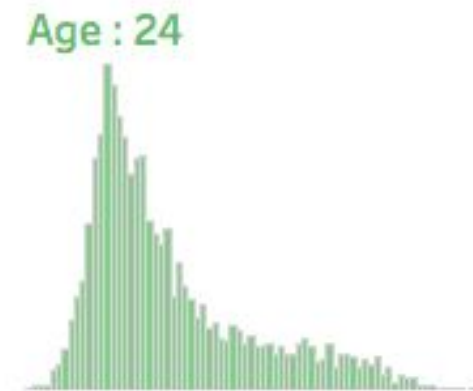
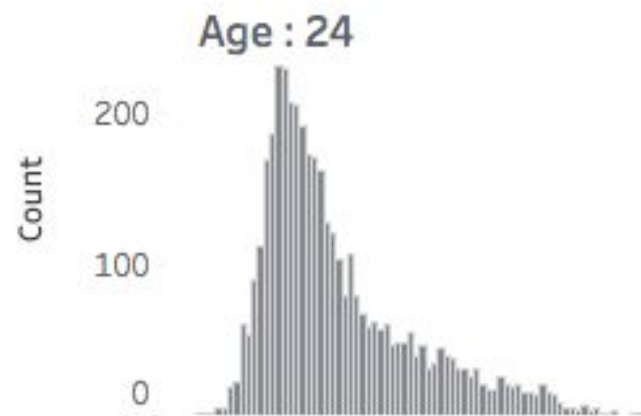
Mar. 2016



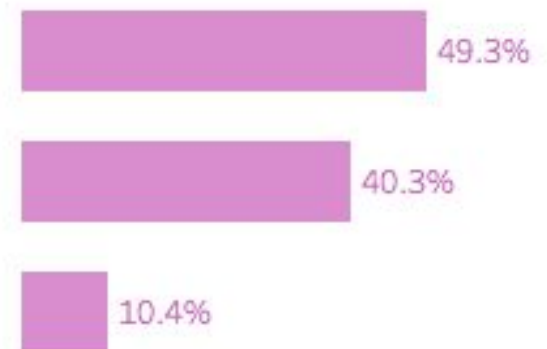
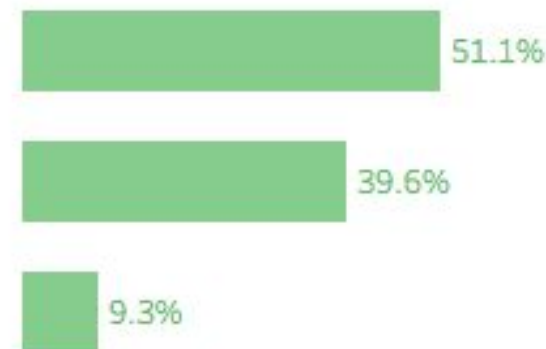
Jun. 2016



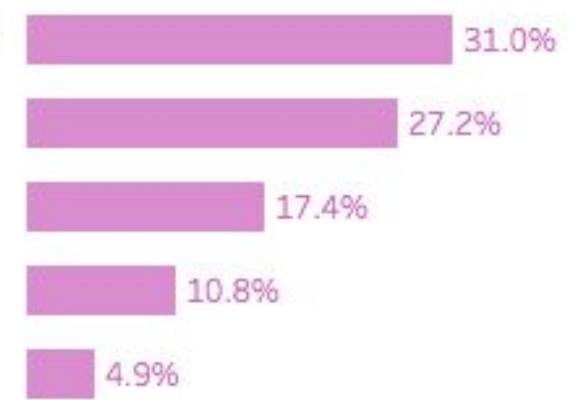
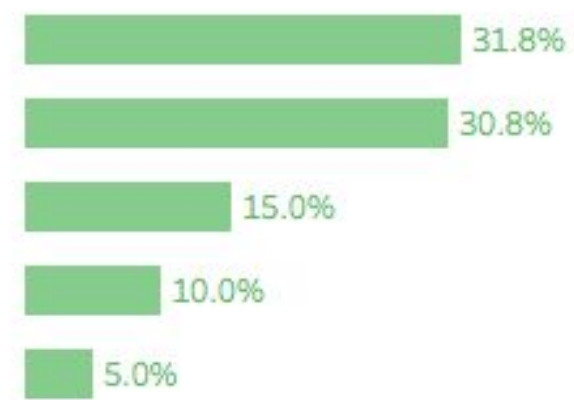
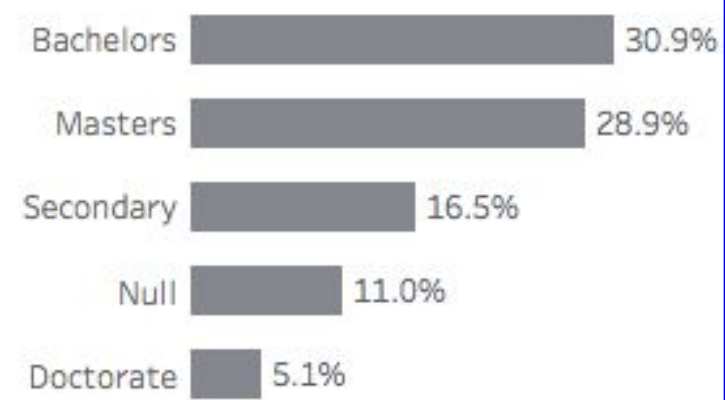
Age Range  
(Most Common Age Labeled)



Gender Distribution  
(% of Total)

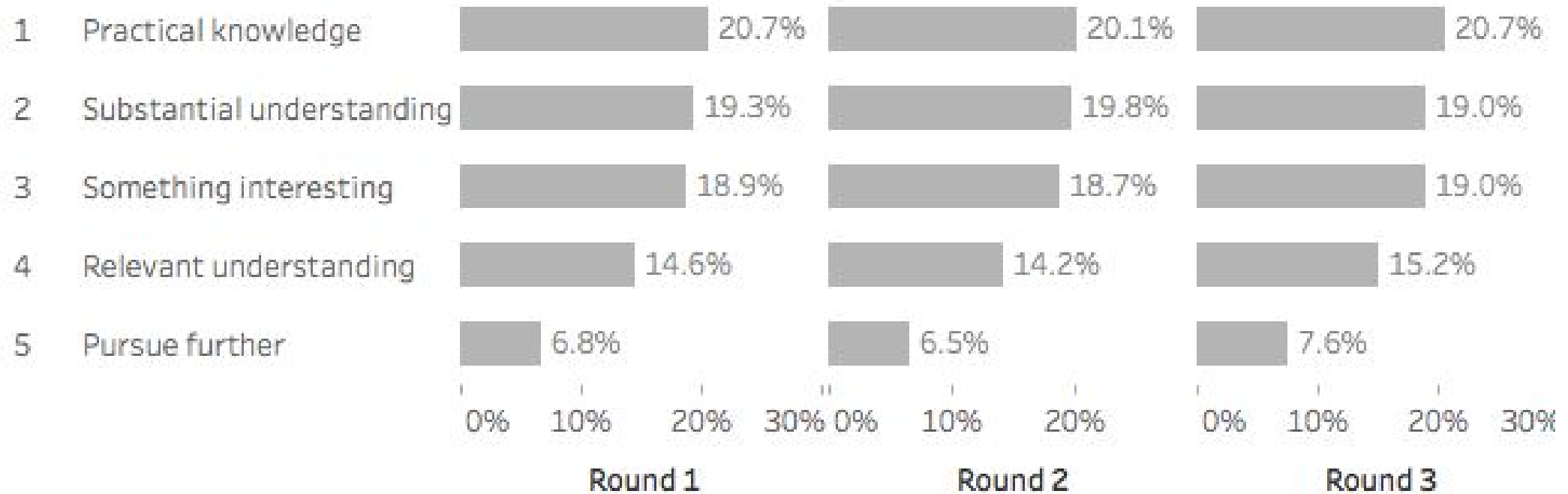


Education Level  
(Top 5 listed)

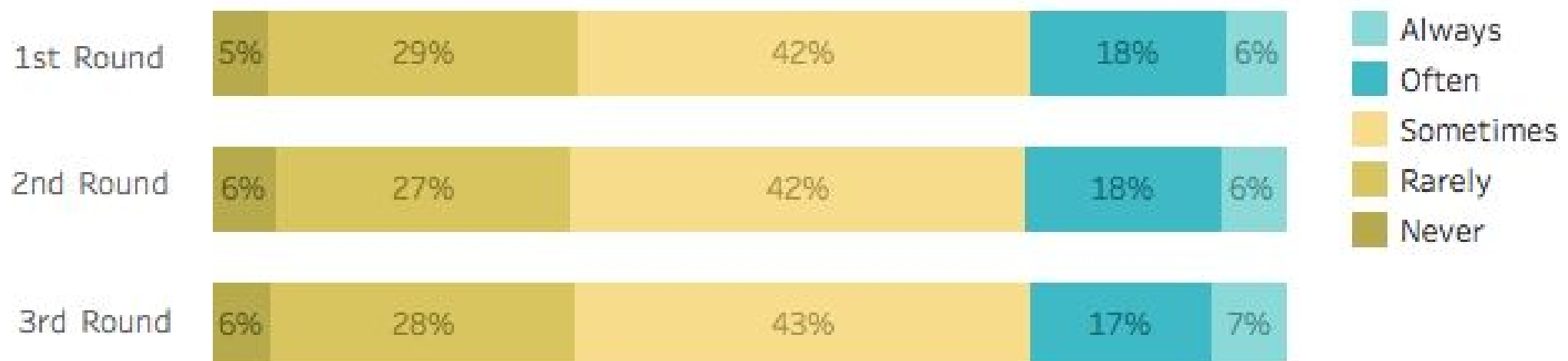




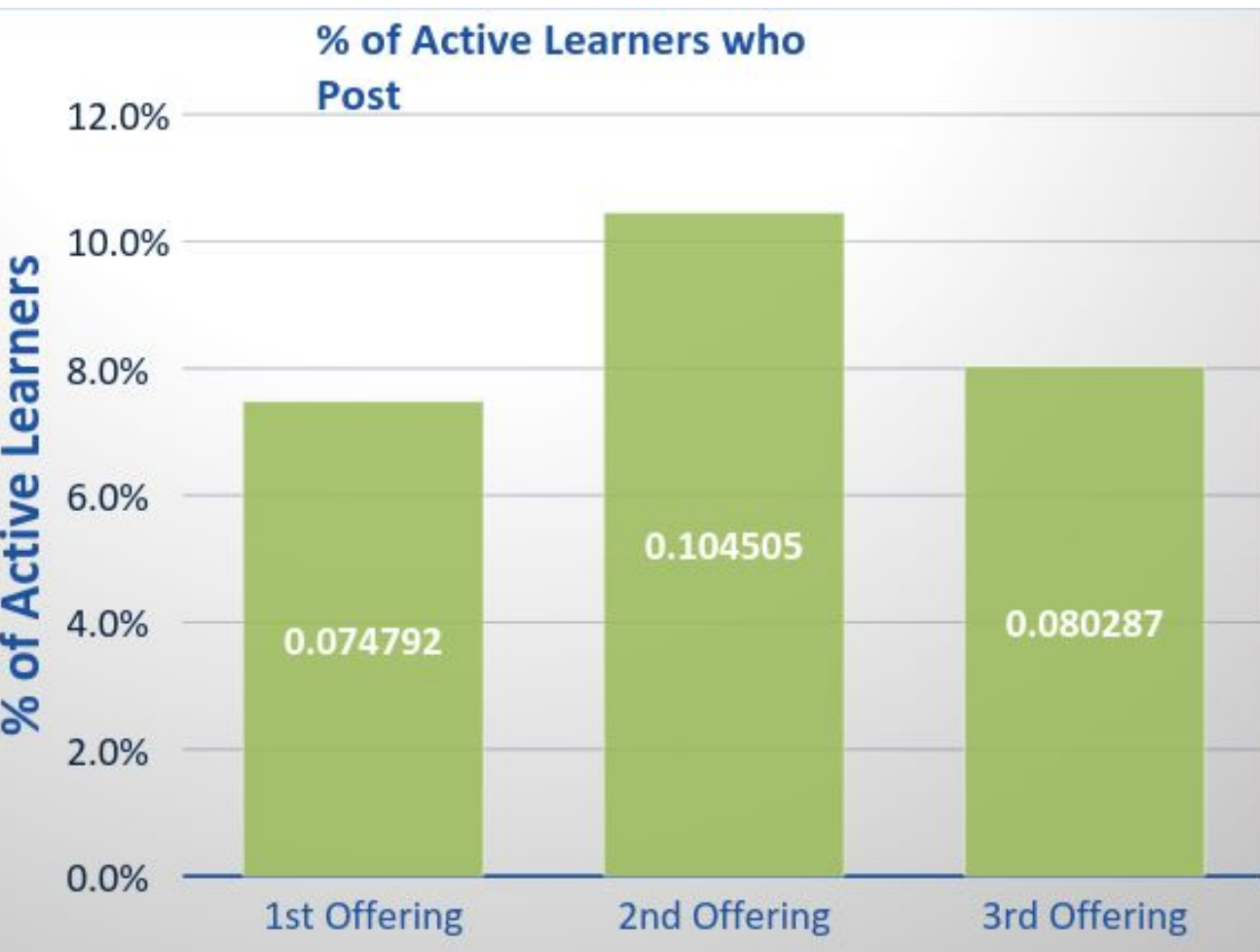
## Top 5 Reasons for Taking this Course



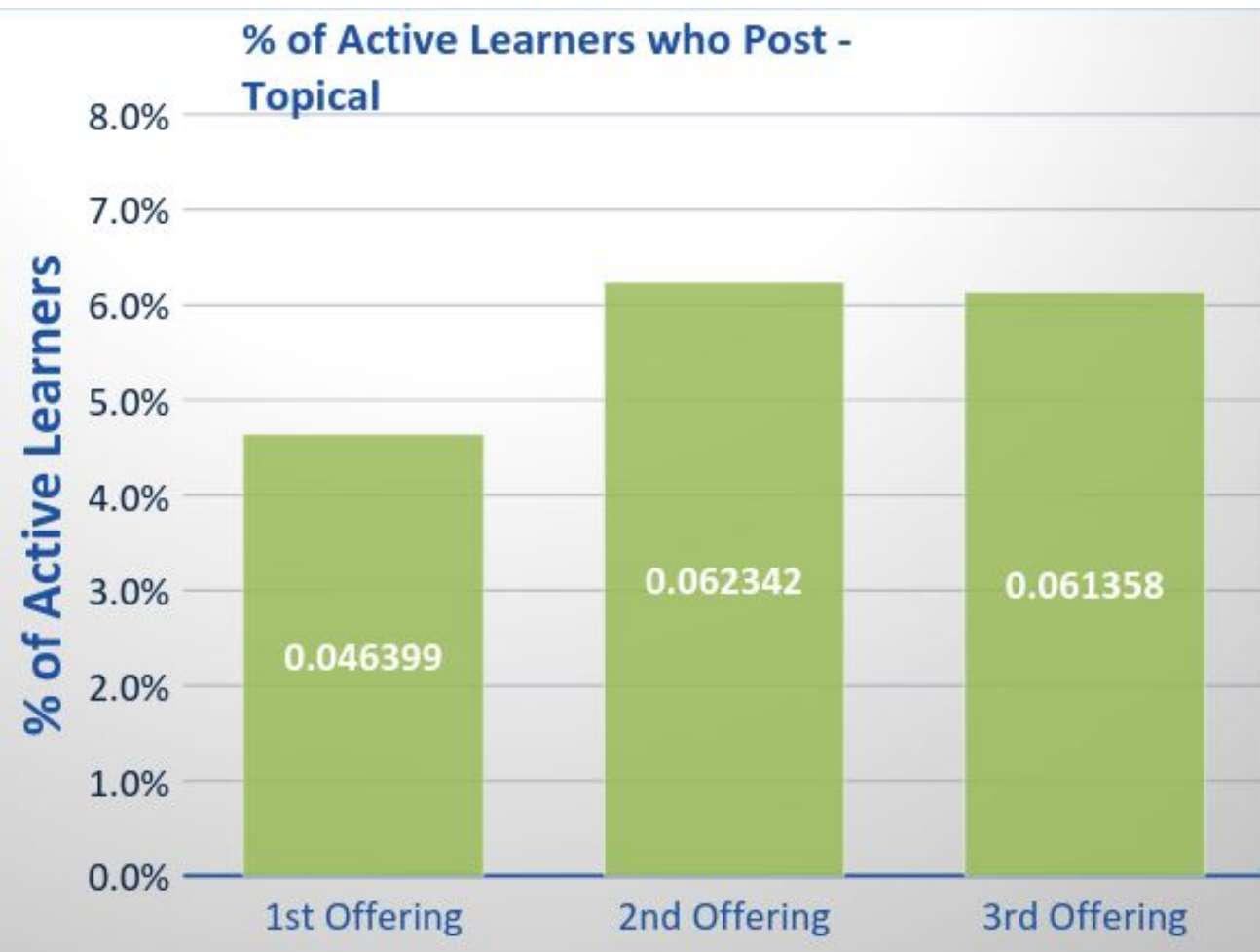
## How frequently do you plan to use the Discussion Forum?



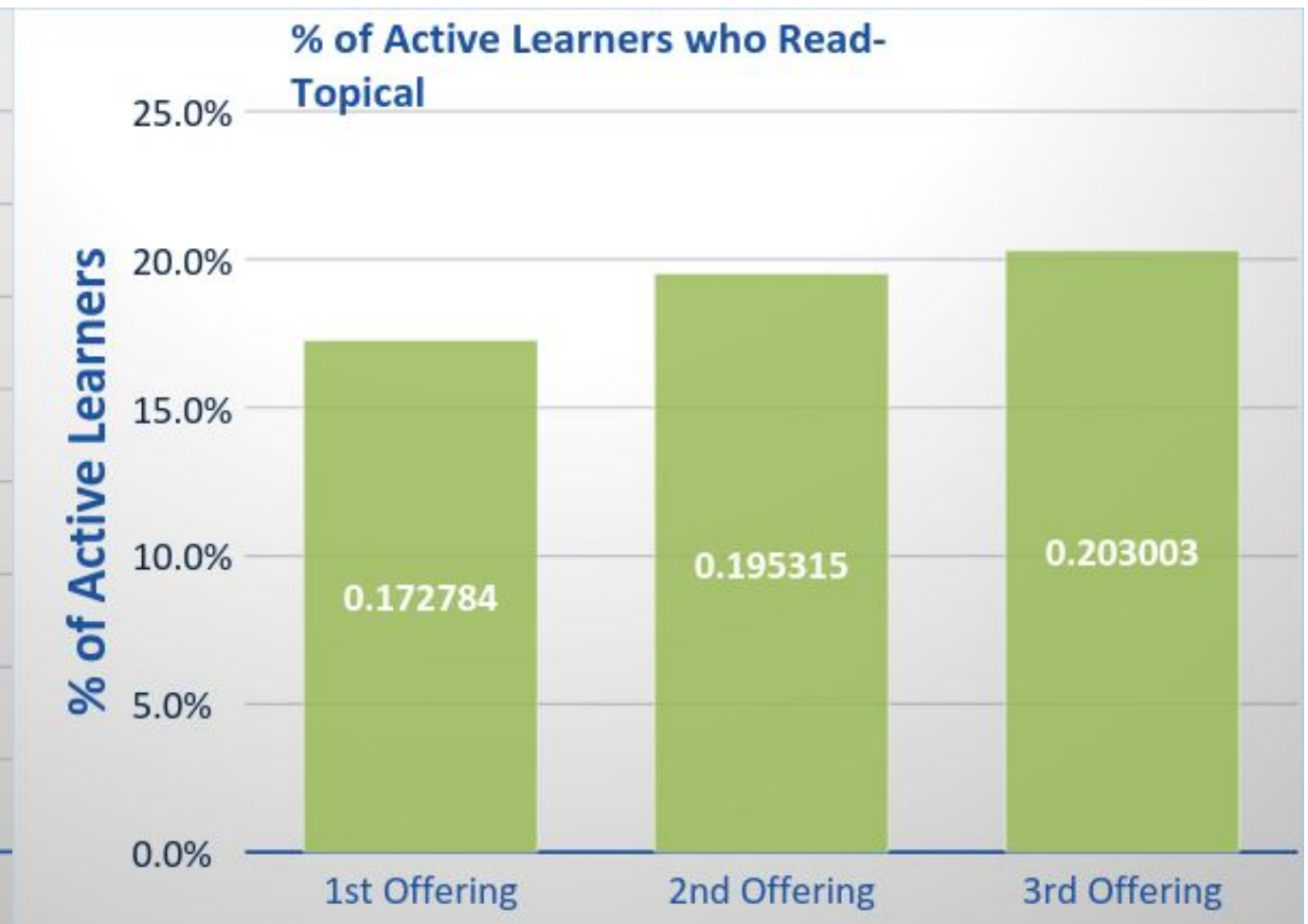
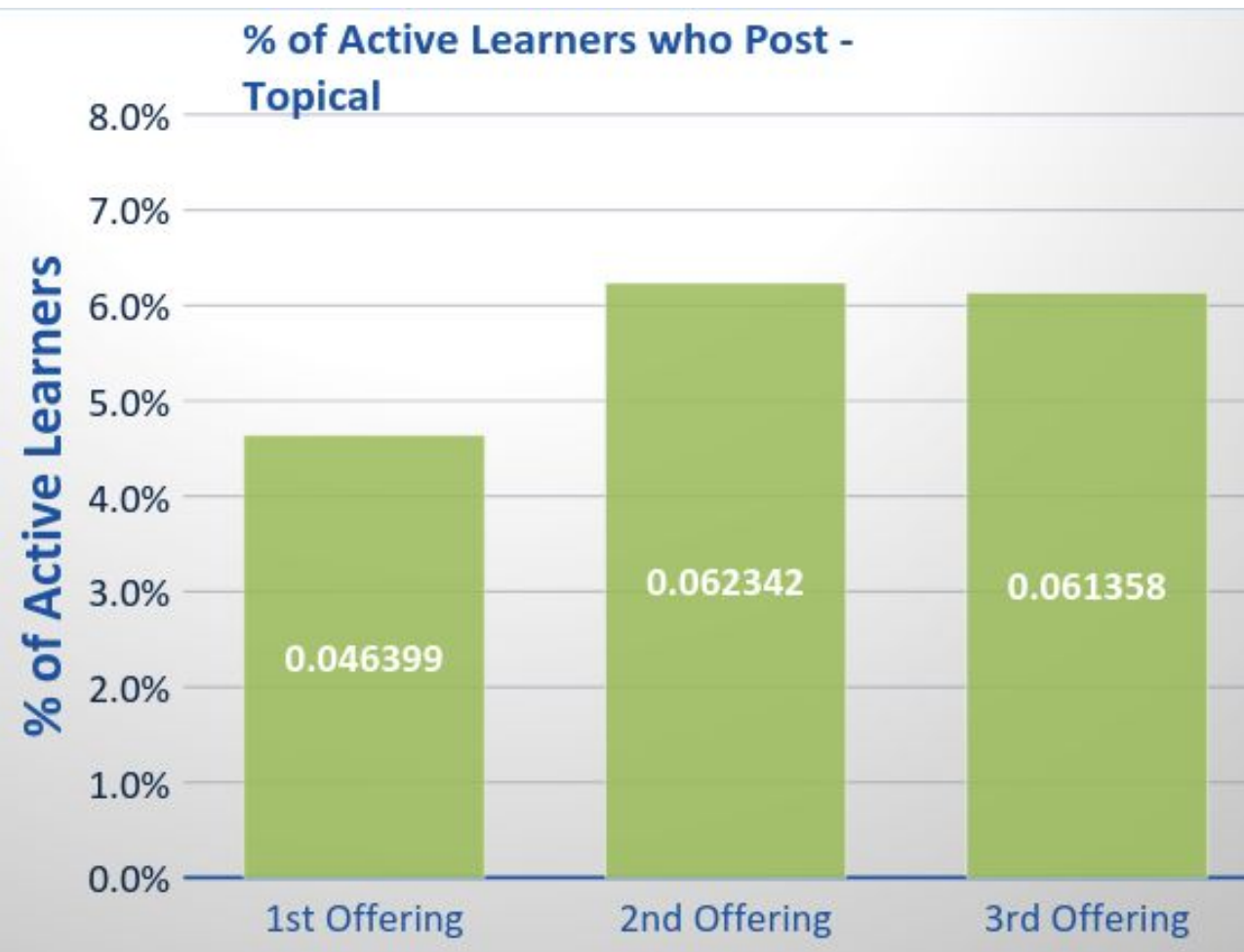
# Did more learners use the forums?



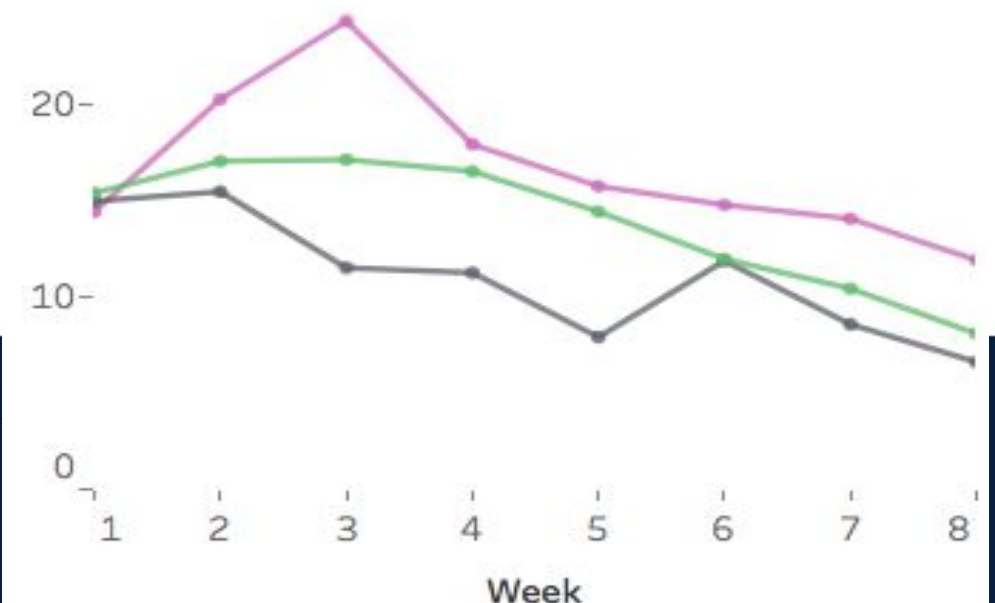
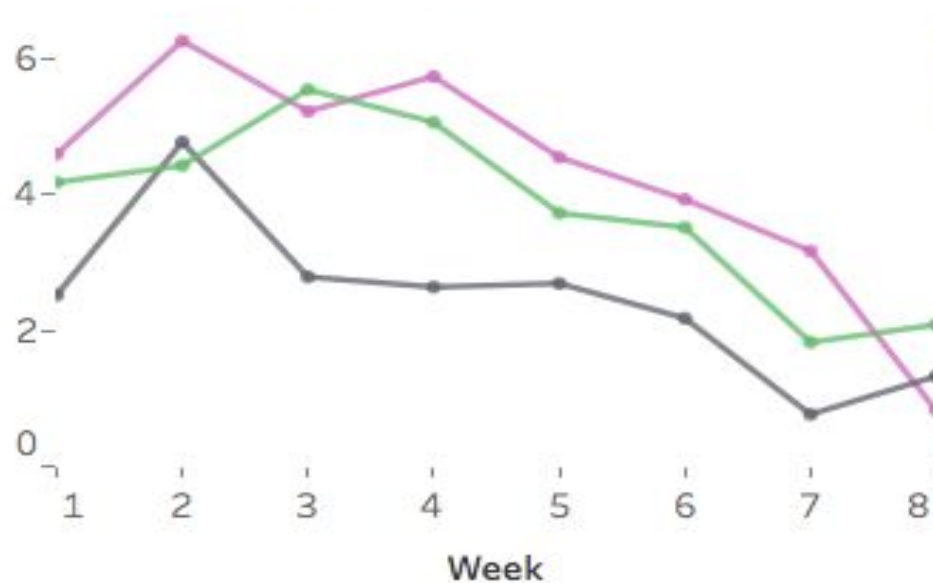
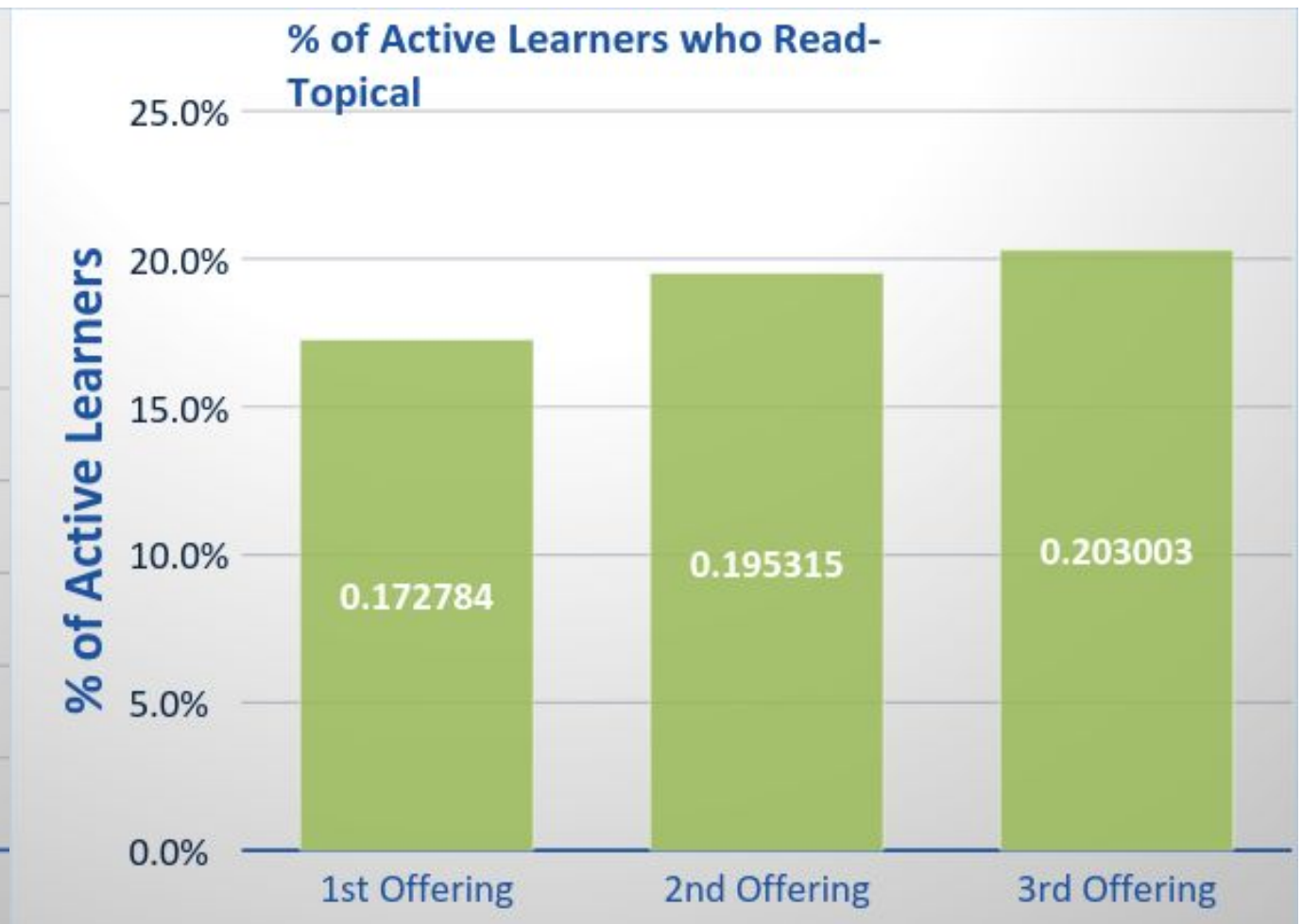
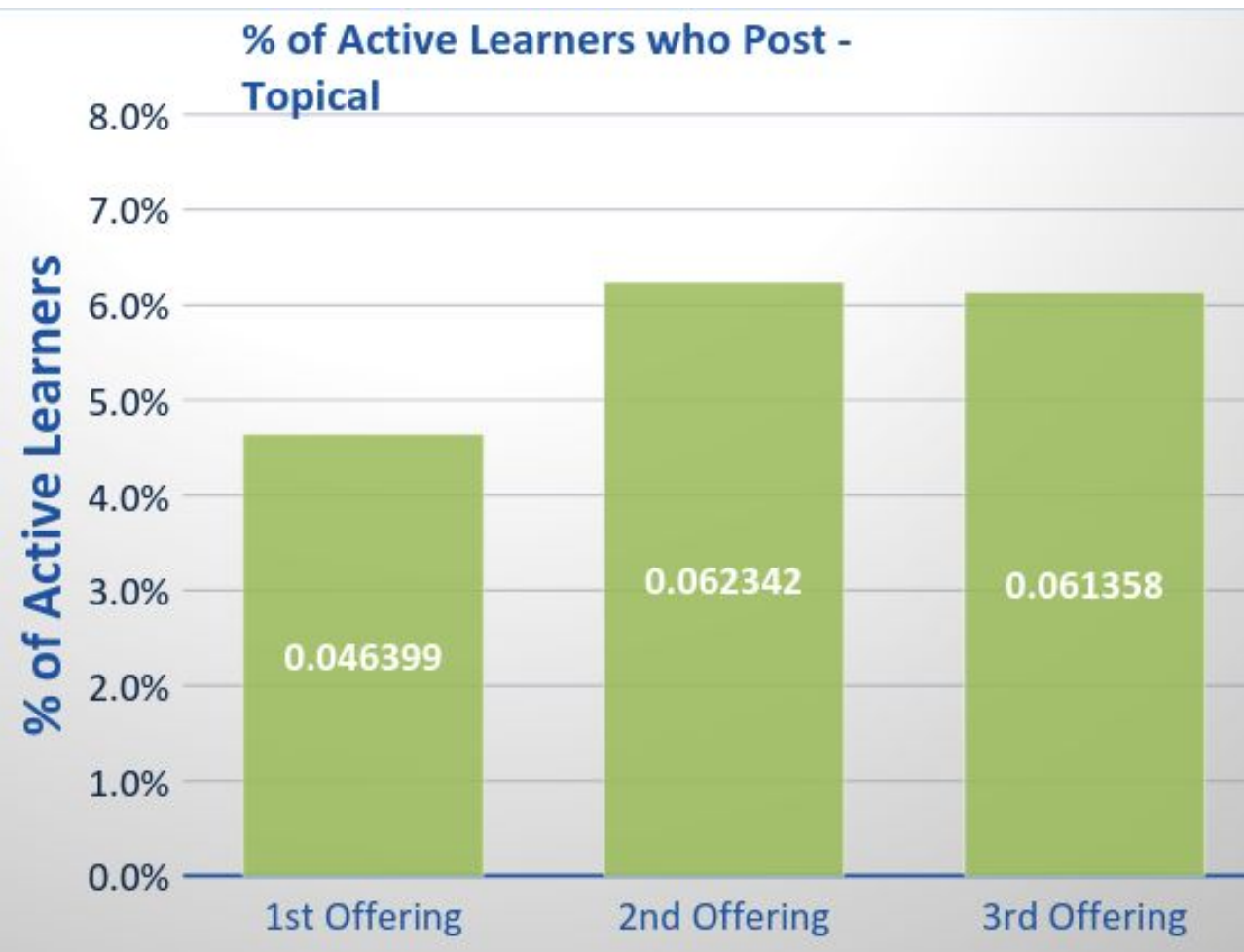
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# Did more learners use the forums?



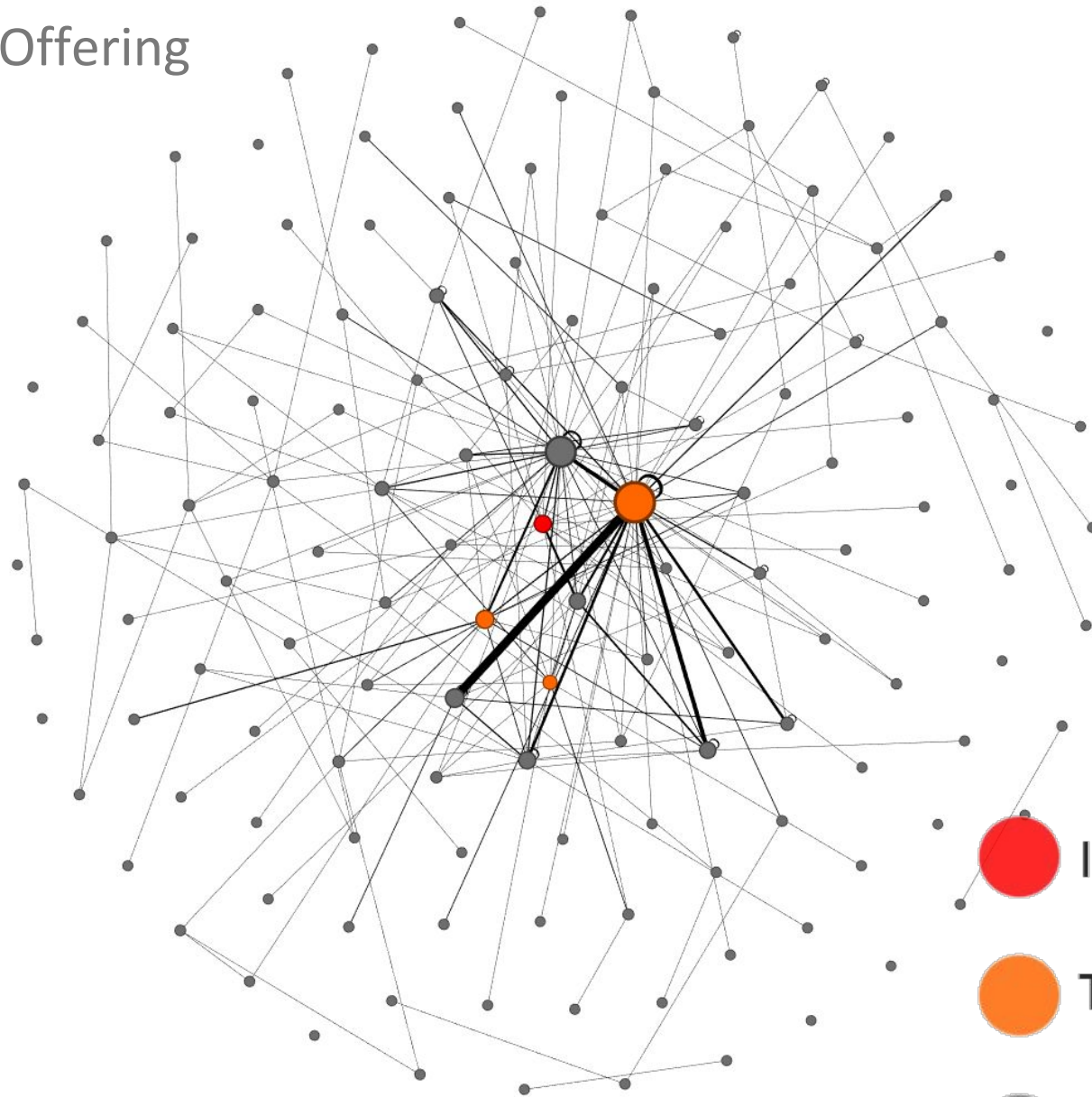
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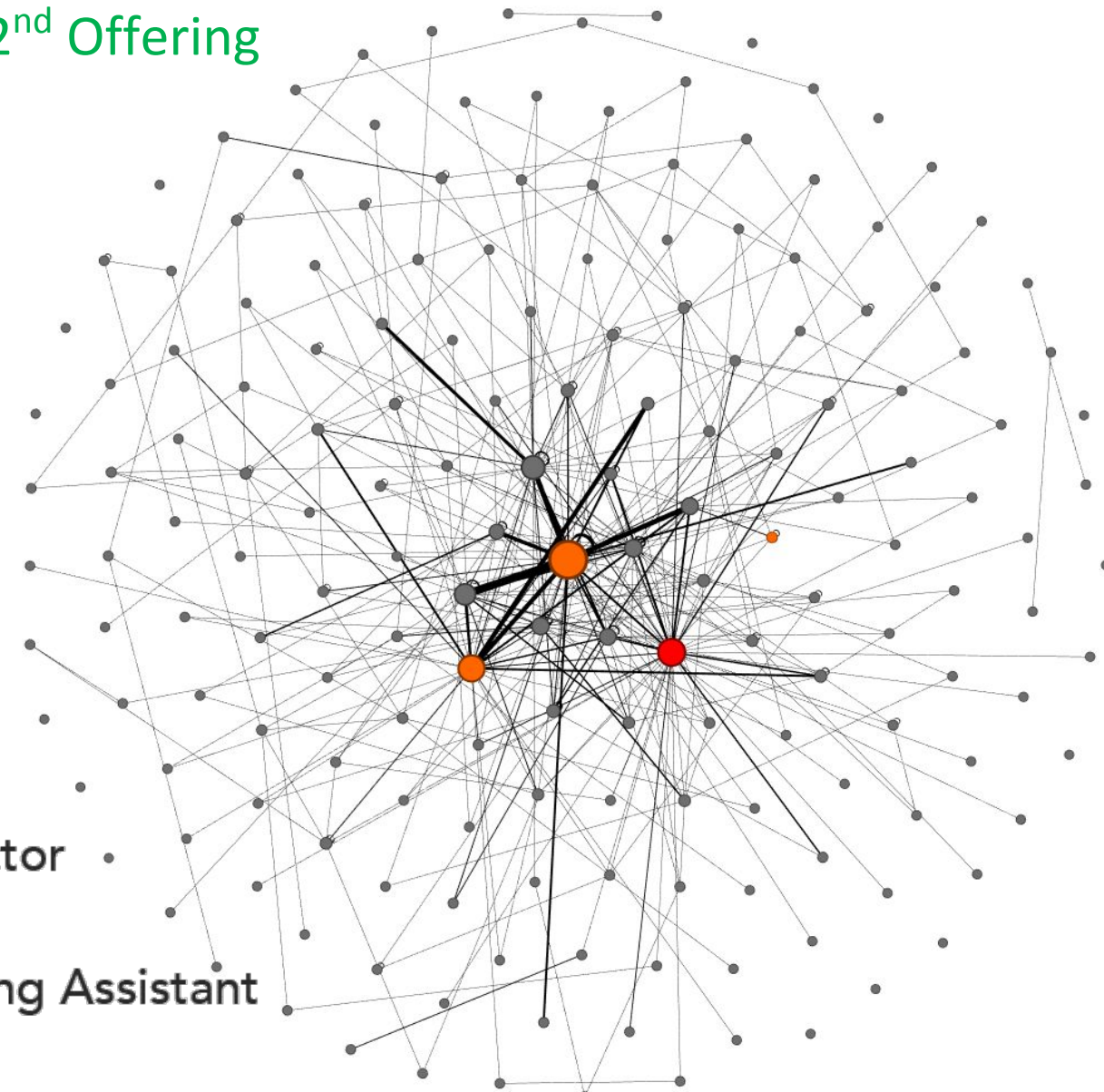


# Did learners participate differently?

1<sup>st</sup> Offering




2<sup>nd</sup> Offering



 Instructor

 Teaching Assistant

 Student



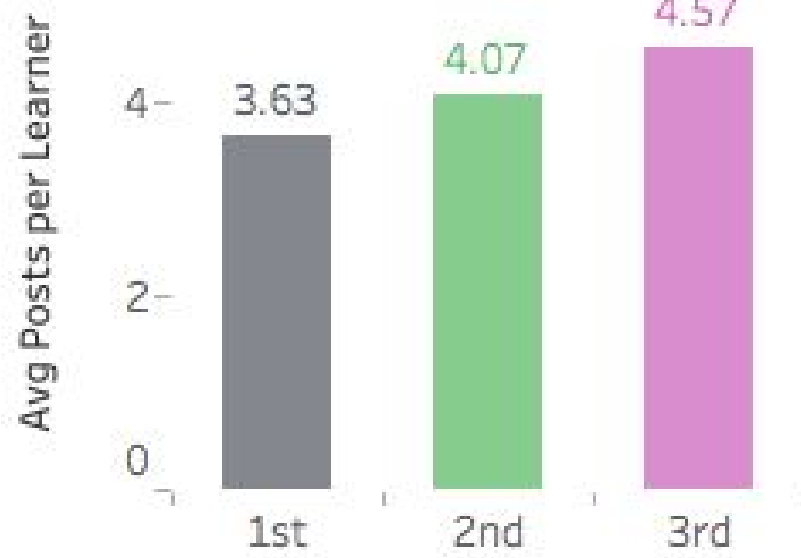
a place of mind

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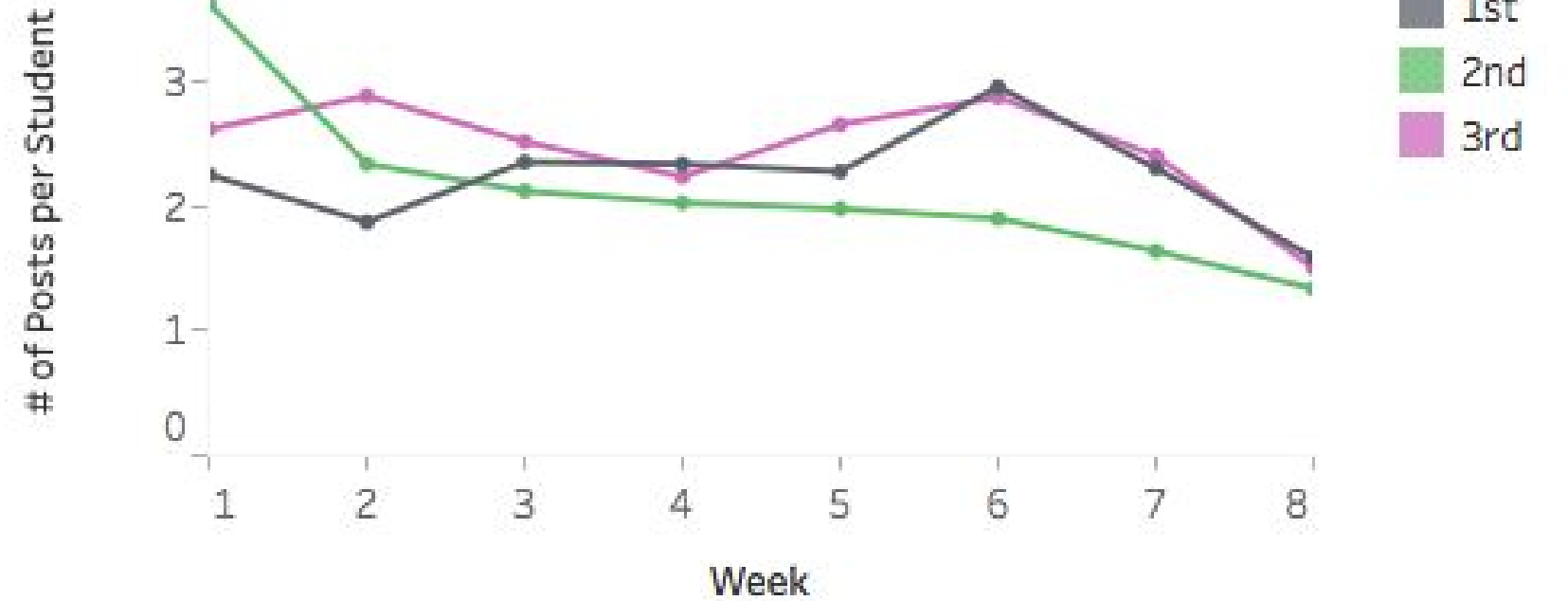


# Did learners participate differently?

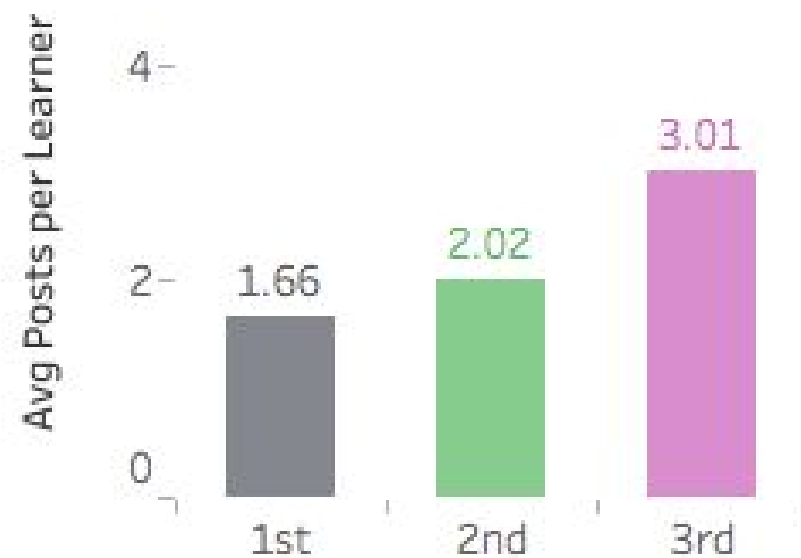
## General Posts



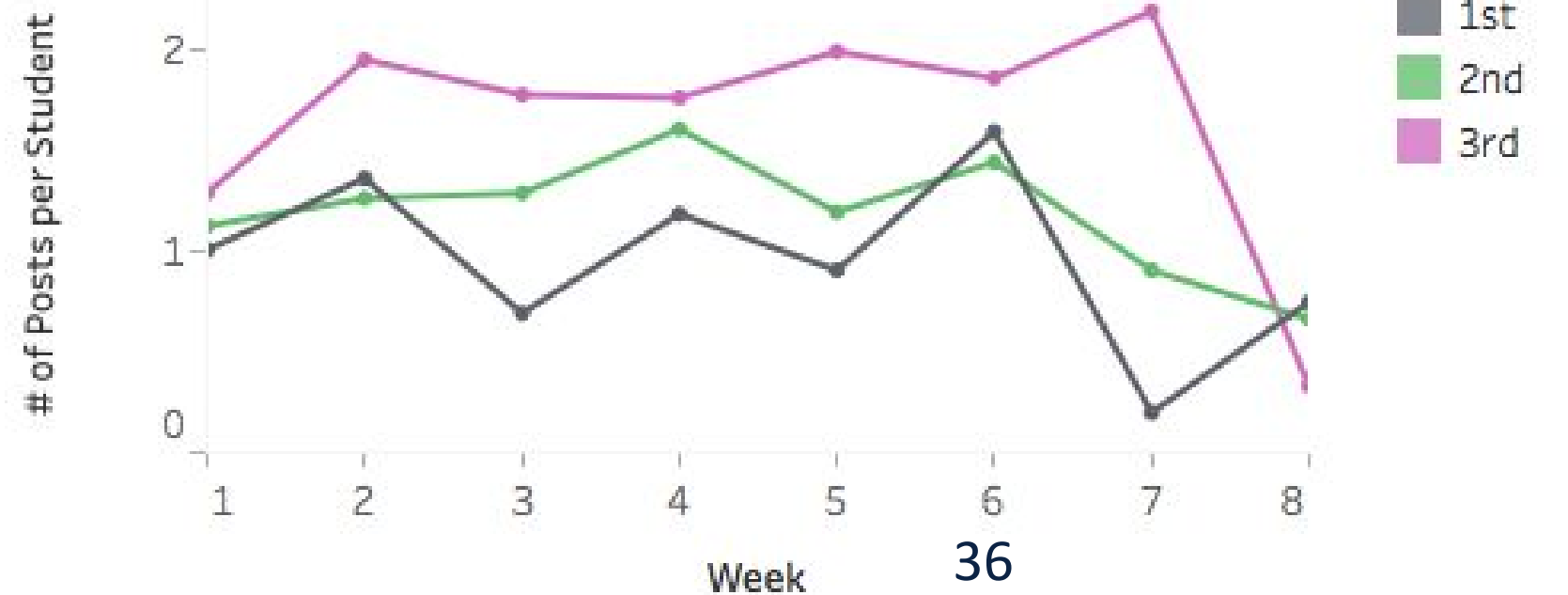
## Learners General Posts per Week



## Topic Posts



## Learners Topic Posts per Week



# Solution approach

**Ask, do not answer.** Facilitate elaboration, do not terminate discussions.

**Topical threads.** Seed modules with relevant discussion

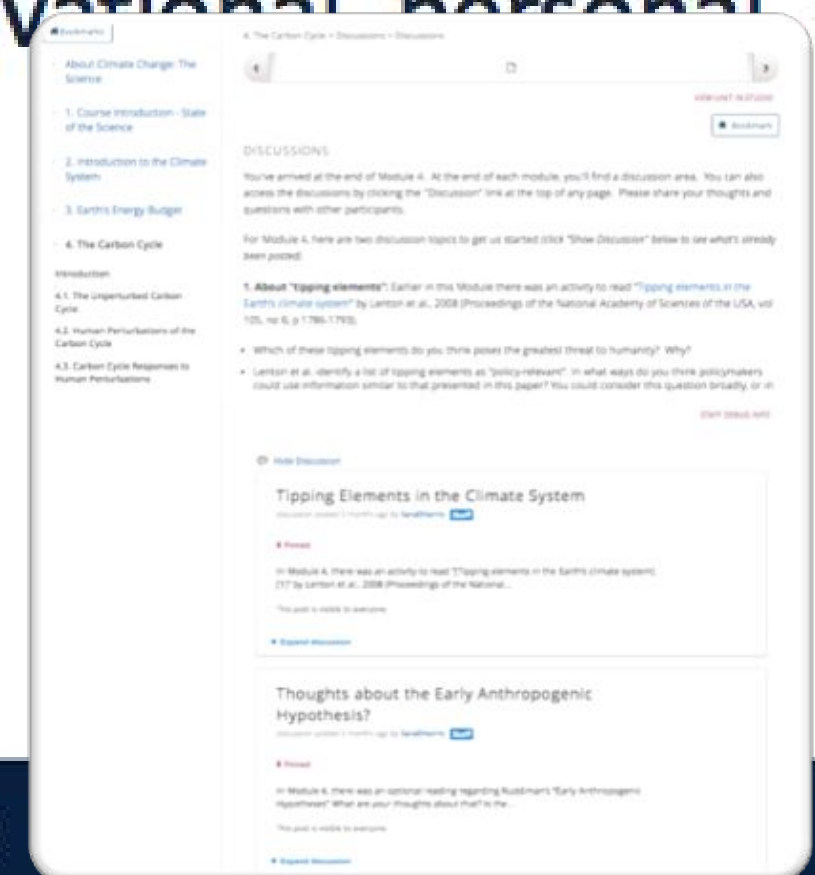
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Before

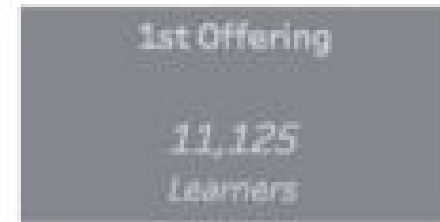
After

Dec. 2015

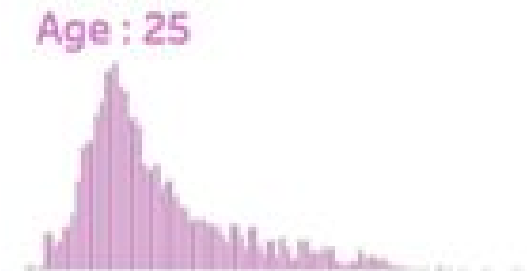
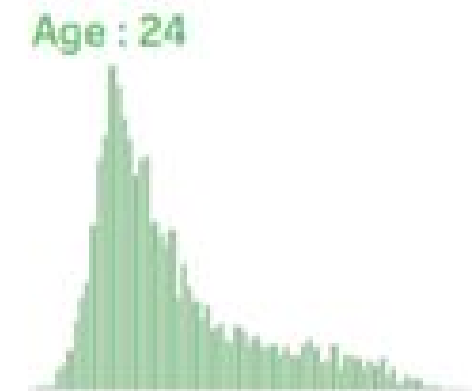
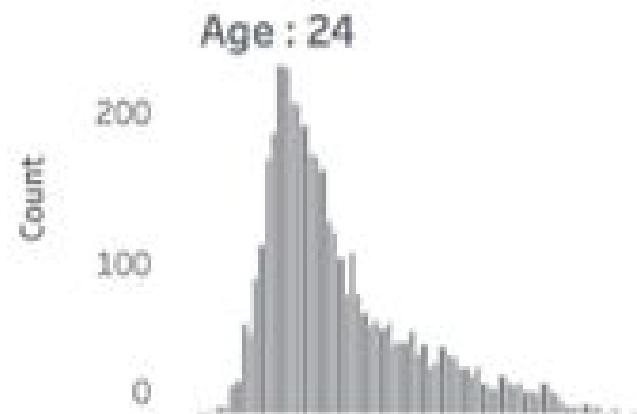
Mar. 2016

Jun. 2016

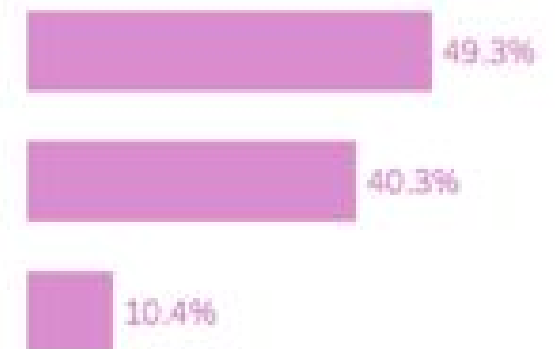
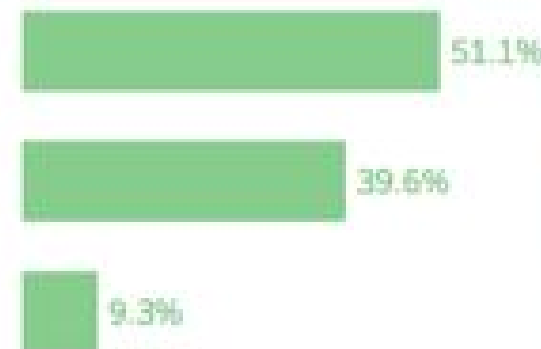
Number of Learners



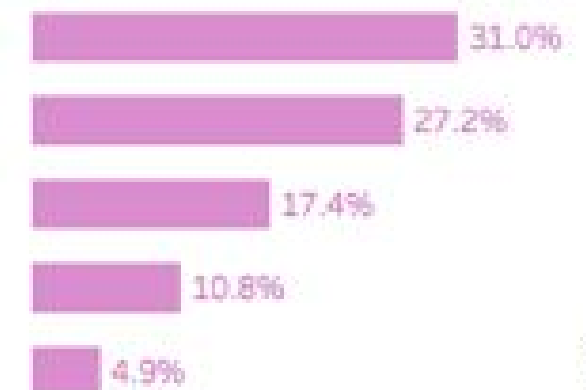
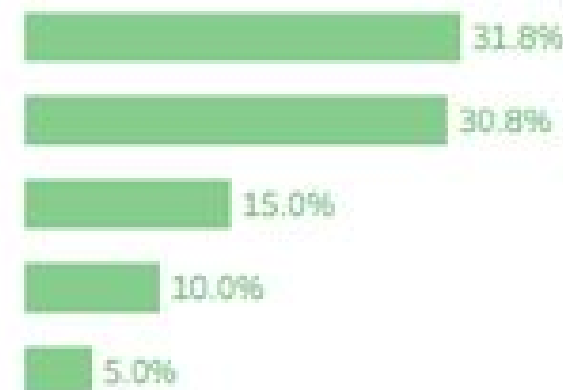
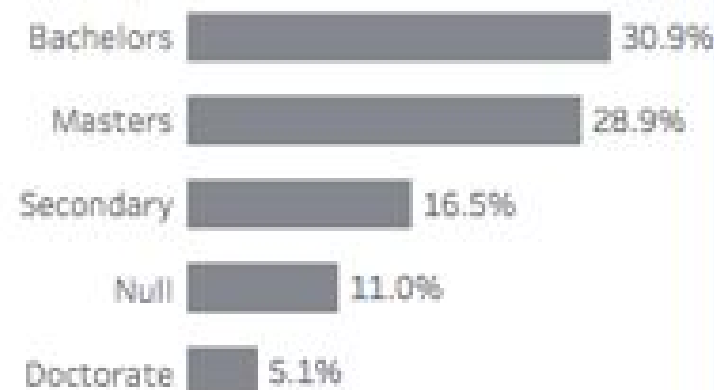
Age Range  
(Most Common Age Labeled)



Gender Distribution  
(% of Total)



Education Level  
(Top 5 listed)

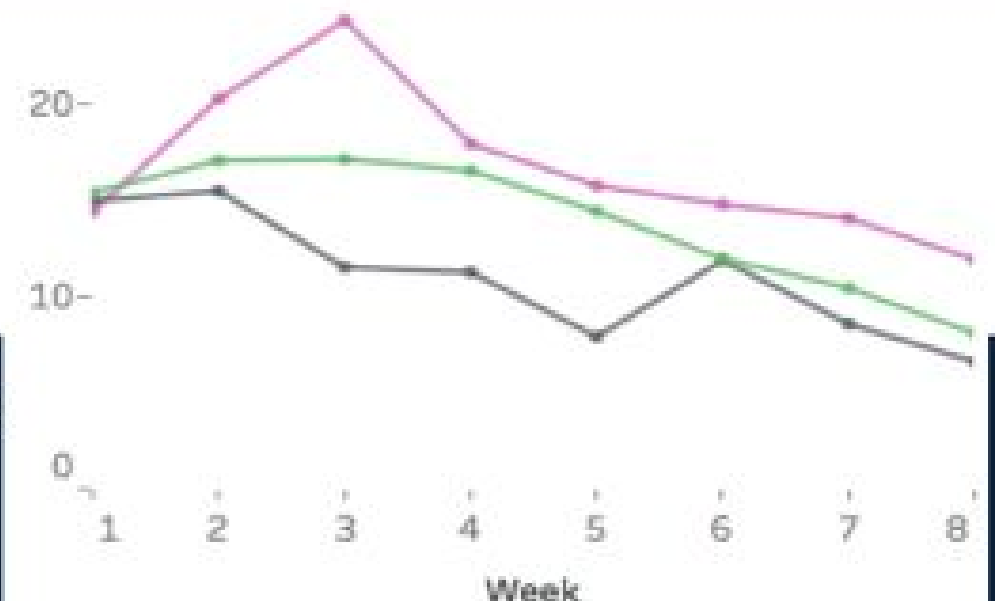
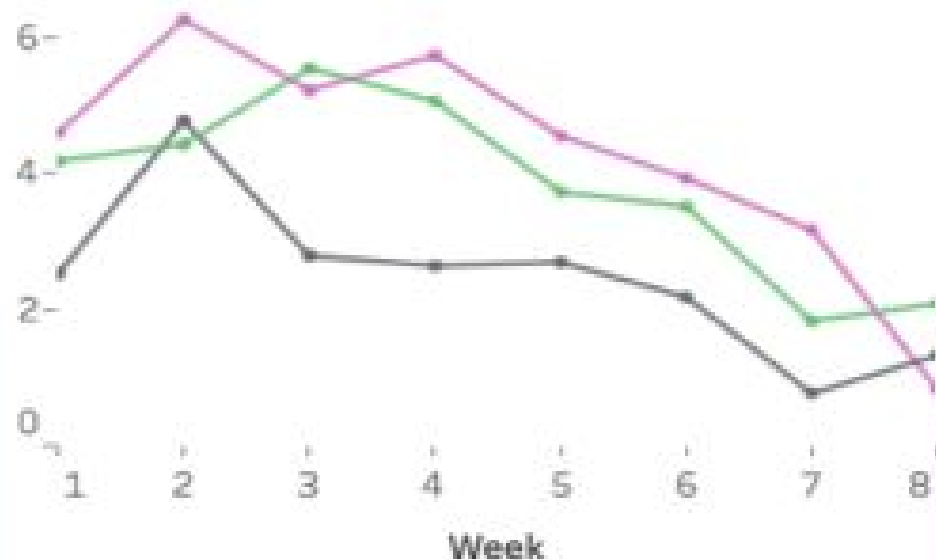
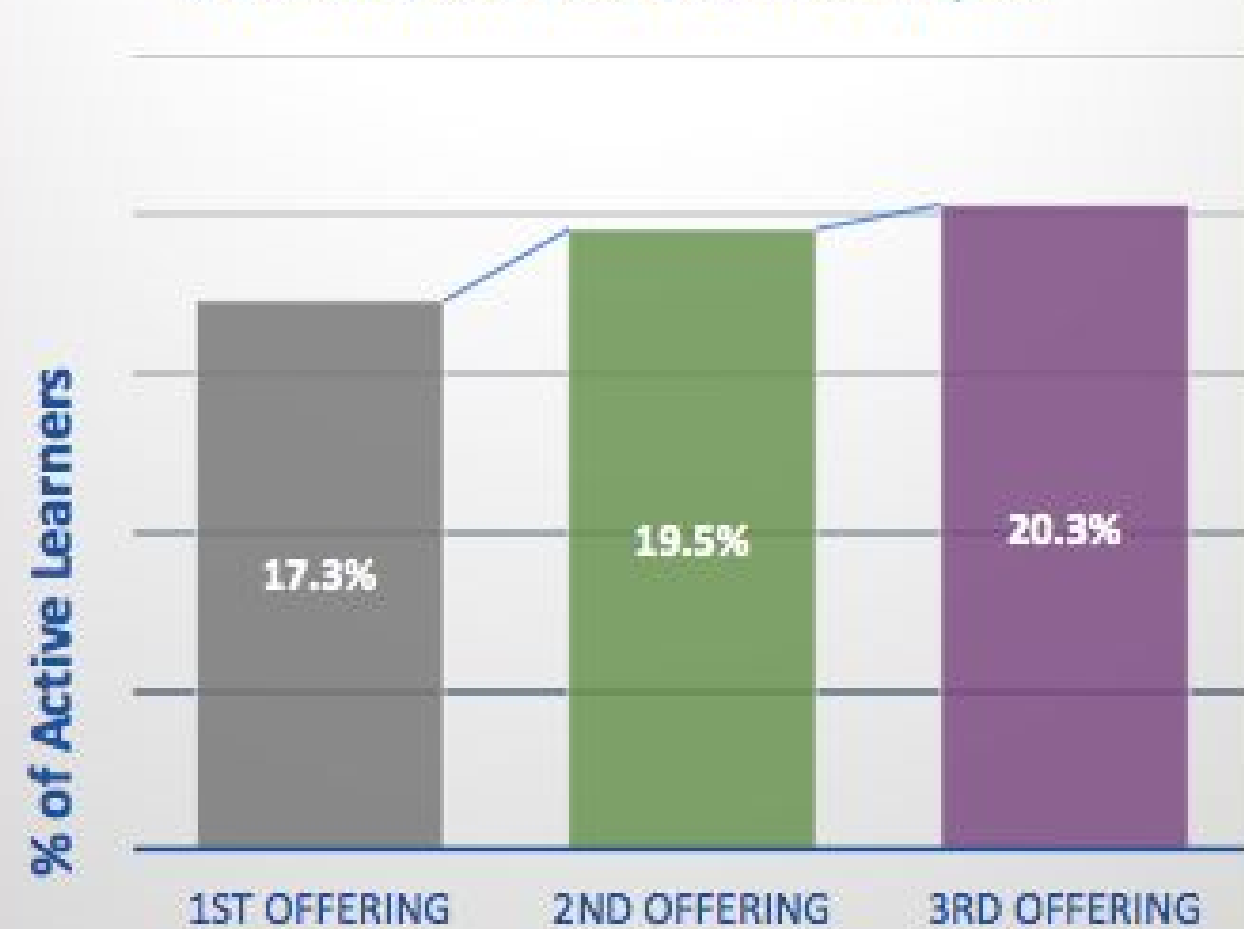


# Did more learners use the forums?

% of Active Learners who Post - Topical

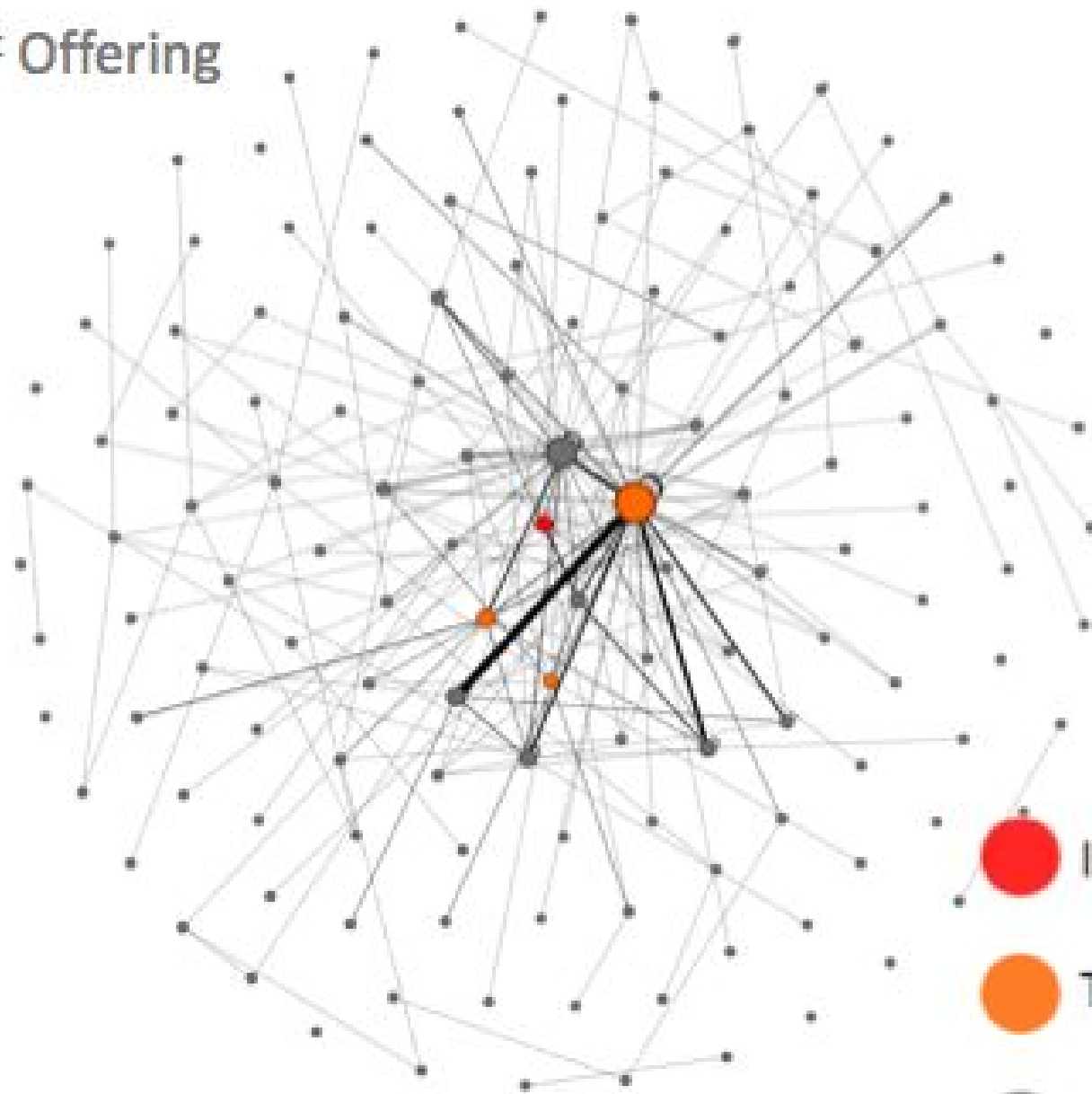


% of Active Learners who Read - Topical

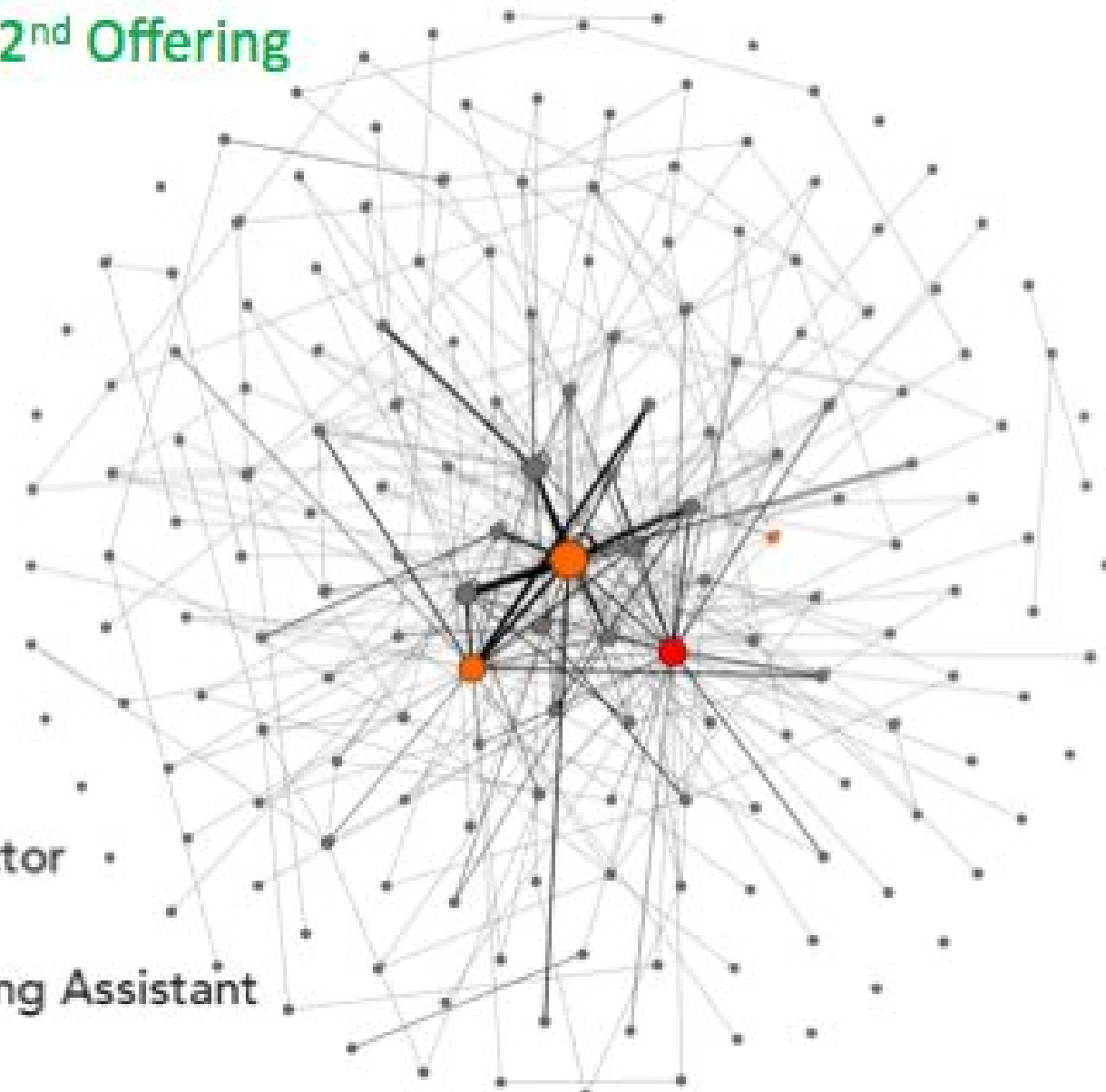




# Did learners participate differently?

1<sup>st</sup> Offering



2<sup>nd</sup> Offering



-  Instructor
-  Teaching Assistant
-  Student



a place of mind

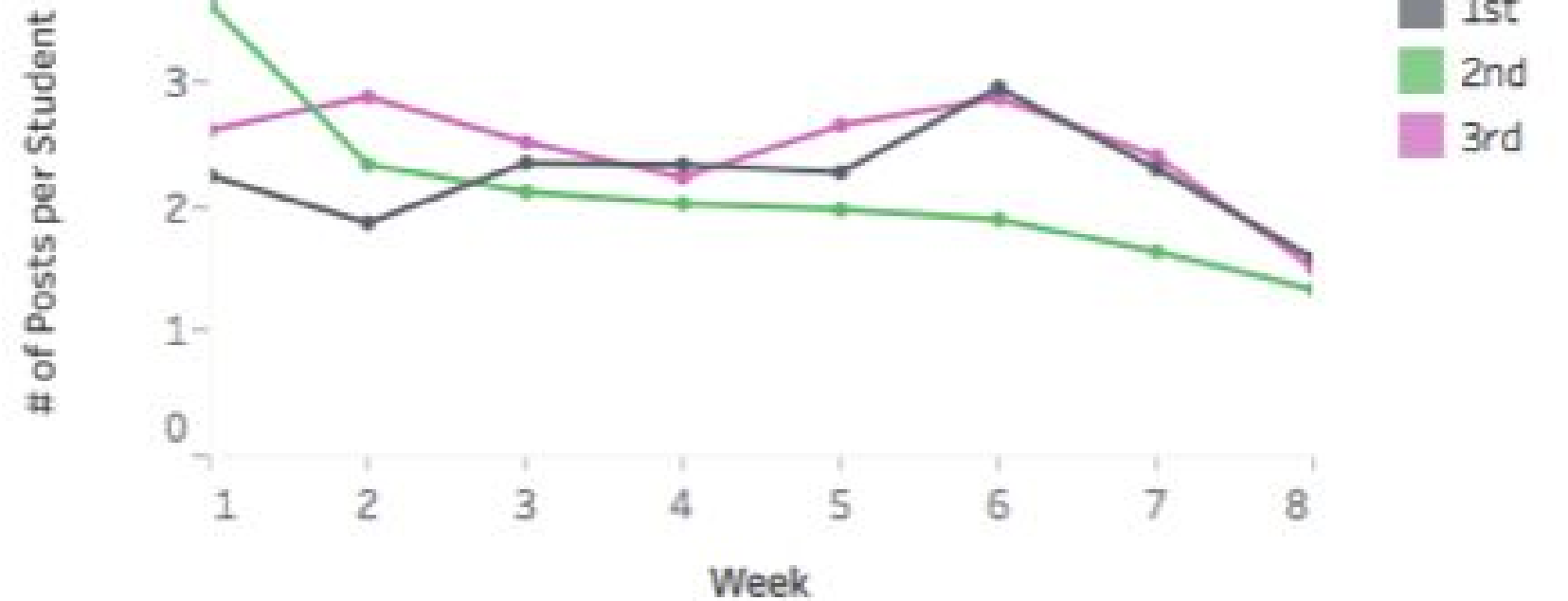
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# Did learners participate differently?

## General Posts



## Learners General Posts per Week



## Topic Posts



## Learners Topic Posts per Week





# Personal Assignments



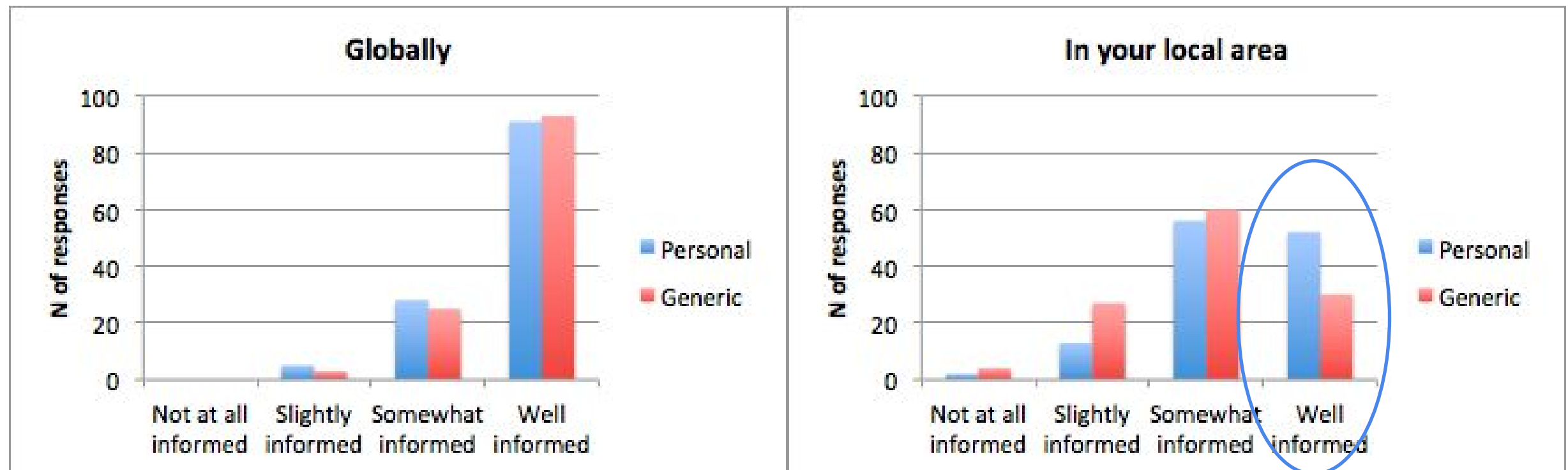
# Does personalization of assignments impact engagement, perceptions, and learning?

Personal	Generic
Choose two articles from a local newspaper, magazine	Choose three articles from the following list of 10
Summarize	
Post to a map	
Peer assessment	

Both groups are equivalent at the get-go.

	Personal	Generic
<b>N</b>	683	667
<b>% of students plan to stay entire course:</b>	82%	81%
<b>How many previous MOOCs?</b>	3.07	2.92

Exit survey: Now that the course is over, how informed do you feel about climate change issues...



Students in the Personal condition feel more informed about the impact of climate change on their area.

# Impact on overall satisfaction: Would you recommend to a friend?

	Personal	Generic	Chi-square test of significance
<b>All students:</b>	80% (N = 127)	68% (N = 117)	$\chi^2 = 4.54; p = 0.033$
<b>Students whose goals were to learn about climate change*</b>	80% (N = 97)	66% (N = 91)	$\chi^2 = 5.04; p = 0.025$

Students in the Personal condition are more likely to recommend.

\* as declared in Entry survey; excluding students whose goals were only to learn English, learn about MOOCs, etc.

# No impact on student behaviours.

	Personal (N = 683)	Generic (N = 667)
<b>Assignment 1</b>	99	93
<b>Assignment 2</b>	81	88
<b>Overall</b>	180	181



# No impact on student behaviours.

	Personal (N = 683)	Generic (N = 667)
<b>Final exam</b>		
- Submissions	158	161
- Score	70%	68%
<b>Average course grade</b>	20%	20%

# No impact on student behaviours.

	Personal (N = 683)	Generic (N = 667)
Average number of course-events per student	555	612
Average number of days with log-in per student	9.1	9.1
Average overall time per student [minutes*]	167	170
	167.81	170.42



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Centre for Teaching, Learning and Technology

# VizIt – Use-Driven MOOC Analytics for Course Teams

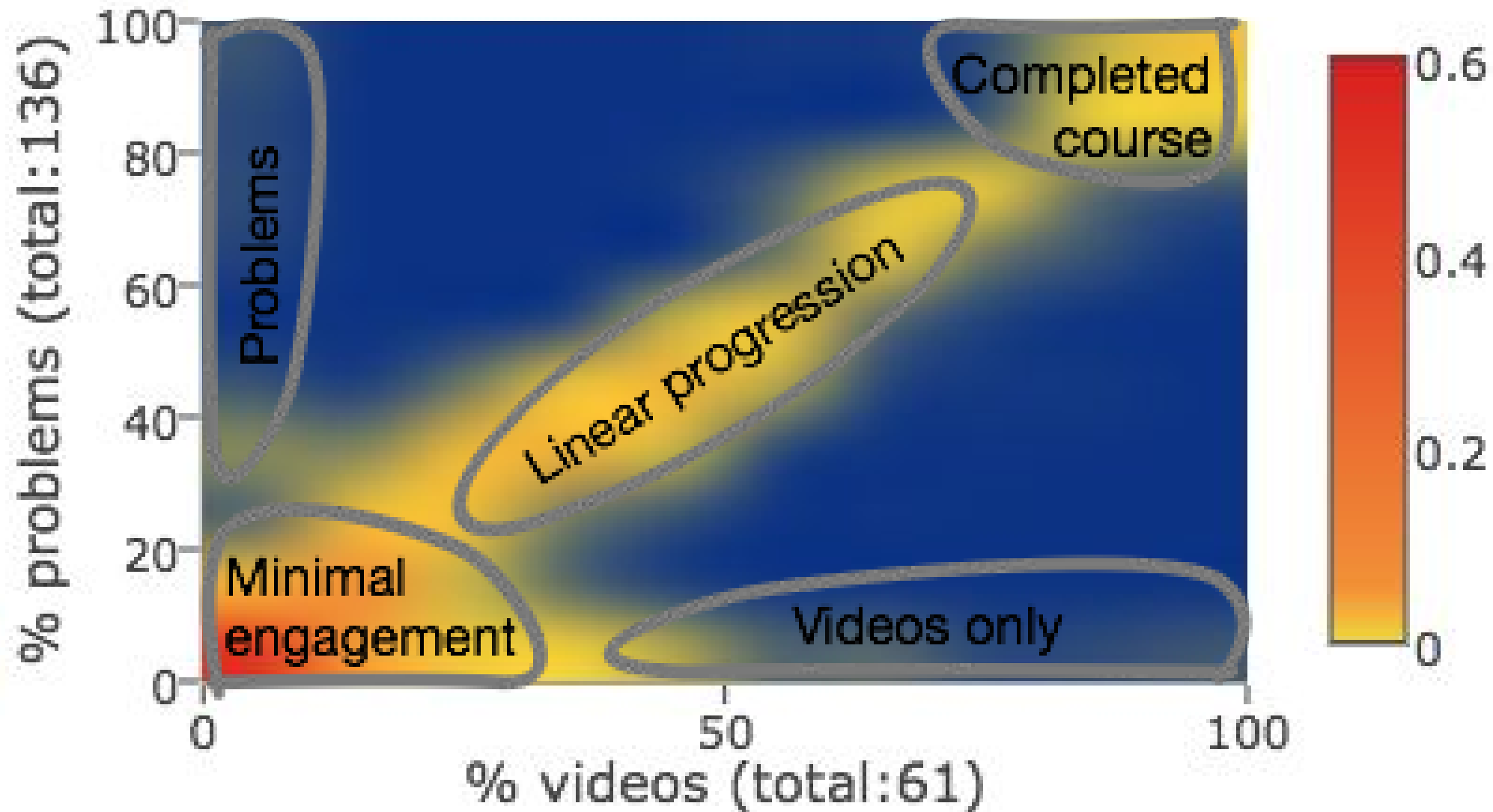
Ido Roll, Centre for Teaching, Learning, & Technology

Gregor Kiczales, Katrina Ni, Scott Mcmillan, Sara Perez, Tony Hui,  
Justin Leong, Pan Luo, Lauren Fratamico



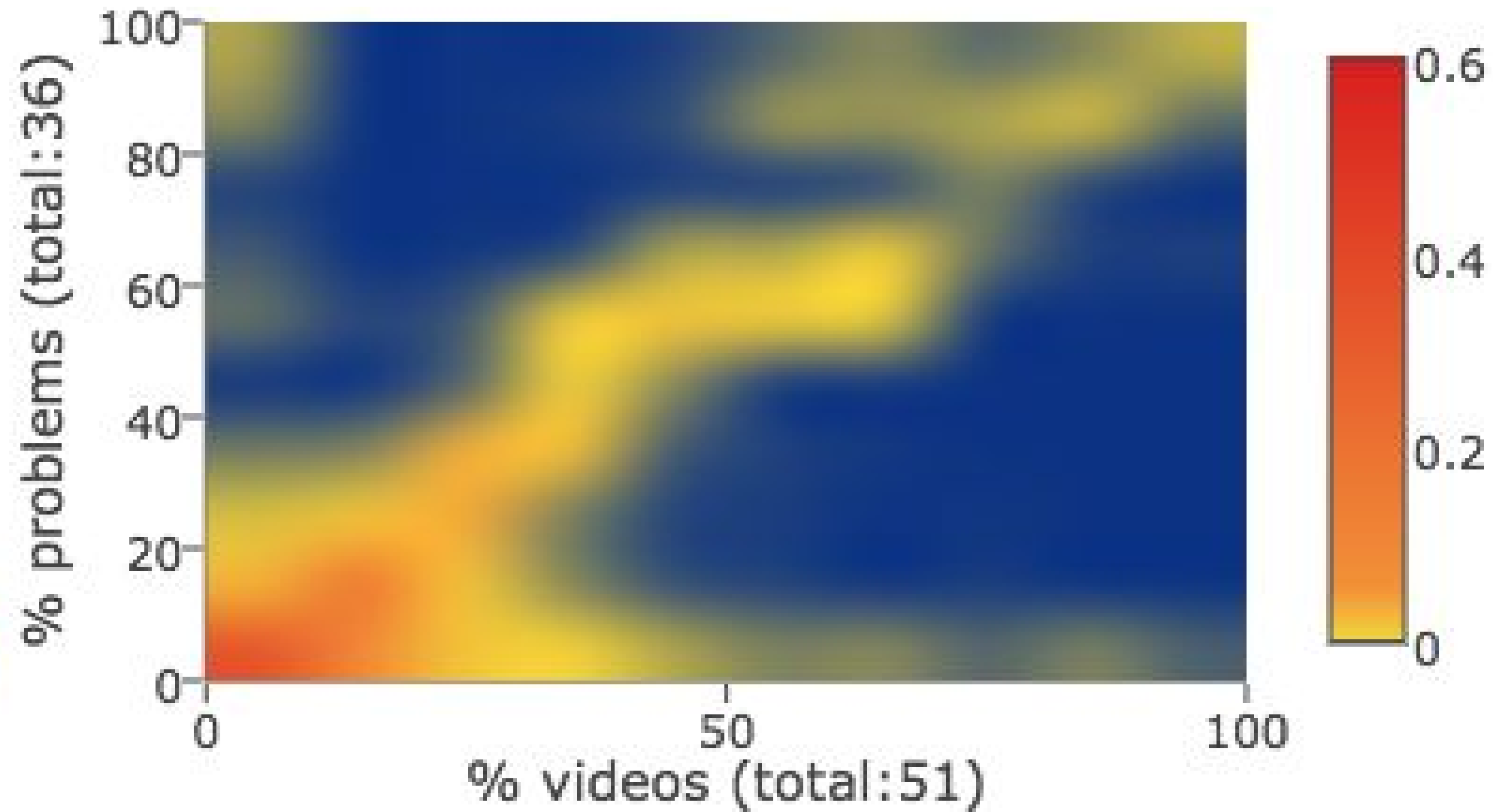
# 3. Engagement

UBCx/SPD1x/2T2016



# 3. Engagement

UBCx/Marketing1x/3T2015



# 3. Engagement

UBCx/Climate1X/2T2016

