

# Getting every student ready for every class



PAEE/ALE 2021 — International Conference on  
Active Learning in Engineering Education  
July 7, 2021



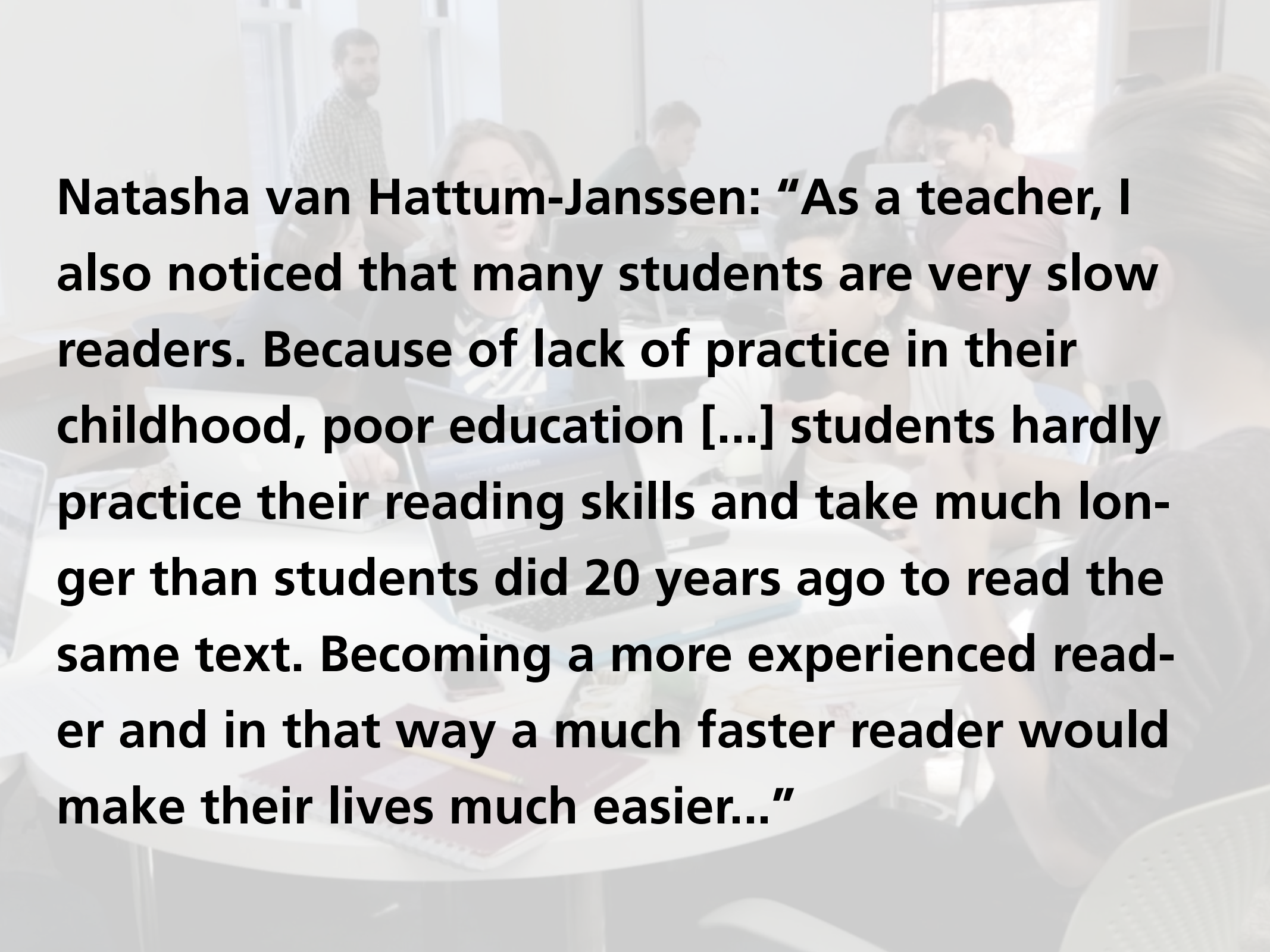
# Getting every student ready for every class



**@eric\_mazur**

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**Natasha van Hattum-Janssen: "As a teacher, I also noticed that many students are very slow readers. Because of lack of practice in their childhood, poor education [...] students hardly practice their reading skills and take much longer than students did 20 years ago to read the same text. Becoming a more experienced reader and in that way a much faster reader would make their lives much easier..."**

A group of people are gathered in a meeting room, seated around a white circular table. Several laptops are open on the table, and a notebook with a pencil is visible in the foreground. The background shows more people working at desks with laptops. The scene is brightly lit, suggesting a modern office or classroom environment.

**Goal of this session**

**demonstrate how to integrate Perusall  
in your teaching approach**



**information  
transfer**

**sense-making**

# Perusal Feedback — Pedagogy

- **motivating students**
- **instructor involvement**

## **Motivating students**

**Helena Alburquerque: “How to make students read the documents before the class? They don’t do that”**

**Julia Thomazoni: “I think it’s really difficult to start this... because some students don’t do what it’s requested at home. ”**

## Motivating students

**Pedro Ferreira: “I think this is an important aspect of the process. Connecting the strategy used in class with the assignment. I wonder if a poor connection between these two would lead to the same results?”**

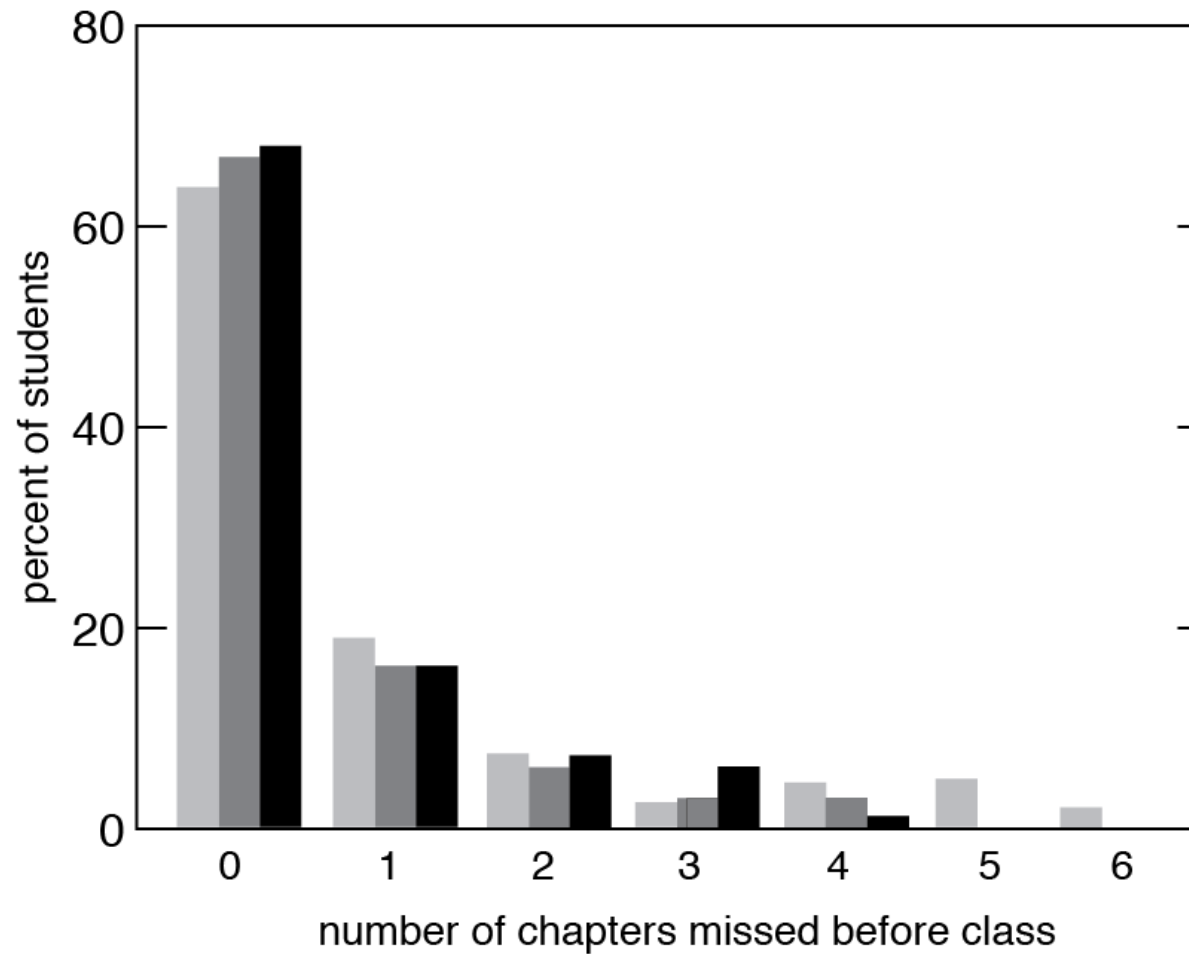
**Miguel Roma Romero: “A well designed assessment (or evaluation) is always relevant ([..]If I want you to read, I will assess your reading...).”**



## class test results

(b) Multiply magnitude of  $\vec{F}$  by  $r_{\perp}$ .

The lever arm distances must now be determined relative to the left end of the rod. The lever arm distance of force  $\vec{F}_1$  to this



On the very left, we see th...

It's interesting that the white ...

reference frame i... 2

does force affect ... 2

curious about this, t... 3

understand partially w... 3

class, we always emp... 3

part before this wa... 2

ended free-body d... 4

just means the net... 3

I understand why ... 3

important to note that... 2

reminds me of when we ... 3

is the ability of a forc... 3

e of diagram to use d... 3

ands like it is sayin... 3

hen do we have a p... 5

orque is the cross pro... 3

right-hand rule can al... 3

I understand how ... 3

tion-based descriptio... 3

I really understand... 2

small is small? As ... 3

I think it would be slightly ... 3

I believe I underst... 3

(a) The change in rotationa... 3

As we saw earlier in the chap... 3

Objects executing motion ar... 3

Generally, for rotating bod... 2

Does torque have the s... 3

I don't understand how the lever arm distance both... know some sort of direct...

I think you may be a direction separately. distance, you can attach parameters of the system explain how to choose th...

This is a great question. You can think of this in terms of torque is  $\tau = r \times F$ , with  $r$  the distance from the pivot force. We know that force in regards to "r" it can also mean is that this distance to the point where the force is applied. The general convention (the right-hand rule) is the direction which happens to be perpendicular to both the radius from the pivot and to the force.

Enter your comment or question and press Enter

## Example 12.2 Torques on lever

Three forces are exerted on the lever of [Figure 12.7](#). Forces  $\vec{F}_1$  and  $\vec{F}_3$  are equal in magnitude, and the magnitude of  $\vec{F}_2$  is half as great. Force  $\vec{F}_1$  is horizontal,  $\vec{F}_2$  and  $\vec{F}_3$  are vertical, and the lever makes an angle of  $45^\circ$  with the horizontal. Do these forces cause the lever to rotate about the pivot? If so, in which direction?

(a) The change in rotationa... 3

As we saw earlier in the chap... 3

Objects executing motion ar... 3

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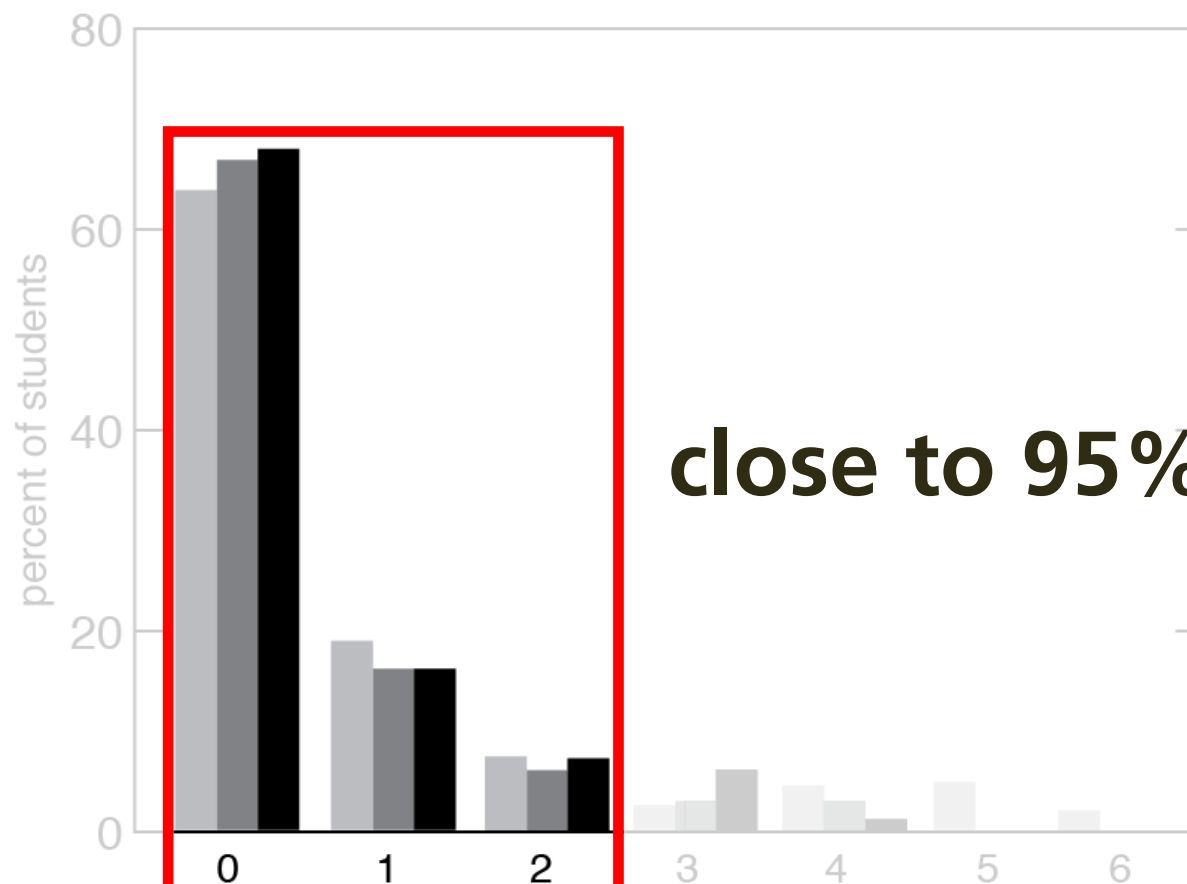
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The lever arm distances must now be determined relative to the left end of the rod. The lever arm distance of force  $\vec{F}_1$  to this



close to 95%!

number of chapters missed before class

I don't understand how factors tells you any lever arm distance both s know some sort of direct

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## **Motivating students**

**Miguel Roma Romero: "I would like to share an idea: maybe students are not reading (as much as we would like) because they do not feel they have to. Working under some frameworks (project based learning, for instance, with properly designed projects...), will make readings a must for project development. If reading becomes a necessity to move forward in the task, then this will not be an issue anymore."**

[Announcements](#)[Syllabus](#)[Modules](#)[Assignments](#)[Slack](#)[Grades](#)[People](#)[Perusall](#)[Manage Course](#)[Library Reserves](#)[Academic Integrity Policy](#)[Support Resources](#)[Panopto](#)[Collaborations](#)[Outcomes](#)[Rubrics](#)[Files](#)[Pages](#)[Discussions](#)[Quizzes](#)[Settings](#)

# Reading Assignment Overview

Because there are no lectures in AP50, you will be using *Perusall* to familiarize yourself interactively with the basic content of the course. You will do so by reading one chapter per week from a textbook that evolved from a set of lecture notes for an introductory physics course. The textbook, *Principles and Practice of Physics* (Eric Mazur, Pearson 2015) is available at no cost in Perusall. If you want a printed copy, you can purchase the book via one of the many online textbook vendors, but this is neither required nor necessary.

The *Perusall* platform permits you to interact asynchronously with other students in the class and help each other build a deeper understanding by annotating and discussing the material within the context of the text you are reading.

If you haven't yet done so, watch this [short introductory video](#) about *Perusall* before proceeding.

## Purpose of the reading assignments

The goal of the reading is to gain sufficient knowledge to be able to participate in subsequent activities in a meaningful way — just as a lecture would (but now you can do it at your own convenience and pace, and you can interact with others). The goal is not to master every little detail — the other activities are designed to reinforce your understanding of the important principles before you begin to apply them in the projects. There is no need to memorize any of the information in the text, as you will always have access to it. Therefore you can focus on understanding, rather than memorizing.

## Fostering a community of learners in *Perusall*

Perusall is **your space** and provides a good opportunity to create happenstance encounters and build an online community of learners. The teaching team will **not** participate in the discussions in Perusall, although to help facilitate and bootstrap both the conversation and your critical thinking about the material, we will pre-annotate the chapters in Perusall with a number of questions that students in previous years have asked. The [Perusall Curators Program](#), however, permits some of the most burning lingering questions or points of confusion to be transferred to the #perusall-loose-ends channel on Slack, where everyone, including members of the teaching team, can join in on a conversation.

With this space on Perusall for interacting with others also comes the responsibility of maintaining [professionalism](#). It is important to always behave respectfully, even with conflicting view points. While there is no moderation of the annotations on Perusall, **you can anonymously report an annotation** if you deem it to be inappropriate or plagiarized. Click the small 'hazard' triangle underneath the annotation and the annotation will be removed until it is reviewed by the teaching team.

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[http://bit.ly/perusall\\_instructions](http://bit.ly/perusall_instructions)

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## **Instructor involvement**

**Cristina Gimenez Elorriaga: “Flipped class required much more effort from the teacher, right?”**

**Marco Antonio Garcia de Carvalho: “This requires a big change in course planning.”**

A group of students in a classroom setting, some using laptops, with text overlays. The scene is a bright, modern classroom with large windows. Several students are seated at round tables, some with laptops open. One student in the foreground is looking at a laptop screen, while others are engaged in conversation. The text "Instructor involvement" is overlaid at the top, and "How I prepared myself" is overlaid in the middle.

**Instructor involvement**

**How I prepared myself**

# Perusal Feedback — Technology

- **scoring**
- **grouping**
- **content**



## Scoring

**Rui M. Lima: “Is the instructor that evaluates if the annotations are thoughtful?”**

**Walter Aoiama Nagai: “Which engagement characteristics are analyzed?”**

**Jesús Armengol: “The grading algorithm could be adapted?”**

## Grouping

A group of people are gathered around a white circular table in a meeting room. Several laptops are open on the table, and a notebook with a pencil is visible in the foreground. The people are engaged in conversation, with some looking at the laptops. The background shows a bright room with large windows and other people working at desks.

**Jesús Armengol: “Technical question: Teachers have the possibility of organizing groups?”**



## **Content**

**Sonia Carvalho: “We may use books from other languages besides English?”**

**Walter Aoiama Nagai: “Are only English textbooks permitted?”**

## Content

**Valquiria Villas-Boas: "My institution has access to a Virtual Library that is provided by a group of Publishing companies. Is that possible to use the e-books in Perusall? Or Persuall has its own Virtual Library?"**

**Paula Morais: ""Yes this seems a very interesting platform. A more practical question — is it free?""**

# Documents you can use with Perusall

- **PDF, Word, html, or ePub files (free)**
- **video—YouTube, Vimeo, Google Drive, Dropbox (free)**
- **open access material (free)**
- **source code with syntax highlighting (free)**
- **books (purchased by students or institution)**

# Reflection

- **asynchronous preparation**
- **synchronous time for discussion**

# Reflection

- **asynchronous preparation**
- **synchronous time for discussion**
- **dig deeper post-session**

# Perusall Exchange 2021

An event for innovators in teaching

May 17-28, 2021

May 17-28

[perusall.com/exchange](https://perusall.com/exchange)

Perusall



Dear Eric,

Perusall adoptions have grown quickly across disciplines worldwide. Instructors have shared many creative pedagogical strategies with us so we thought it was time to provide a forum for our community to share best practices and creative solutions for engaging students in online learning. We are pleased to announce:

## Perusall Exchange 2021

An event for innovators in teaching  
May 17-28, 2021

The Perusall Exchange 2021 will be held within the Perusall platform to permit asynchronous discussion with and between participants. The event will also include virtual, synchronous exchanges of ideas between presenters and participants.

We are now accepting proposals at [exchange@perusall.com](mailto:exchange@perusall.com). Our theme is Transform Teaching and Learning with Perusall. Proposals should be no more than 400 words or two minutes in length if submitted in video form. Submissions should emphasize the connection between pedagogy and Perusall: e.g., how to implement. The deadline for proposals is May 26, 2021.



# Upgrading to Instructor Account

- log in to your Perusall Account
- click “Enroll in Course”
- enter code: VVTQIBJNVK

**for a copy of this presentation:**

**[mazur.harvard.edu](http://mazur.harvard.edu)**

**additional resources in Perusall course**

**also see [bit.ly/fliponline](http://bit.ly/fliponline)**

**Follow me!**



**@eric\_mazur**