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東京大学
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GLOBAL

Future Faculty Development Program

DAY 1
The science of learning

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This course is recorded to be published online as review and teaching material, and to be used for research purposes with the aim of improving the course itself.

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Suggestions & class policies

Please, reach us out if there is a circumstance that you feel will affect your **participation**, if you find yourself **overwhelmed**, if we can do **anything** to make this course more **accessible and inclusive,** etc. Do not hesitate. Let's talk!

We shall address each other using the **name** and gender **pronouns** they told us.

Stay **positive** and keen to learn. Show interest in what others say and listen **actively**.

Respectfully "**interrupt**" the facilitators as much as necessary. **Share** thoughts and ideas actively.

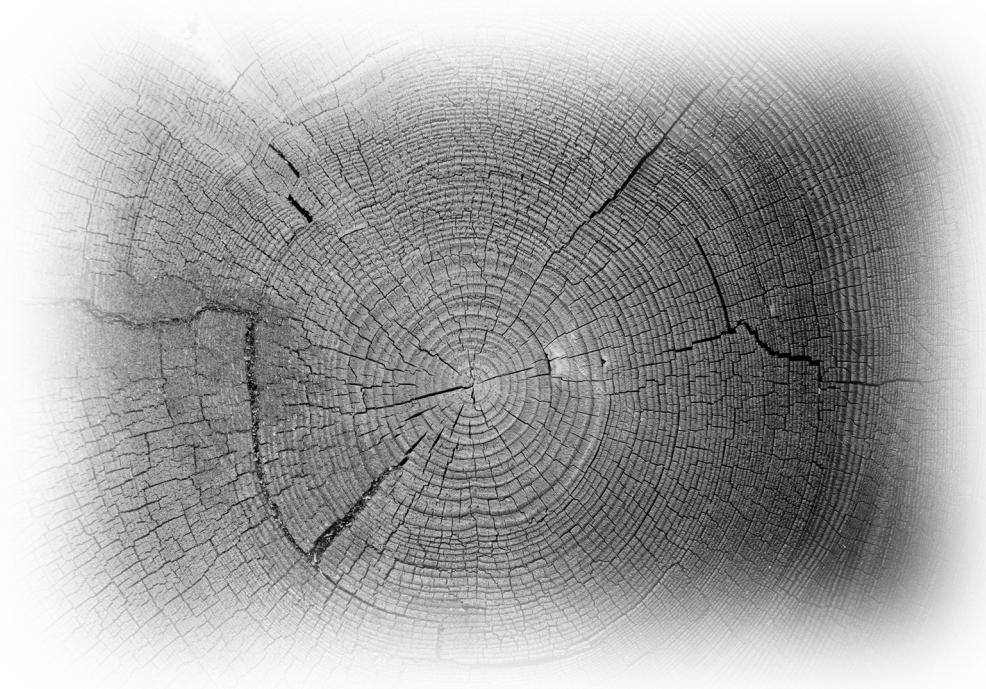
Be **respectful**, **constructive**, and **speak** without reserve.

In online communication, overreactions are welcome.

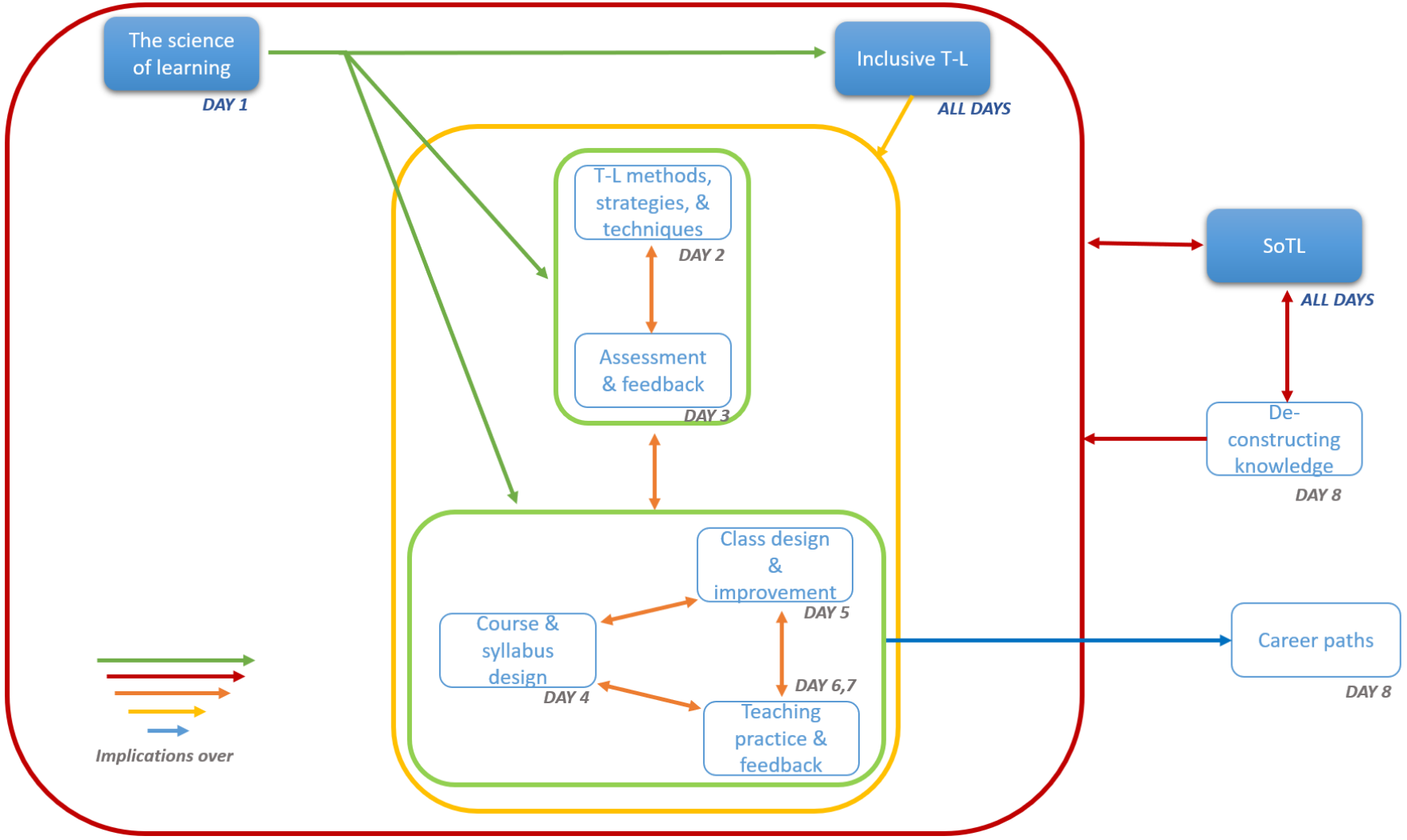
FOLLOWING THE PREVIOUS SESSION…

Synthesis

- What UTokyo Global FFDP is about
- Practical aspects of the program
- "Use of cameras in-class": HIGHLIGHTS DOCUMENT
- Got to know each other, the program's dynamics and platforms
- You also reflected on the educational practices of the session & watched the video for this session



Today


The science of learning
DAY 1
Inclusive T-L
ALL DAYS
T-L methods, strategies, & techniques
DAY 2
Assessment & feedback
DAY 3
SoTL
ALL DAYS
De-constructing knowledge
DAY 8
Class design & improvement
DAY 5
Course & syllabus design
DAY 4
DAY 6,7
Teaching practice & feedback
Career paths
DAY 8
Implications over

Agenda

- Last session & the science of learning discussion
- The science of learning: video discussion & pedagogical implications
- Learner-centered, active learning
- Following next week

Main activities

Discussion about the connection between last session & the science of learning, video on the science of learning, pedagogical implications of the science of learning and meaning of active learning.

This session: Under its skin and why

Time to learn, think and discuss about how we/students learn and the factors that have an impact on learning.

At a fundamental level!

Why is it important?

It leads to specific **practical ideas** for course and class design (days 4 to 7)

Underused. Few opportunities to be exposed to related research and training textbooks tend to omit these aspects (Weinstein et al., 2018).

Many of **you mentioned as challenges in HE**; motivation of students, their enthusiasm, passive learning, transmissive teaching, or the lack of community building opportunities.

Goals (of the session)

- To promote scholarly knowledge and educational (self-)reflection regarding how people learn.
- To generate opportunities to connect how students learn with educational decisions by discussing the pedagogical implications of how students learn.

Intended learning outcomes

At the end of the session, participants would be able to (at a fundamental level):

- Understand and ponder the relevance of the different factors that have an impact over how students learn.
- Scholarly discuss the practical pedagogical implications over teaching of what we know regarding how students learn.

THE SCIENCE OF LEARNING

Last session: educational practices & decisions

- Benefits/challenges of using/repeating work sequences involving individual work, work in pairs, groupwork, whole class work (slides 14, 23, 30)
- Benefits/problems of guiding too much/little (to the minute) students' work (slides 14, 30)
- Benefits/challenges of building on students' ideas & interests (slides 30/32, 35/36)
- Educational purpose/contribution of slides 22 and 35/36.

Last session (& the science of learning)

- **Sharing** ideas about last session educational practices (group, 15min)
  - **Share** your ideas & try to **connect the topic of debate with the contents of video**.
  - **Prepare a synthesis** of your ideas + any **doubts** in slide 1 of your group's "in-class tasks" (prepare to present them in <2 minutes)

Group 1 : *Benefits/challenges of repeating work sequences involving individual work, work in pairs, etc.*

Group 2 : *Benefits/problems of guiding too much/little (to the minute) students' work*

Group 3 : *Benefits/challenges of building on students' ideas & interests*

Group 4 : *Educational purpose/contribution of slides 22 and 35/36*

Rest of observers: **free** to choose one group to **observe**

- **Your** ideas (whole class, 15 min)
  - **Present** the most **relevant ideas and/or doubts** for discussion (< 2min/group)

Video about the science of learning

- **Sharing** ideas about the video I (group, 15min)
  - Comment the most relevant ideas of the video for you and your doubts (try to solve them). **Prepare a synthesis** of any **unsolved doubts & aspects for further discussion** in slide 2 of your group's "in-class tasks" (prepare to present them in <2 minutes)

Group 1
Group 2
Group 3
Group 4
Rest of observers: **free** to choose one group to **observe**

- **Sharing** ideas about the video II (whole class, 15min)
  - Present the remaining doubts (2min/group)

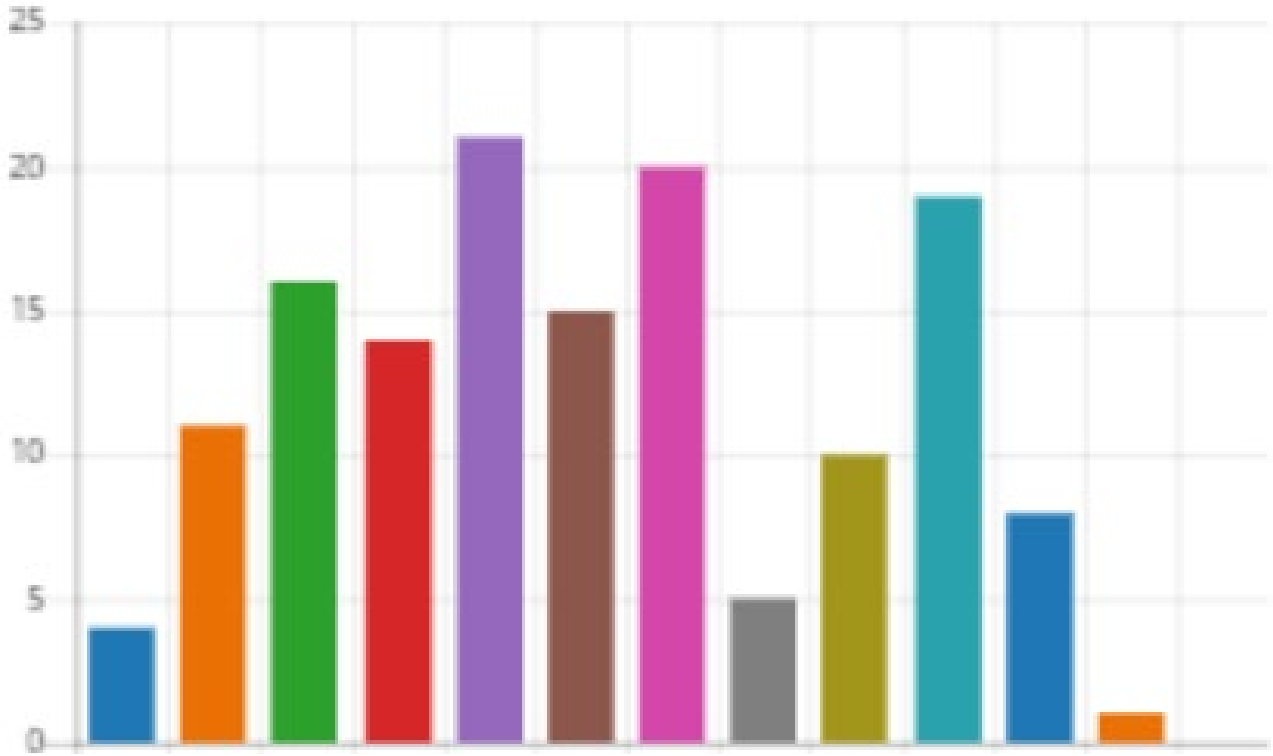
BREAK 1

Video about the science of learning

Your previous ideas

6. Regarding learning, which of the following statements do you think are true?

4	Taking breaks avoids the consolidation of memories
11	Long-term memory is where true information is encoded
16	Offering diverse concurrent inputs contributes to enhance learning
14	Scaffolding is necessary for learning, regardless of our expertise
21	Mixing old and new knowledge enhances learning
15	Practice is more effective when increasingly varied
20	Practice is more effective when spaced in time
5	Practice is not effective if its perceived as challenging
10	Peers are more effective than teachers as models
19	More motivation generates more learning
8	Expected rewards are more effective than unexpected rewards
1	All of the above
0	None of the above



Some fundamental principles for/about learning

Pedagogical implications?

Teacher lenses: Pedagogical implications

- Individually (2 min). Regarding the video (slides in GC).

Think (& take notes) about the **pedagogical implications** of the ideas discussed: **how to transfer** some of them to practice.

- In group (15 min)

Share and **summarize** your ideas; group them by **main topics/implications** in slide 3 of your group's "in-class tasks" (**prepare to present** them in <2 min)

Group 1
Group 2
Group 3
Group 4
Rest of observers: free to choose one group to **observe**

- Whole class (20min)

Present your ideas (<2min/group) & discussion

BREAK 2

Overall…

Learning being enhanced by T&L processes that implicate:

1. **Safe** environments, **trusting** relationships & **supporting** a sense of **purpose** & **belonging**.
2. Showing **proximity, assertiveness, and availability** & considering how **our attitudes** impact our students'.
3. Understanding & building on **prior knowledge, interests, experiences and expectations** (diagnostic assessment).
4. Evincing the **relevancy, value and meaning** of goals, knowledge and tasks.
5. Supporting **motivation, goal-setting, agency, self-regulation** and metacognitive skills.

Overall…

6. Involving students in cocreating & generating diverse **cooperative learning** opportunities.
7. **Connecting, revisiting, & interleaving** content across the course/tasks (learning progressions).
8. **Problematizing** previous knowledge/skills, etc..
9. Presenting ideas in **complementary ways** (dual coding), with **breaks** & not **overloading**.
10. **Scaffolding** knowledge/tasks (worked examples) at the "right" **challenging** (desirable difficulty) level. Break down & integrate content/skills into components. Less scaffolding with more expertise.

Overall…

12. Using **continuous assessment** to enhance scaffolding.

13. Practicing (**retrieve & use)** through tasks of **different nature** (more variety with more expertise), approachable through different angles, **across time,** and in a **meaningful** & authentic manner.

14. Using **surprise** and **unexpected and close in time** rewards.

15. Offering **formative** and timely feedback to reinforce learning, emotions, and attitudes towards learning, with a **positive interpretation** of errors, & valuing **process and effort** in addition to results.

CLOSING UP & BEFORE NEXT WEEK

Synthesis of today

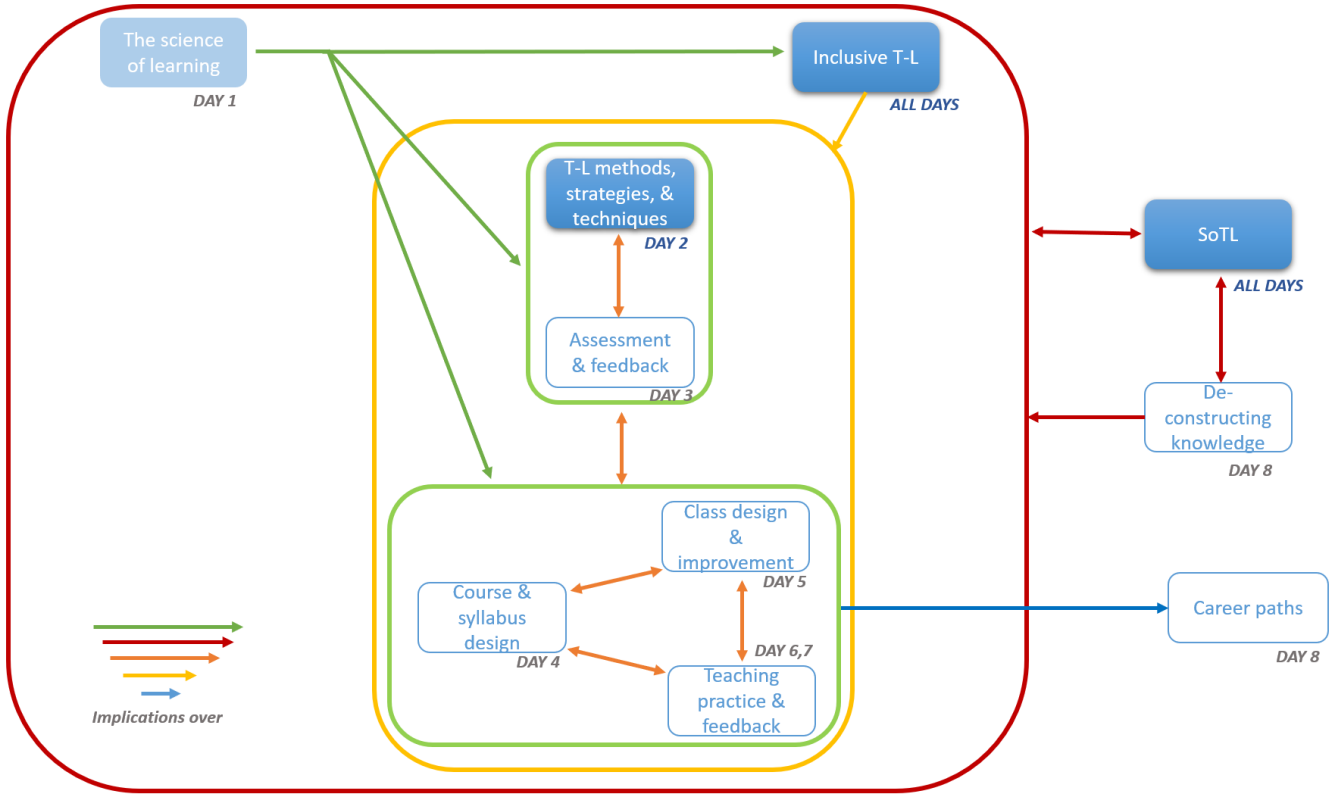
- Reflection on educational practices and the science of learning.
- Elements with an impact on learning and pedagogical implications.
- Design involving:
  - “Flipped classroom”.
  - Materials with gaps.
  - Groupwork.
  - Connection between sessions.
  - Building on students’ ideas.

Next session

Teaching and learning methods, strategies, techniques

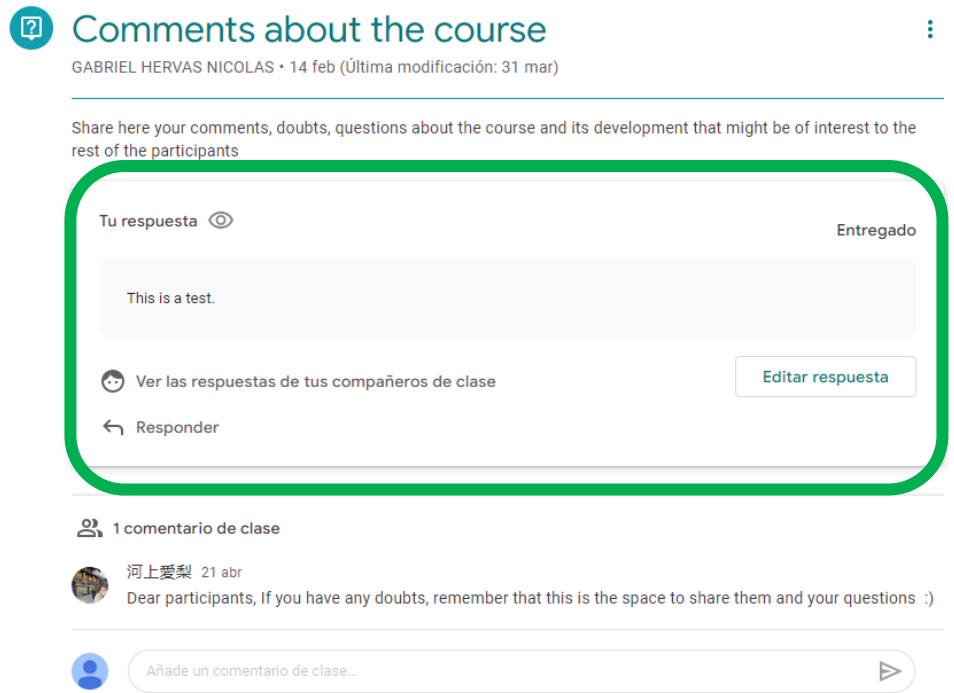
How can we contribute to our students' learning?

What methods, strategies and techniques can we use to promote active and significant learning?



Google Classroom & tasks

- Upload a document to the task with your work (ideas, reflection, etc.).
- Take a look to the instructions and, if there are any doubts, do not hesitate to let us know ☺
- Specially for reflection, use your ideas and quote other's ☺ & read the document with ideas for reflective tasks. We will be paying more attention to it in future tasks.
- Forum.



Time. Need more? Let us know with some anticipation ☺

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Before next session (or later)…

Reflection on groupwork

(400w): May 8th

Watch video & participate in forum

May 8th

Reflection again on educational practices

(350w, if written): May 22nd

Let's enjoy the ride

Whenever you have the time, look back to your TPS… how would you modify it?

Now

10 min.

a) **What you learnt** today (it includes the video).

- *What did you learn that you did not know? How have your ideas changed?*

No more than **2 ideas** so you can delve into them: topics addressed explicitly or implicit aspects of the class (design, structure, practices, etc.).

- "**Muddy points**" that remain unclear & any suggestions you'd like to give regarding the class.
- Anything you would like **to know more about**/continue learning.

b) **What do you expect to learn during the next class.**

- After seeing the topic of the session, what do you expect to learn?

a & b in 250w

Self-assess your in-class participation

- Use the questions (attached to the task) & self-assess your participation today.

Enjoy the ride!

If you need anything, can't meet deadlines, have any suggestions, etc., do not hesitate to talk to us ☺

Thank you!

See you: May 10th

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“Just” talk ☺

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Also, take a look at

- Key Findings and Implications of the Science of Learning and Development. Retrieved from https://turnaroundusa.org/wp-content/uploads/2018/02/Key-Findings-and-Implications-of-the-Science-of-Learning-Development.pdf
- Johns Hopkins Science of Learning Institute http://scienceoflearning.jhu.edu/science-to-practice/resources/
- The Education Hub https://theeducationhub.org.nz/category/school-resources/science-of-learning/