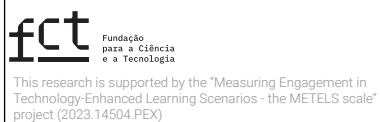


R2D-TEL Workshop

REFLECTION TO DESIGN

DESIGNING FOR ENGAGEMENT IN TEL

Mónica Aresta | University of Aveiro



Who you are
Where you came from
What you are working on

PASSION LED US HERE

TODAY'S AGENDA

MORNING

R2D-TEL: theoretical background, workshop's objectives

individual reflection

GROUP ACTIVITY I: collaborative synthesis (the R2D-TEL canvas)

AFTERNOON

GROUP ACTIVITY II: cross-technology reflection

GROUP ACTIVITY III: heuristics co-creation. practical principles for ethical, effective TEL design.

WRAP UP

WHY THIS MATTERS

TECHNOLOGY-ENHANCED LEARNING TOOLS ARE
CHANGING HOW STUDENTS **ENGAGE WITH LEARNING**
ENGAGEMENT IS WIDELY TREATED AS **CENTRAL** TO
LEARNING SUCCESS

HOW IS ENGAGEMENT ACTUALLY MEASURED?

- A recent systematic review asked exactly this: not how engagement is theorized, but how it is measured in practice.
- PRISMA-guided synthesis of validated self-report instruments, combined with independent, item-level coding of scale content.

26 empirical TEL studies (2015–2025), 29 validated instruments, 346 individual scale items.

- Every item across all 29 instruments was independently coded against five engagement dimensions

A FIVE-DIMENSION CODING FRAMEWORK

Cognitive — how much mental effort a learner invests: attention, self-regulation, working to understand.

Affective — the emotions a learner feels toward the learning, the tool, and the environment around it.

Behavioral — whether a learner shows up, keeps going, and puts in the effort.

Social — how much real interaction and collaboration a learner has with others through the tool.

Agentic — how much say a learner has: taking initiative, shaping their own path.

FROM MEASUREMENT TO DESIGN

WHERE TODAY PICKS UP

- **REFLECTION** | use the cards
- **DISCUSSION** | explore the canvas
- **DESIGN** | suggest new directions

LET'S BEGIN

For the next

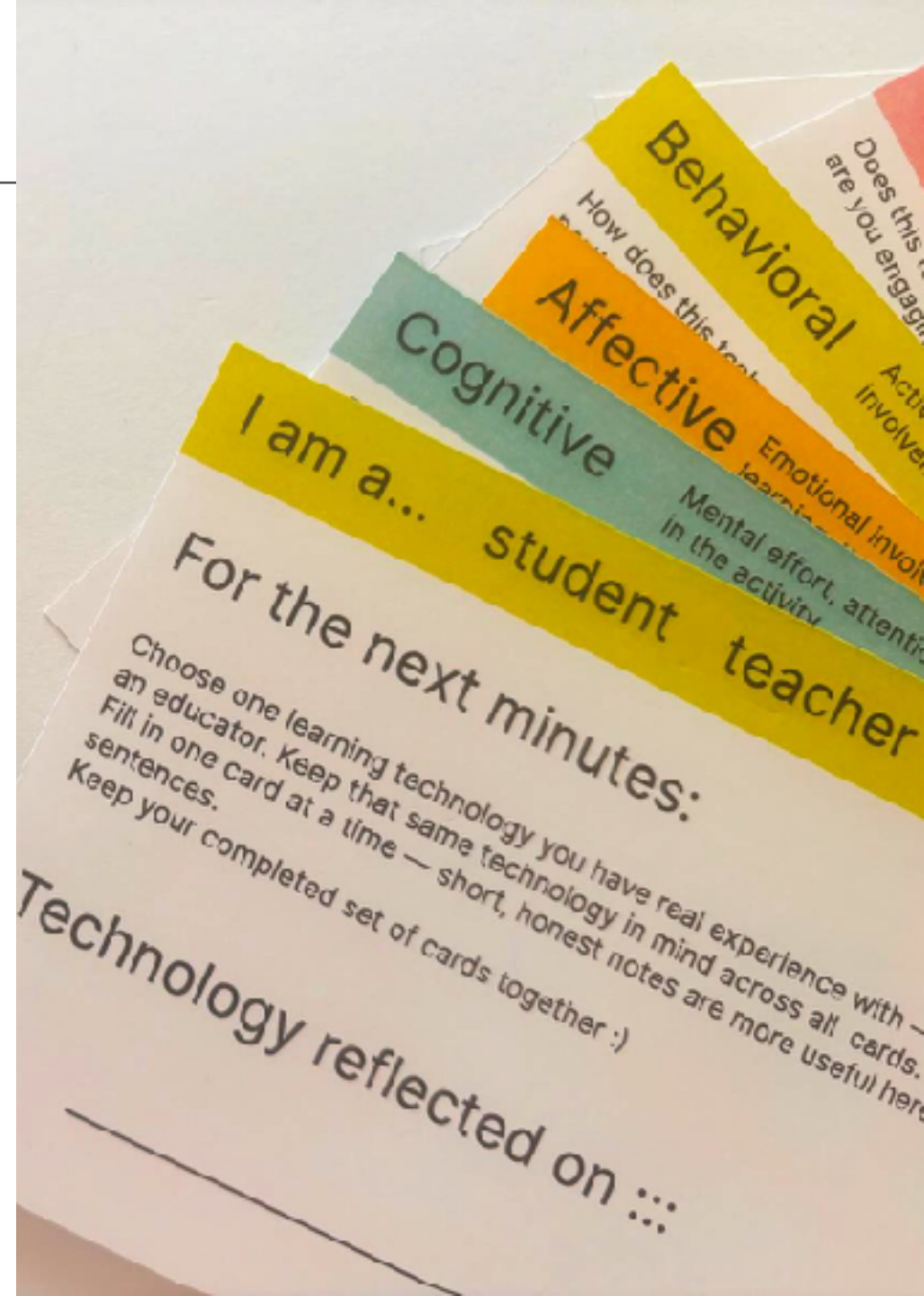
40 minutes

Choose one **technology**. Something you know well — as a learner or an educator. Keep it in mind for all 7 cards.

Start with the **5 dimension cards**. Cognitive, Affective, Behavioral, Social, Agentic — these are the traditional engagement dimensions.

Then move to the 2 **condition cards**. These ask you to step back and think about the environment itself, not just your own engagement.

NOTE: USE THE CARDS. WRITE DOWN YOUR THOUGHTS.
Short, honest notes beat polished sentences — you'll build on this all day :)



COFFEE BREAK!

(MEET YOU BACK AT 11H30)



IT'S DISCUSSION TIME

For the next

60 minutes

Find your technology group

BUILD YOUR SHARED CANVAS

Read your cards

Discuss, dimension by dimension. Do you agree? Does someone see something the others missed?

Use the post-its. Try out wording for your shared view — cross out, redo, argue about it.

Write the blank card. Reached an agreement? Or still far from that? transfer your thoughts onto one blank card and place it in the canvas.

Repeat for all dimensions

OVERALL, DOES ENGAGEMENT
HERE FEEL DRIVEN MOSTLY BY THIS
TECHNOLOGY, OR WOULD YOU
EXPECT SOMETHING SIMILAR WITH
A DIFFERENT TOOL?

Foto de Brando People na Unsplash

Foto de Brando People na Unsplash

LUNCH TIME!!!

(MEET YOU BACK AT 14H30)



LET'S EXTEND THE DISCUSSION

Step 1 — **Merge** Into a Larger Group

Bring your finished canvas with you — it doesn't need explaining out loud, just set it down.

Step 2 — **Talk** It Through

Lay the canvases side by side. Use these as starting points, not a checklist.

Step 3 — **Summarize** your thoughts

Use the handout to write down your answers as you go.

Take your time. We have
50 minutes
to do this

GROUP ACTIVITY II

technologies::

Which dimensions look similar across these technologies — and what do you think makes that true regardless of the tool?

Which ones seem to depend heavily on this specific technology — what is it about the tool that ties them so closely?

Did anything surprise you — and if so, what do you think explains it?

COFFEE BREAK!

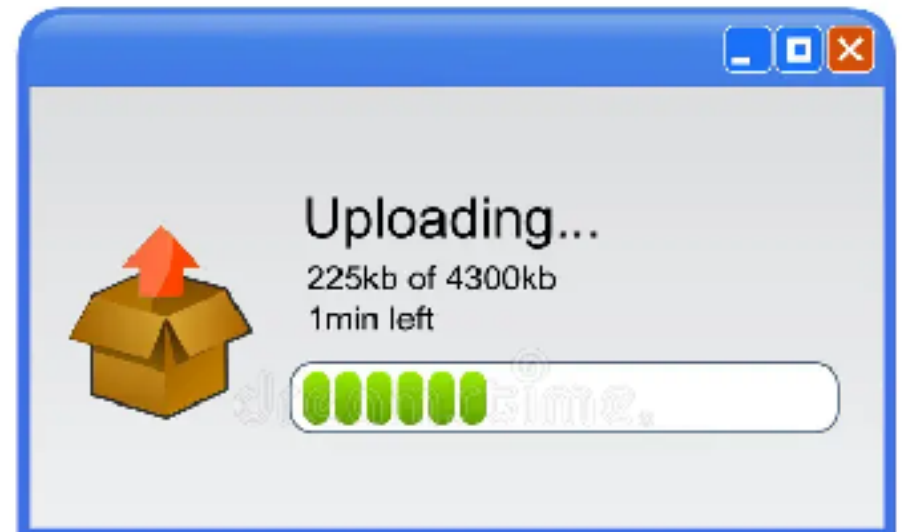
(MEET YOU BACK AT 16H00)



WHAT IS AN HEURISTIC?

An heuristic is a practical rule of thumb — not a strict law, but a guideline from experience that usually helps.

A familiar example: “Visibility of System Status” (Nielsen’s heuristic)
the system should always keep users inform about what's going on, through appropriate feedback within a reasonable time



TIME TO GET SERIOUS

HEURISTIC CANDIDATE #____

THE HEURISTIC

(one plain line of design/evaluation advice. think: a TEL system should...)

WHY

(the rationale — why do you think this matters?)

BUT...

(a trade-off or limit. where does this one stop working? think: this would work except except when...)

For the next

45 minutes

Drafting Your Heuristics

Step 1 - **Ground it.** Look back at your canvas and reflection notes. Pick 2–3 things worth turning into advice.

Step 2 - **Draft candidates.** One idea per card. Fill in “The heuristic” and “Why” for each — a card is cheap to abandon.

Step 3 - **Stress-test.** For your strongest candidates, add the “But” line. Use a second pen color if you can.

Step 4 - **Finalize.** Pick your strongest 1–3 cards!

ALMOST DONE...

Let's walk!

Read every posted canvas and heuristic card, at your own pace

Pick up a sticker sheet. Mark whichever heuristics feel strongest to you as you go.

No set number, no discussion needed — just **walk**, **read**, and **add a sticker** to what strikes you.

(Note: stickers are just stickers :D. They do not convey classification)



Ethical GenAI Study

How do TEL-Researchers
think about genAI for
research?

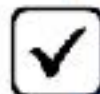
ETH ZURICH &
UNIVERSITY
DE AVEIRO



HELP US ADVANCE THE
TEL FIELD!



CONTRIBUTE TO MORE
ETHICAL TEL RESEARCH!



REFLECT ON TEL
RESEARCH PRACTICES!



Takes 15-20 minutes!

Please scan the code and
leave your email address
for later, if you do not have
time right now.

MORE INFORMATION:

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Adrienn Toth, adtoth@ethz.ch

Dr. Monica Arrema, m.aresta@ua.pt

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DESIGNING FOR ENGAGEMENT IN TEL

Thank you!

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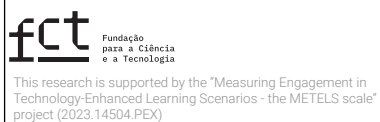


Foto: freepick