



CS-411 Chapter 9 (extension)





OR



Humans are social animals

Summary of chapter 9

1. Collaborative learning is often effective, but not systematically.
2. Effective tasks require some degree of **interdependence** among team members
3. It is effective when **rich verbal interactions** occur such as explanation, argumentation, mutual regulation
4. To make it more effective, **classroom scripts** increase the probability for students to produce these interactions by **integrating** team, individual and class wide activities
5. It takes a talented **teachers** to orchestrate these scenarios
6. **The theory behind emphasizes that cognition is inherently social because thinking mostly relies on language.**

Humans are social animals

≠

Human cognition is social

Social Interaction

Internalisation

Private speech (Vygostky)
Egocentric speech (Piaget)

Reasoning

Thinking is a dialogue with oneself .

Social Interaction

Internalisation



Zone of Proximal Development (ZPD)

Reasoning

Human Cognition:

The hardware is individual
but
the software is social

The future of learning is personal



By Gary Martin 13/03/2020 - 09:58

EDUCATION

OPINION

FREE TO READ



OPINION: Far from making teachers obsolete, personalised learning requires them to use their current skills while developing new ones.

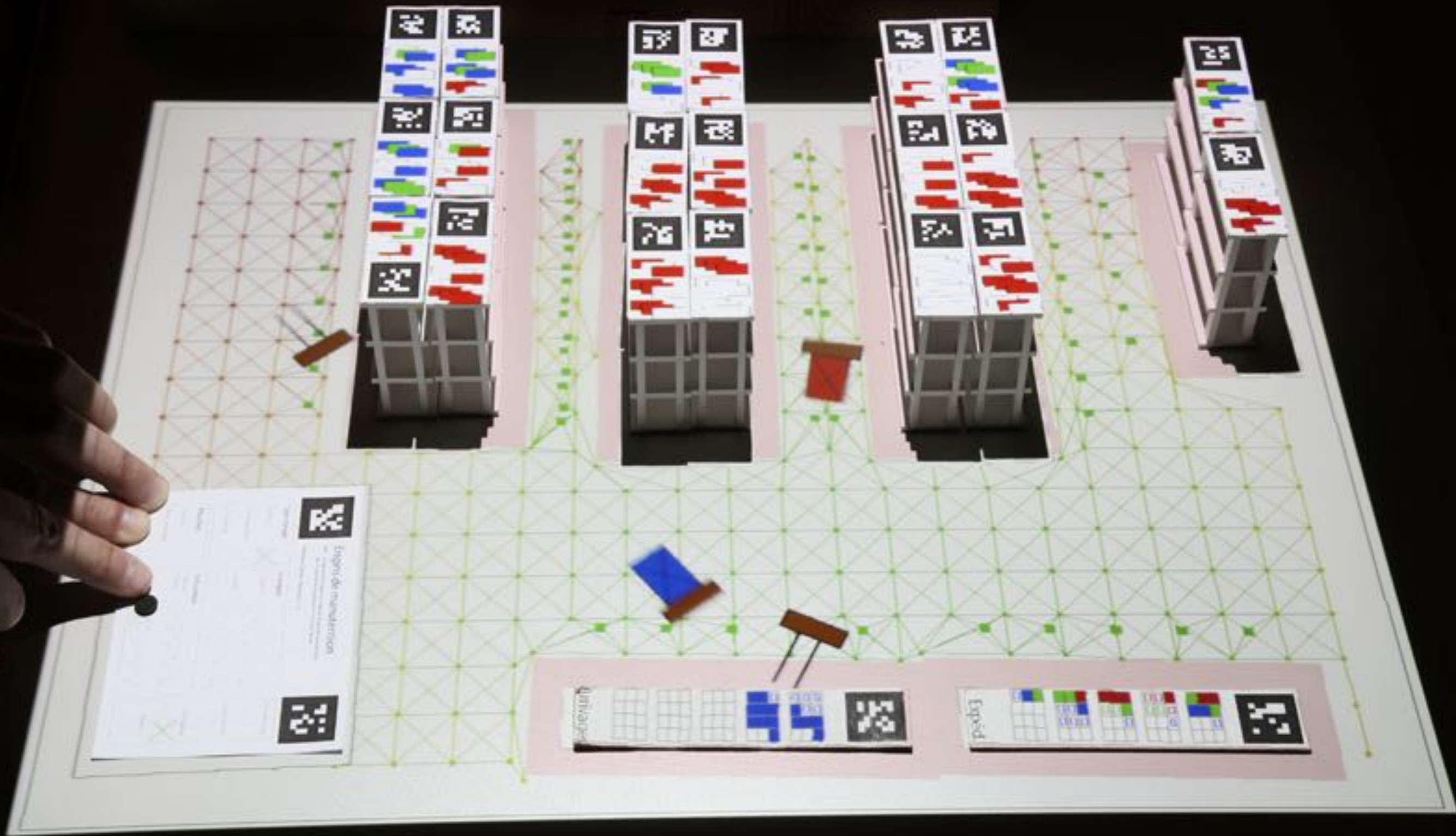


Technology has been a game changer in terms of individualised learning. Photo: Stocipphoto



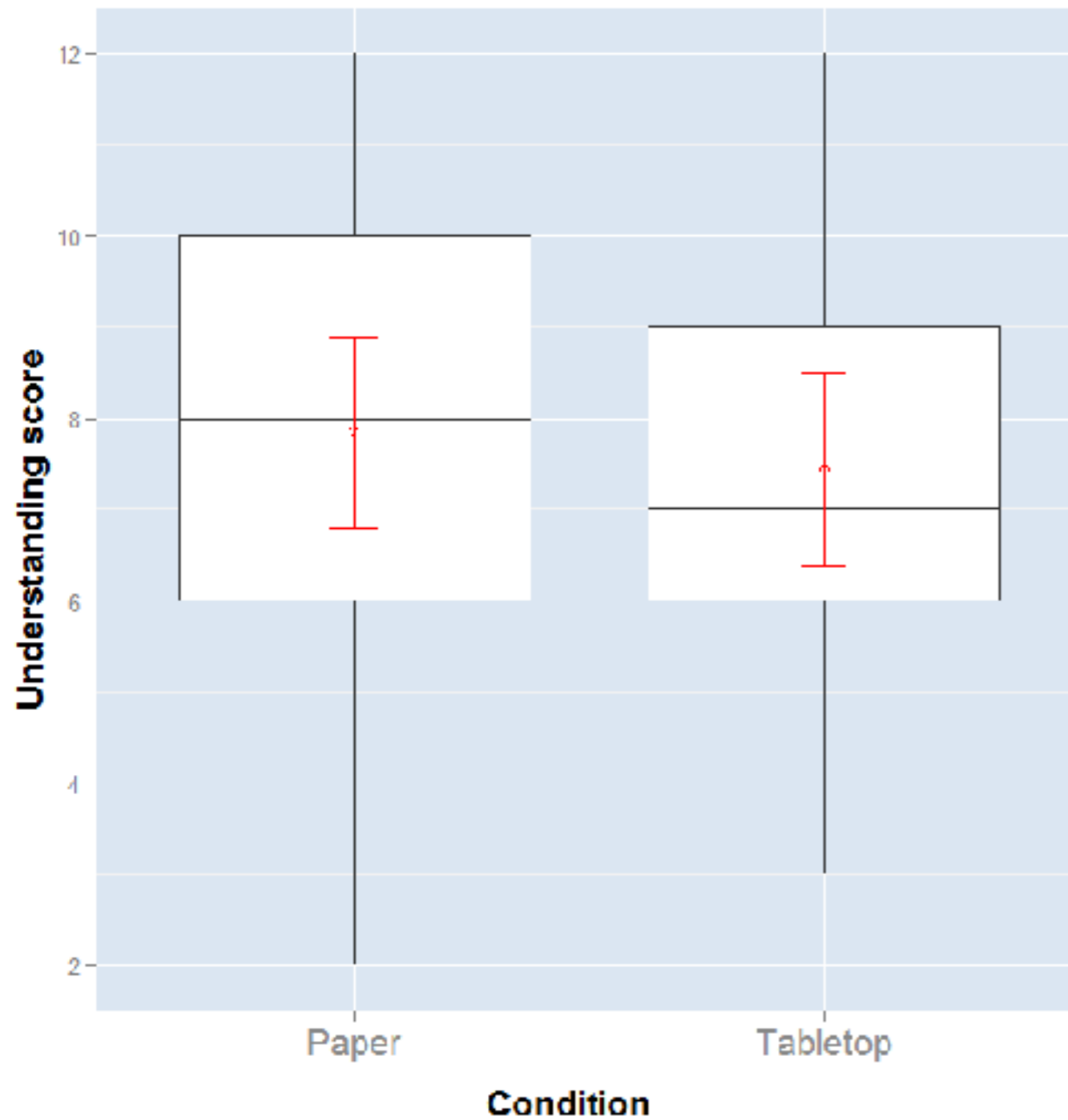
Summary of chapter 9

1. Collaborative learning is often effective, but not systematically.
2. Effective tasks require some degree of **interdependence** among team members
3. It is effective when **rich verbal interactions** occur such as explanation, argumentation, mutual regulation
4. To make it more effective, **classroom scripts** increase the probability for students to produce these interactions by **integrating** team, individual and class wide activities
5. **It takes a talented teachers to orchestrate these scenarios... or technologies that EMPOWER the teachers in their role**
6. The theory behind emphasizes that **cognition is inherently social** because thinking mostly relies on language.



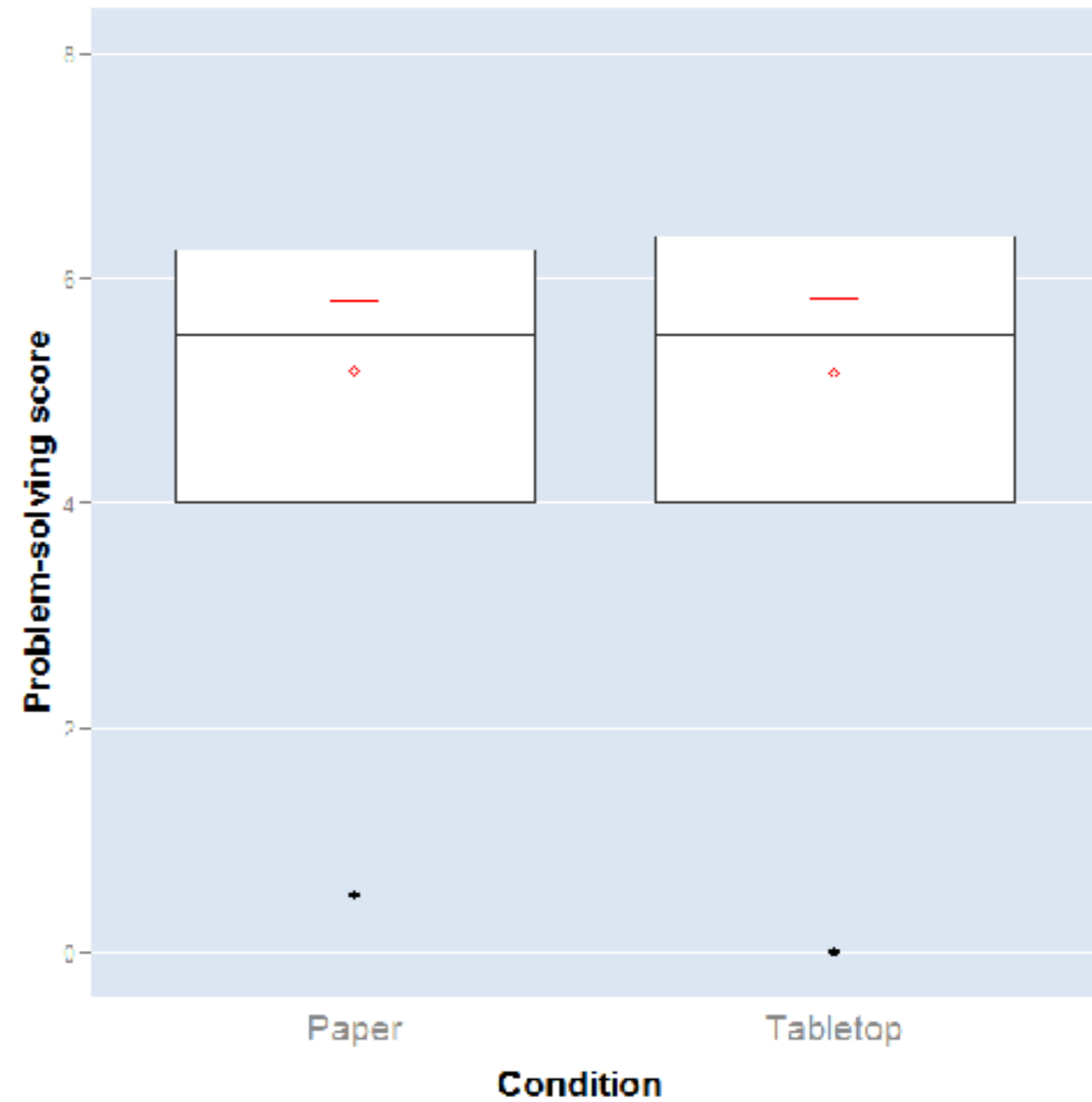
The TinkerLamp

No sign. effect in
understanding

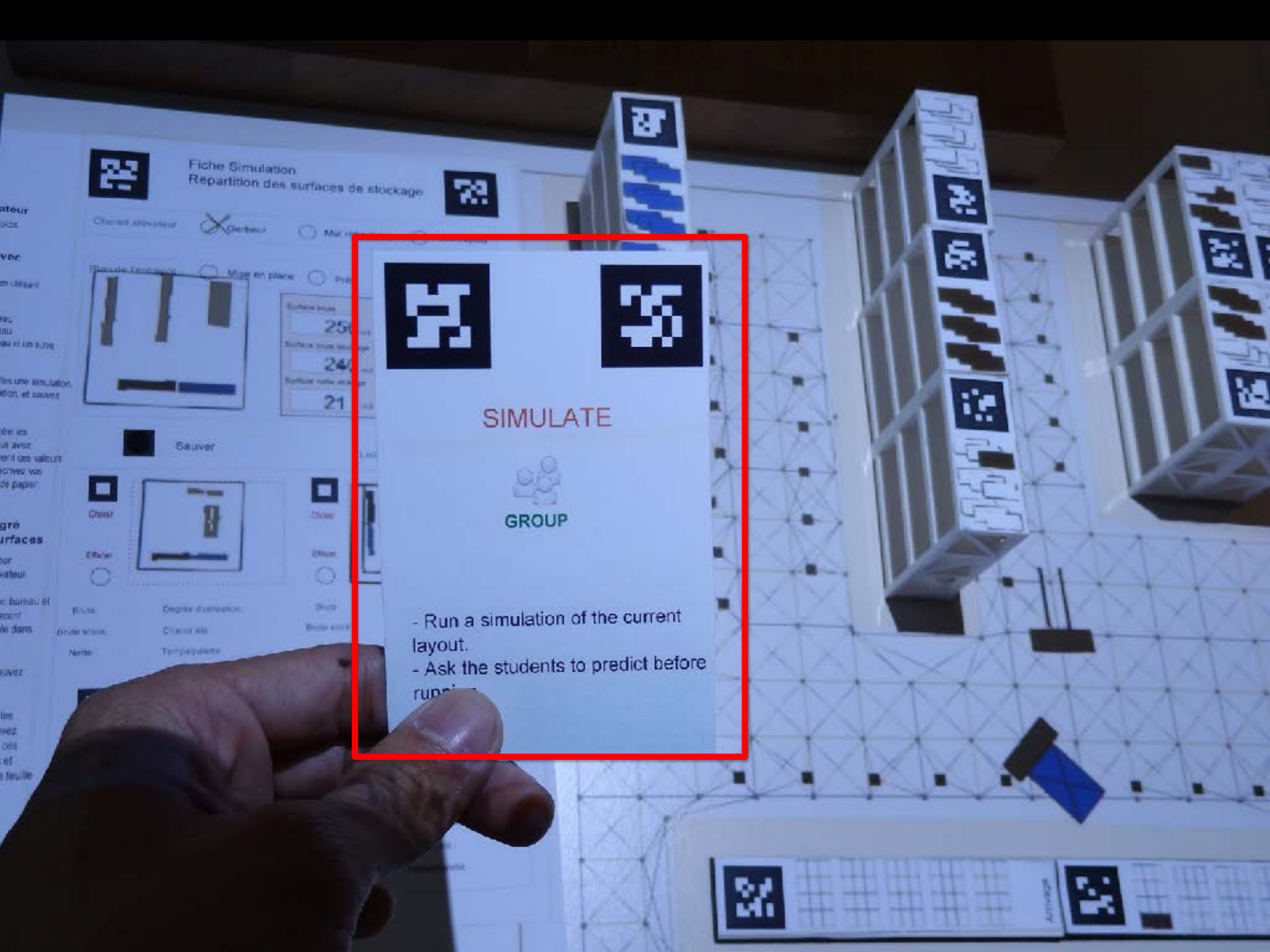


mean = 7.84 vs. mean = 7.43
 $F(1,14) = .25; p > .05$

No sign. effect in
problem-solving



mean = 5.16 vs. mean = 5.15
 $F(1,14) = .06, p > .05$



Fiche Simulation
Répartition des surfaces de stockage



SIMULATE



GROUP

- Run a simulation of the current layout.
- Ask the students to predict before running.



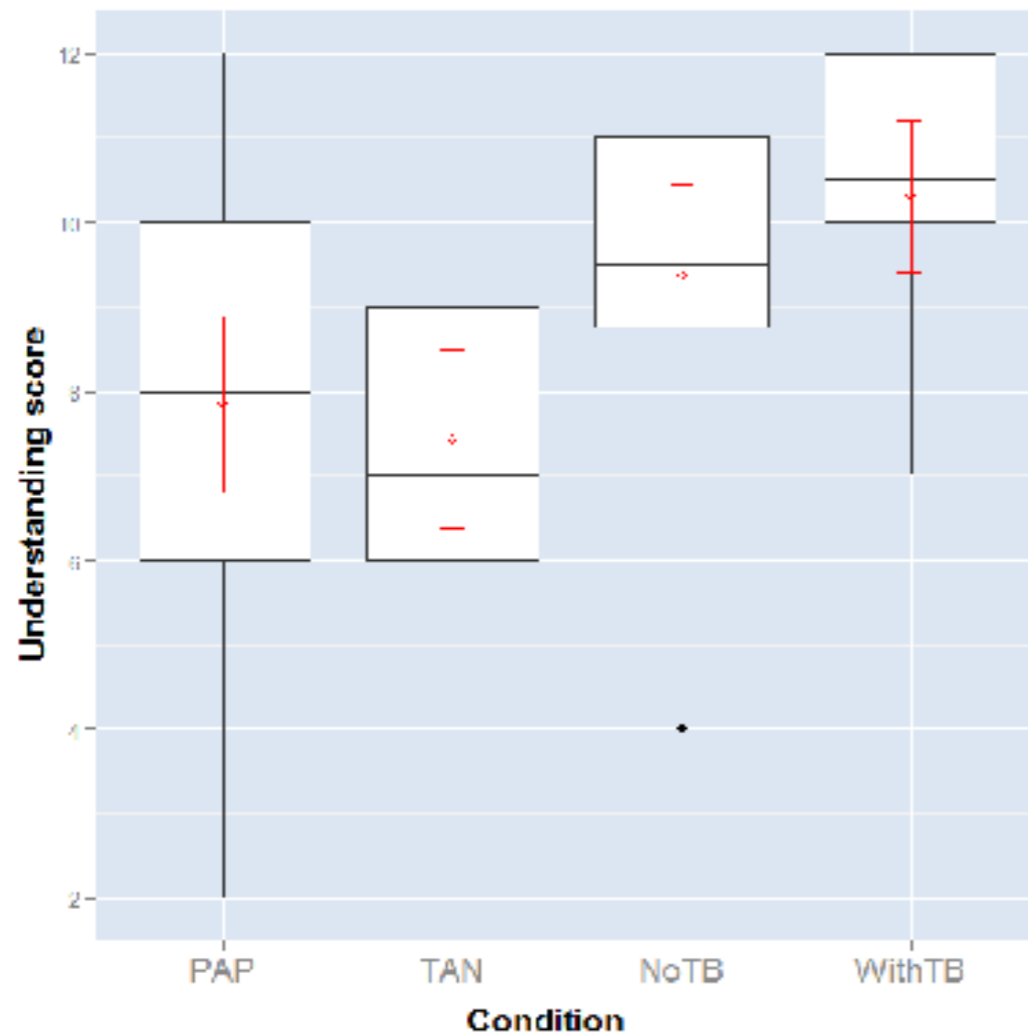
PAUSE CLASS



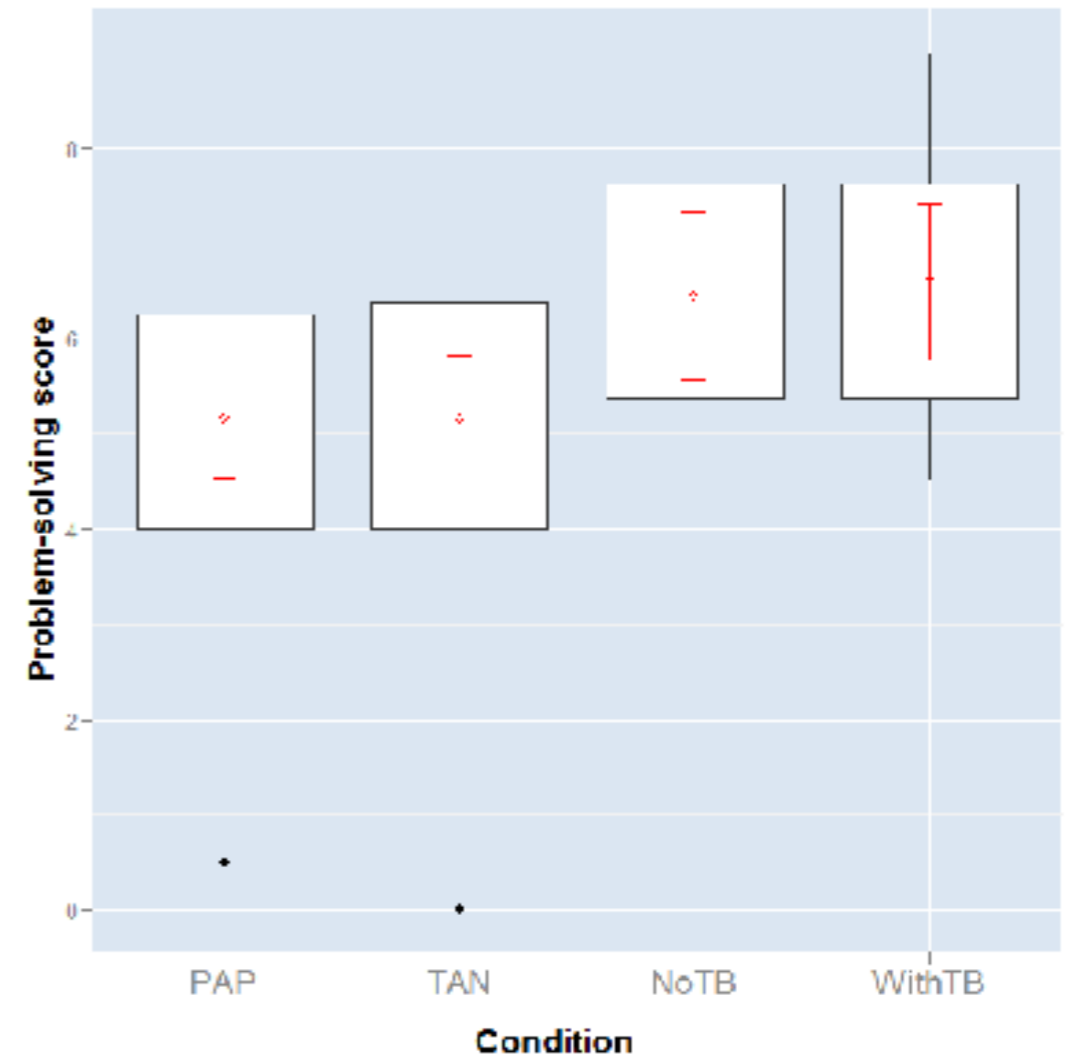
CLASS

- Pause all the actions (simulation, building model, etc.) in the whole class

Significant effect in understanding



Significant effect in problem-solving

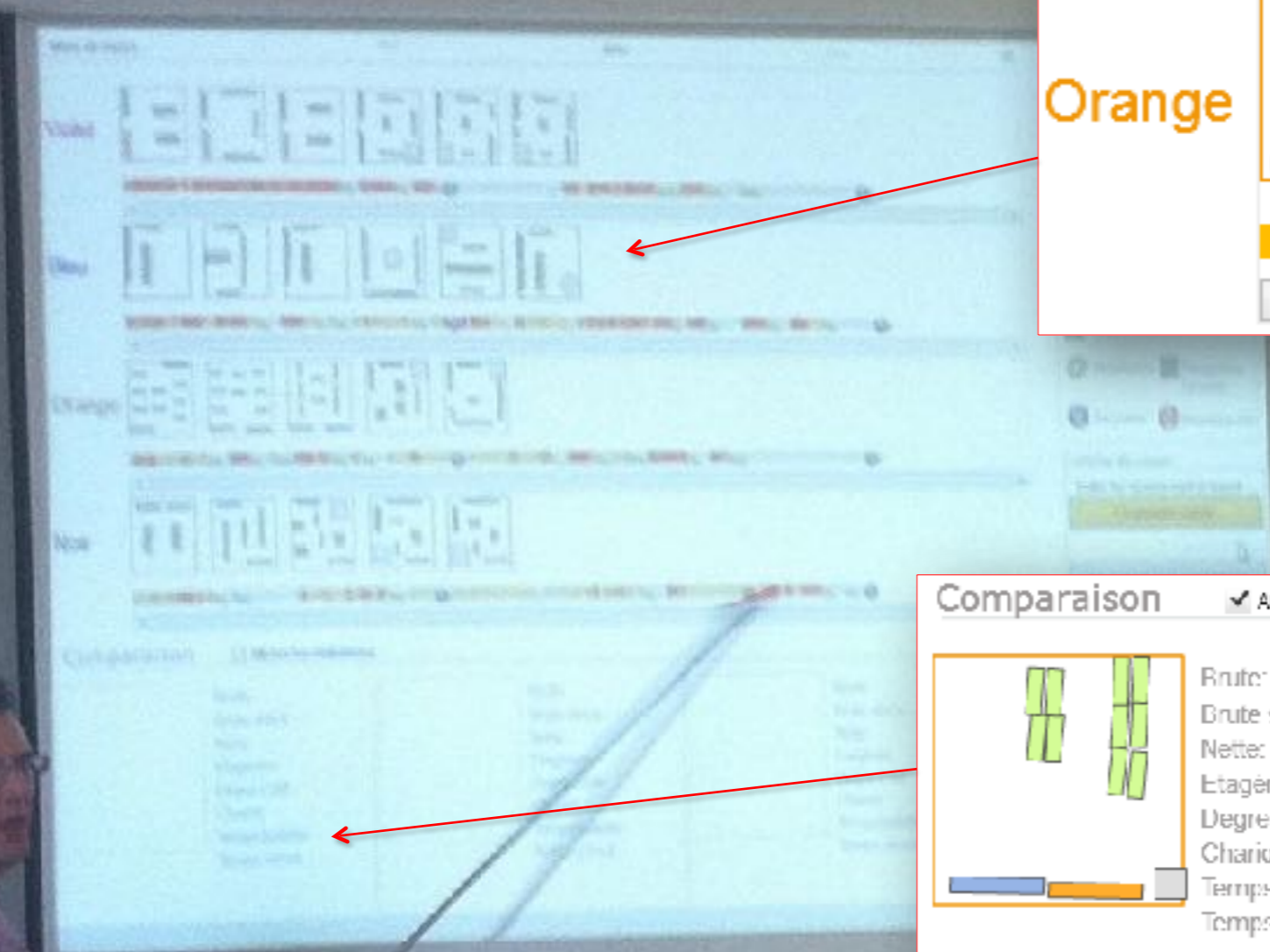


Measures	Warehouse study's conditions		Evaluation of TinkerLamp 2.0 conditions	
	Paper/pen	TinkerLamp 1.0	TinkerLamp 2.0 WithTinkerBoard	TinkerLamp 2.0 NoTinkerBoard
<i>Understanding score</i>	7.84(2.85)	7.43(2.82)	9.38(2.03)	10.31(1.70)
<i>Problem-solving score</i>	5.16(1.70)	5.15(1.78)	6.44(1.65)	6.59(1.53)

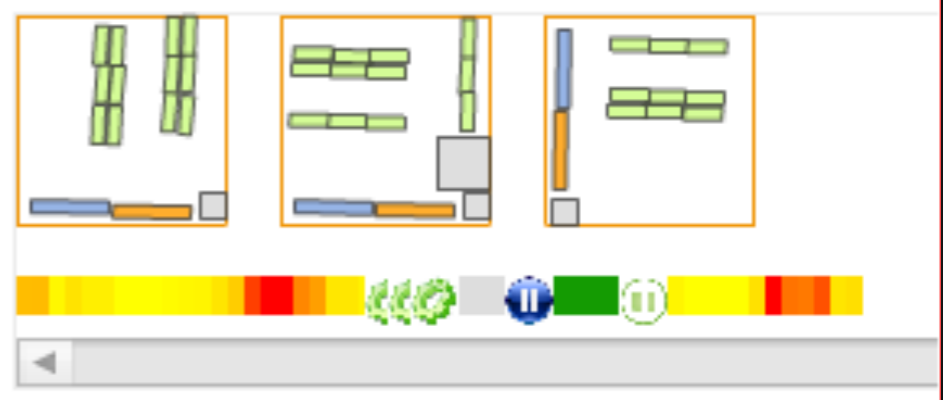
What is the effect of this cool AR environment ?

NONE


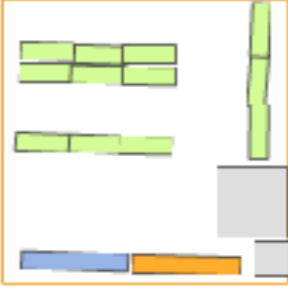
Tool-A , Teacher-Role X < Tool-A , Teacher-Role Y



Orange



Comparaison Afficher les statistiques

Configuration	Statistiques
	Brute: 256m² Brute stock.: 236m² Nette: 30m² Etagères: 12 Degré d'util.: 12.6% Chariot: gerbeur Temps/palette: 115s Temps simul.: 0:13:49
	Brute: 256m² Brute stock.: 220m² Nette: 36m² Etagères: 12 Degré d'util.: 16.4% Chariot: gerbeur Temps/palette: 130s Temps simul.: 0:23:40





Question

Please order a standard return 2nd class

Enter command

from Lausanne to Davos standard C2|re

Question

Please order a young return 2nd class ticket from Basel to Geneve without bike.

Your Ticket

From Basel	To Geneve	City Basel	Davos	Fribourg		
		Geneve	Lausanne	Neuchatel		
			Zurich			
Travel Return	Fare	Travel One-way	Return	Fare Standard	Young	Half-fare
Class	Bike	Class	Bike			

Question

Please order a standard return 2nd class ticket

From:
Fribourg

To:
Zurich

Travel:
Return

Fare:
Standard

Class:
2nd

Bike:
No

Question

Please order a standard return 2nd class ticket from Basel to Zurich with a bike.



From Basel	To Zurich
Travel <input type="radio"/> One-way <input type="radio"/> Return	Fare <input type="radio"/> Standard <input type="radio"/> Young <input type="radio"/> Half-fare
Class <input type="radio"/> 1st <input type="radio"/> 2nd	Bike <input type="radio"/> Yes <input type="radio"/> No

⌚ :24

⌚ :3€

HELP

BUY

Please select the interfaces and rank them with 1 being the best and 4 being the worst. Please justify your ranking.



If you rarely buy a train ticket rank the interfaces in the order that you would most prefer them.

Ryan's List

- | | |
|-----------------|-----|
| 1 Drag and Drop | ↓ ↑ |
| 2 Command | ↓ ↑ |
| 3 Form | ↓ ↑ |
| 4 Map | ↓ ↑ |

The drag and drop is easiest to see all of the options.

Submit

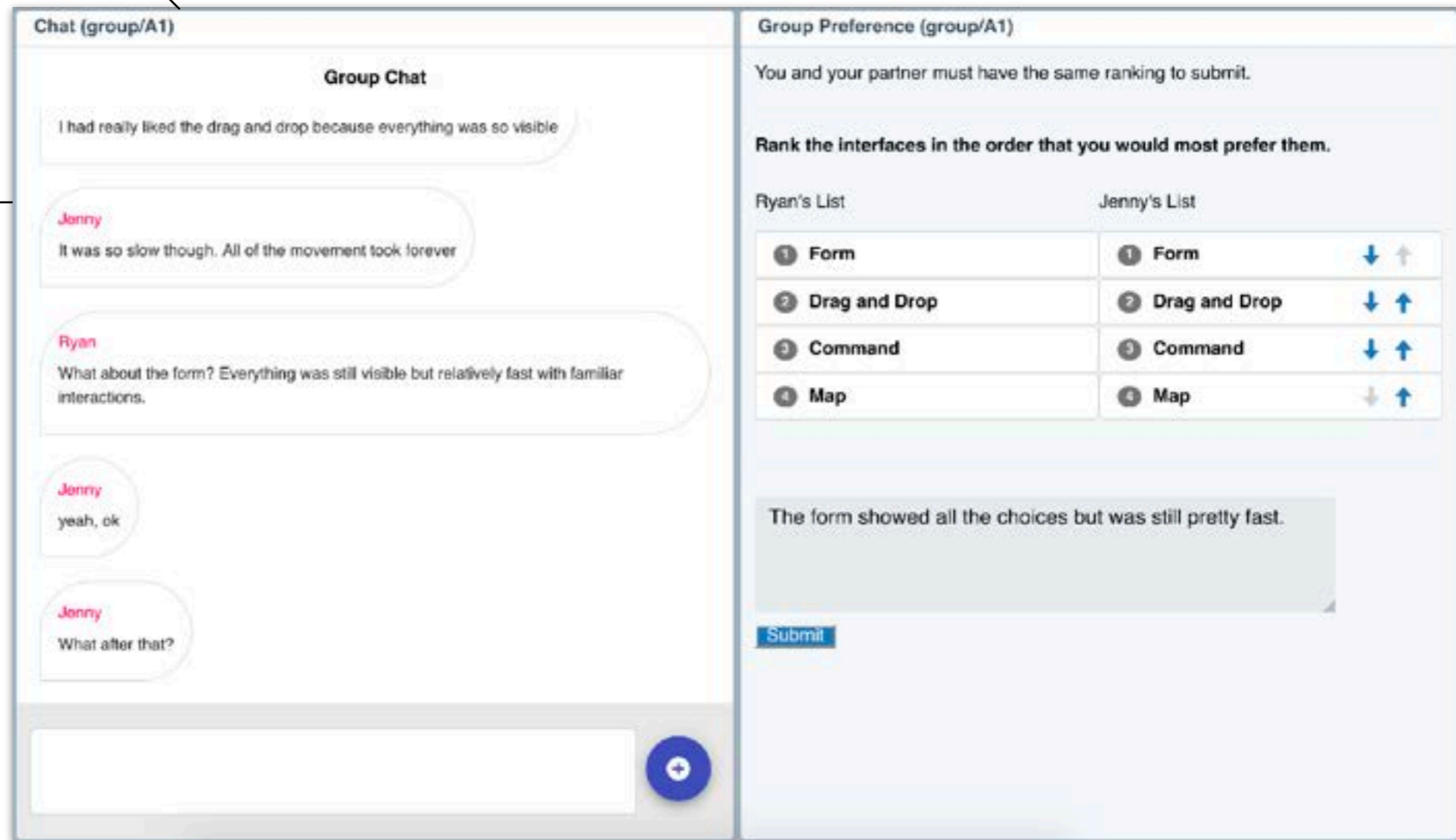
Class



Team



Solo



The screenshot shows a user interface divided into two main sections. The left section is titled "Chat (group/A1)" and contains a "Group Chat" area with several messages from participants: Jenny, Ryan, and Jenny again. The right section is titled "Group Preference (group/A1)" and contains instructions for ranking interfaces. Below the instructions are two columns: "Ryan's List" and "Jenny's List", each with a table of ranked items (Form, Drag and Drop, Command, Map) and up/down arrows for reordering. At the bottom of the right section is a "Submit" button.

Chat (group/A1)

Group Chat

I had really liked the drag and drop because everything was so visible

Jenny
It was so slow though. All of the movement took forever

Ryan
What about the form? Everything was still visible but relatively fast with familiar interactions.

Jenny
yeah, ok

Jenny
What after that?

Group Preference (group/A1)

You and your partner must have the same ranking to submit.

Rank the interfaces in the order that you would most prefer them.

Ryan's List	Jenny's List
1 Form	1 Form ↓ ↑
2 Drag and Drop	2 Drag and Drop ↓ ↑
3 Command	3 Command ↓ ↑
4 Map	4 Map ↓ ↑

The form showed all the choices but was still pretty fast.

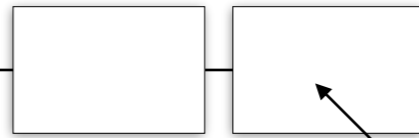
Submit

Socio-cognitive conflict

Class



Team



Solo



Chat (group/alone)

Group Chat

Friendly robot

Hello Guys :) I <3 CHILLians

Friendly robot

Ryan ranked the interfaces in the following order: Command, Drag and Drop, Form, Map, with the justification "The command is fastest once you have practice."

Group Preference with Data (group/alone)

You and your partner must have the same ranking to submit.

Rank the interfaces in the order that you would most prefer them.

Ryan's List

At rank 1, add item:

Form

Drag and Drop

Command

Map

Train Data (group/alone)

STATS

MEAN TIME PER TICKET FOR EACH INTERFACE

● map
● dragdrop
● command
● form

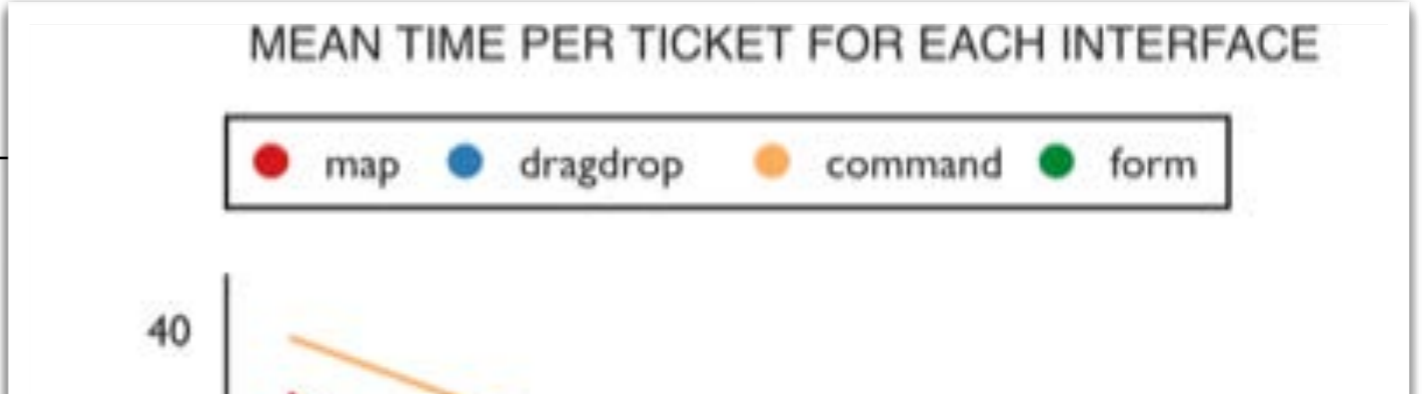
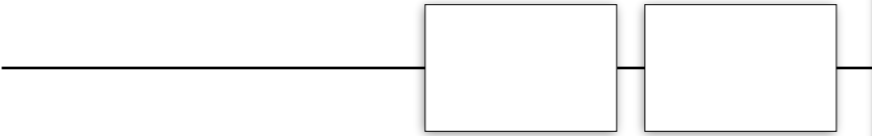
Trial	map	dragdrop	command	form
Trial 1	38	28	40	35
Trial 2	20	24	33	20
Trial 3	19	21	30	19

Arguing with data

Class



Team

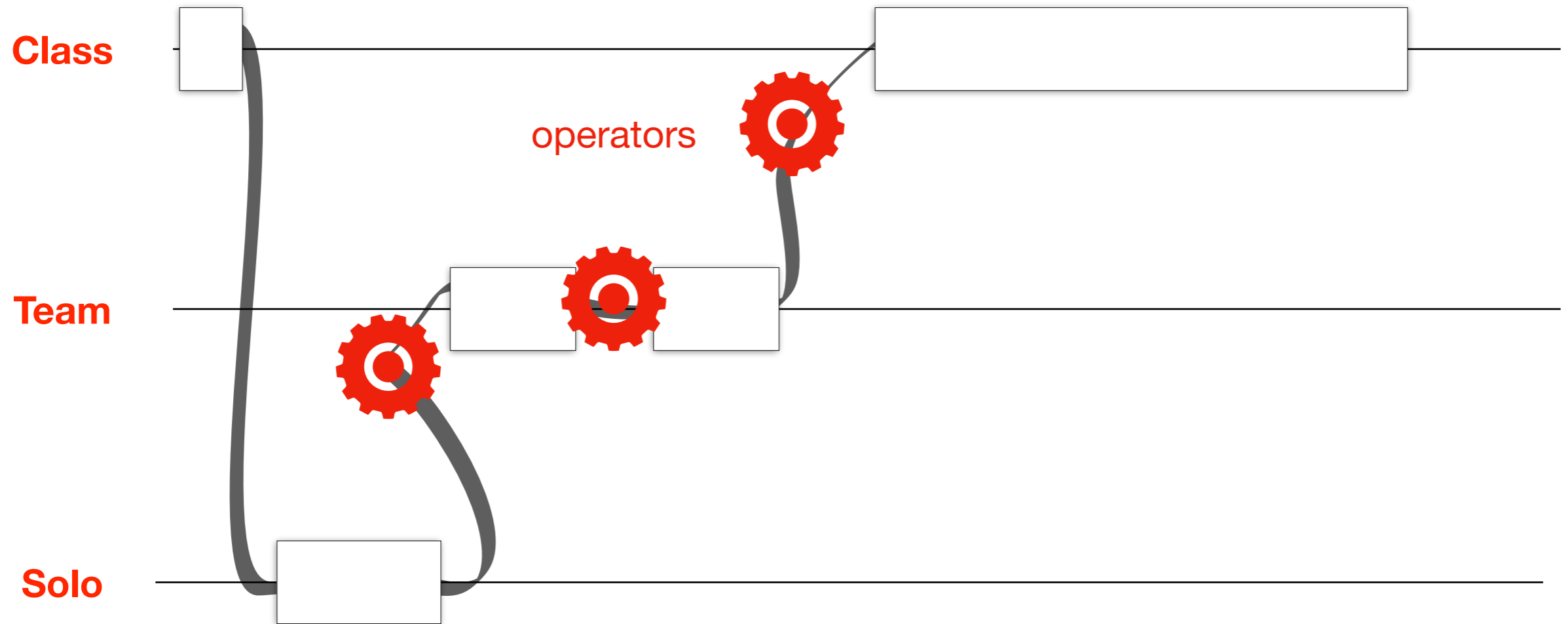


Solo



	(1) Connaissances sémantiques liées à la tâche	(2) Connaissances sémantiques liées à la tâche transposition informatique de la tâche	(3) Connaissances syntaxiques, arbitraires
NOVICES	✓		
INTERMITTENTS	✓	✓	
EXPERTS	✓	✓	✓

Orchestration Graph

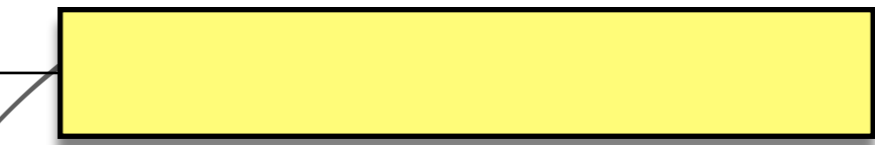
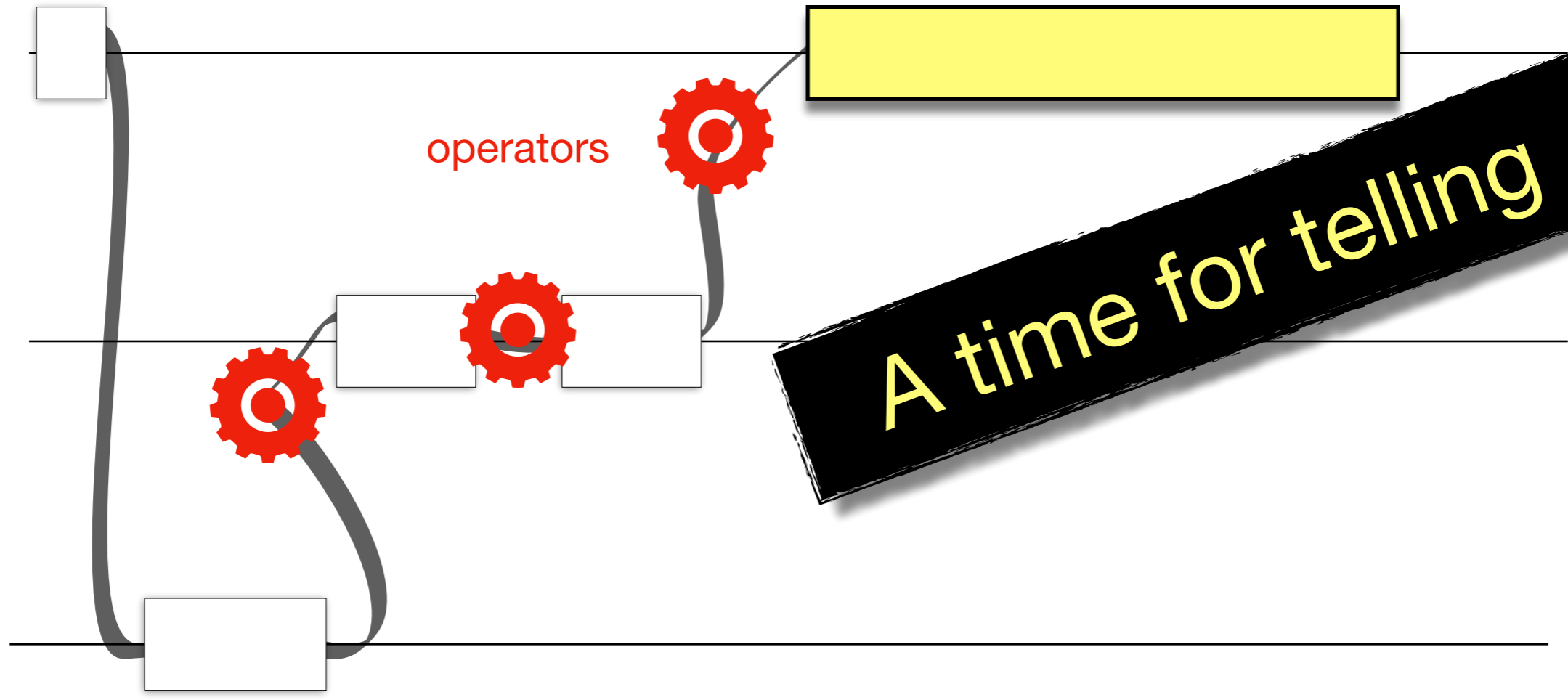


A lesson as a workflow ?!?!???

Class

Team

Solo



A time for telling

Classroom Orchestration

The 'logistics' of being a teacher

INDIVIDUAL FIELDWORK SHEET

1. Consider 4 layouts

Look at the 4 best layouts you and other groups built during the class.

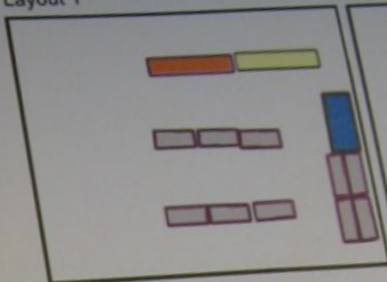
Which one is your favorite? Why?

I like the first one.

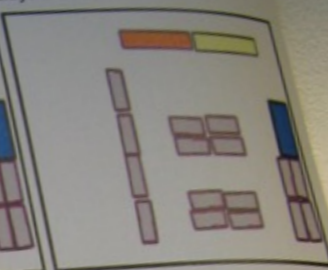
Because it is the fastest.

Forklifts can move faster.

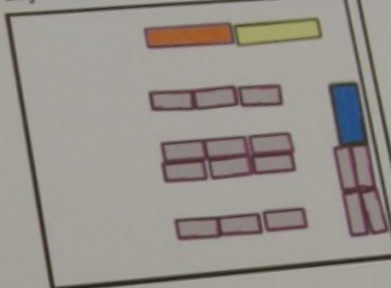
Layout 1



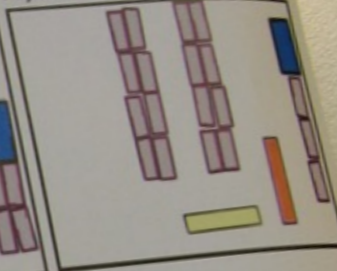
Layout 2



Layout 3



Layout 4



2. Fill the blanks

Fill in the blanks in the Prediction column.

1. Biggest Net surface is layout

2. Biggest Raw surface is layout

3. Biggest Utilizat. degree is layout

4. Fastest Avg speed is layout

3. Compare with your company

Which one of the 4 layouts is (most different) to your company. Discuss this issue with your supervisor and write down...

Homework



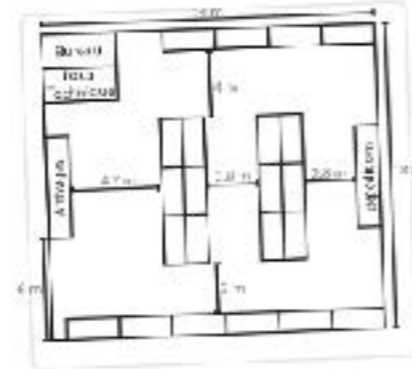
Surfaces de stockage



Entrepôt



- 1) Implantez l'entrepôt dont le plan est dessiné sur la figure ci-contre.



- 2) Reportez les valeurs des surfaces de stockage dans les cases prévues de la feuille de travail ci-contre.



Surfaces de stockage



Que pensez-vous du degré d'utilisation de cet entrepôt?

Surf. brute = longueur x largeur = x = m²

Surf. brute de stockage = Surf. brute - locaux annexes = - = m²

Surf. nette de stockage = Surf. brute de stockage - Allées de circulation = - = m²

Nombre d'articles x Surf. d'un article = x = m²

Degré d'utilisation = $\frac{\text{Surf. nets de stockage}}{\text{Surf. brute de stockage}}$ = = %

Comment pourriez-vous l'augmenter? Pourquoi est-ce important?

- 3) Simulez 30 minutes de travail avec 1 gerbeur, et reportez les valeurs dans les cases prévues ci-contre. Combien faudrait-il de gerbeurs pour sortir 100 palettes en 1 heure?



Exploitation



A votre avis, quel est le type de chariot le plus efficace dans cet entrepôt?

Chariots élévateurs

Type: Gerbeur Mat. retr. Contrepoids

Nombre: 1 2 3 4 5

Heure:

Palettes sorties: Article 1: Article 2: Article 3:

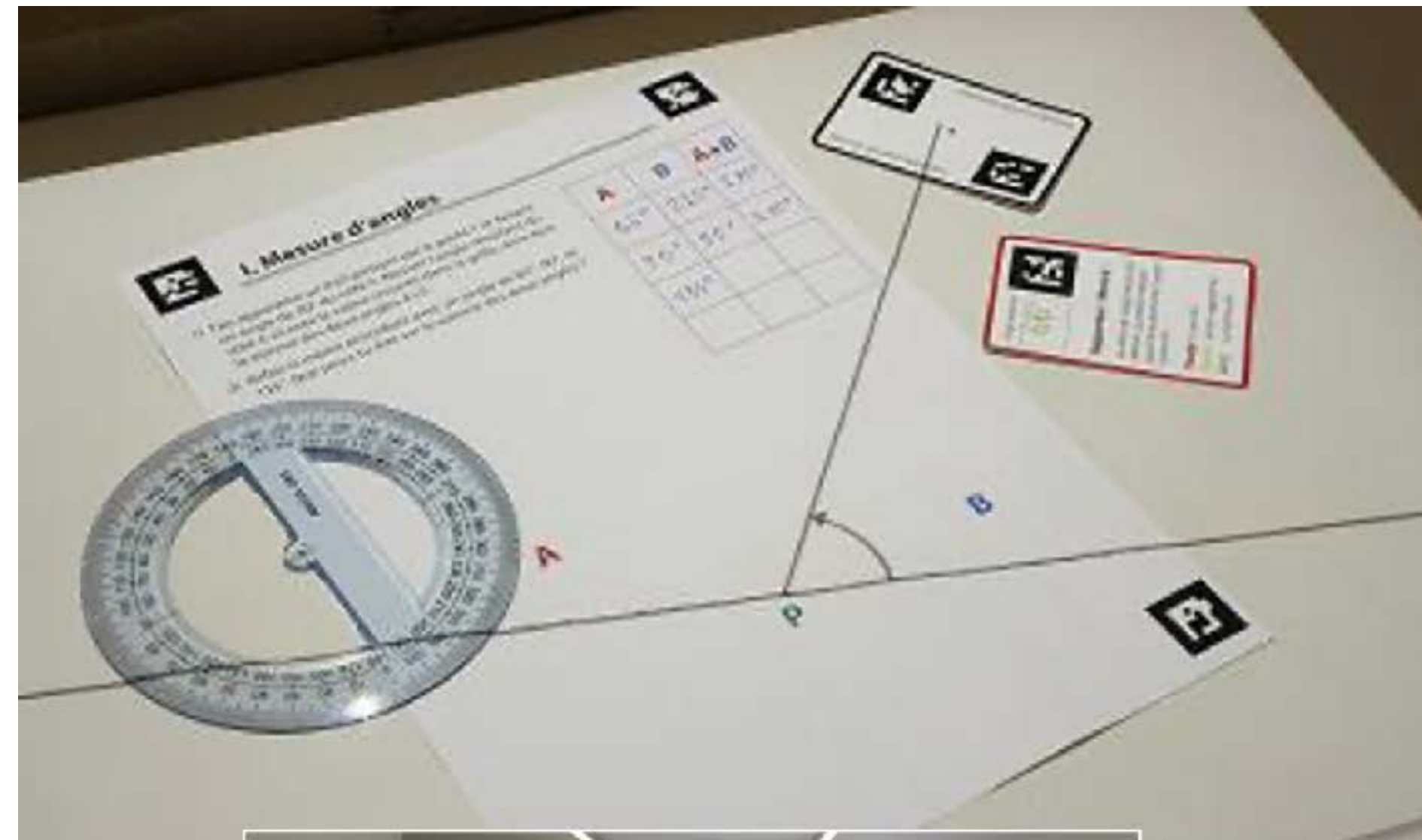
Par jours: Article 1: Article 2: Article 3:

Temps moyen par palette (sec):

ABC: oui non



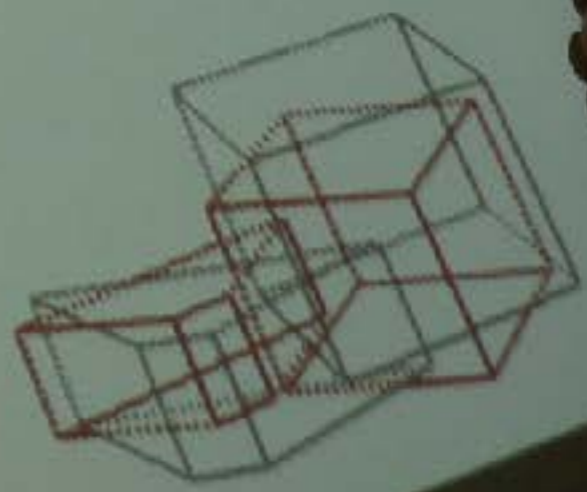
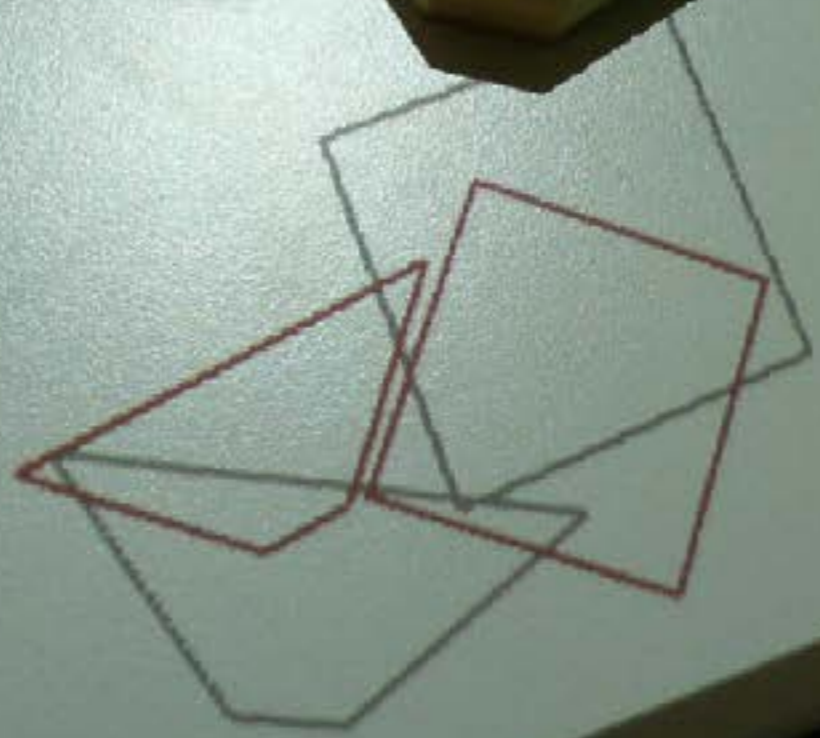
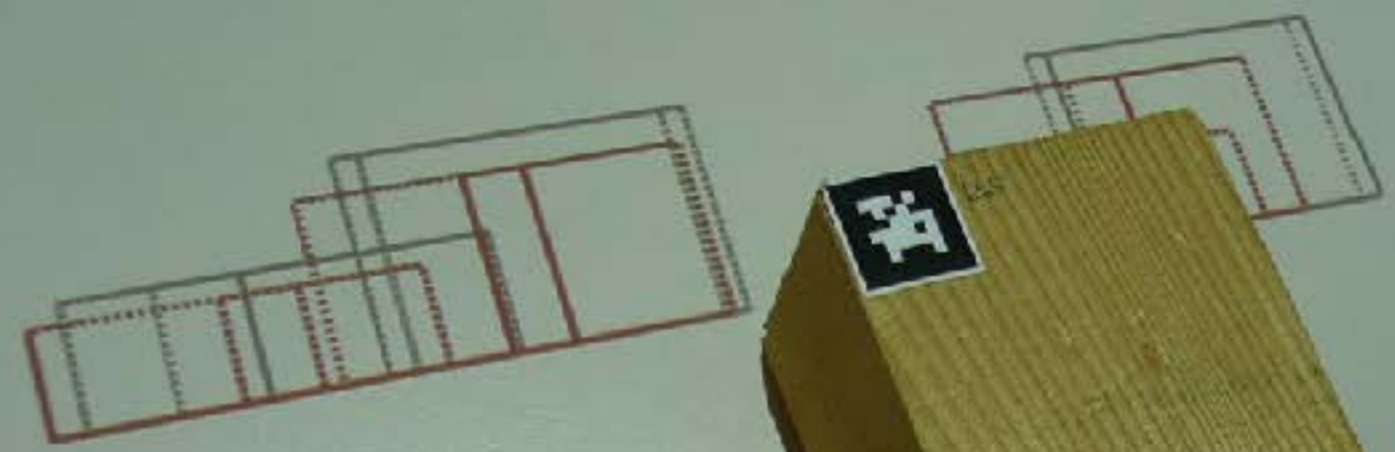
*Curriculum
Relevance*



Quentin Bonnard



Bravo vous avez choisi les bonnes briques!
la rotation de la brique 125 n'est pas correcte
la rotation de la brique 136 n'est pas correcte



Vue de face

Arête a



Effectuez le rabattement de l'arête a.

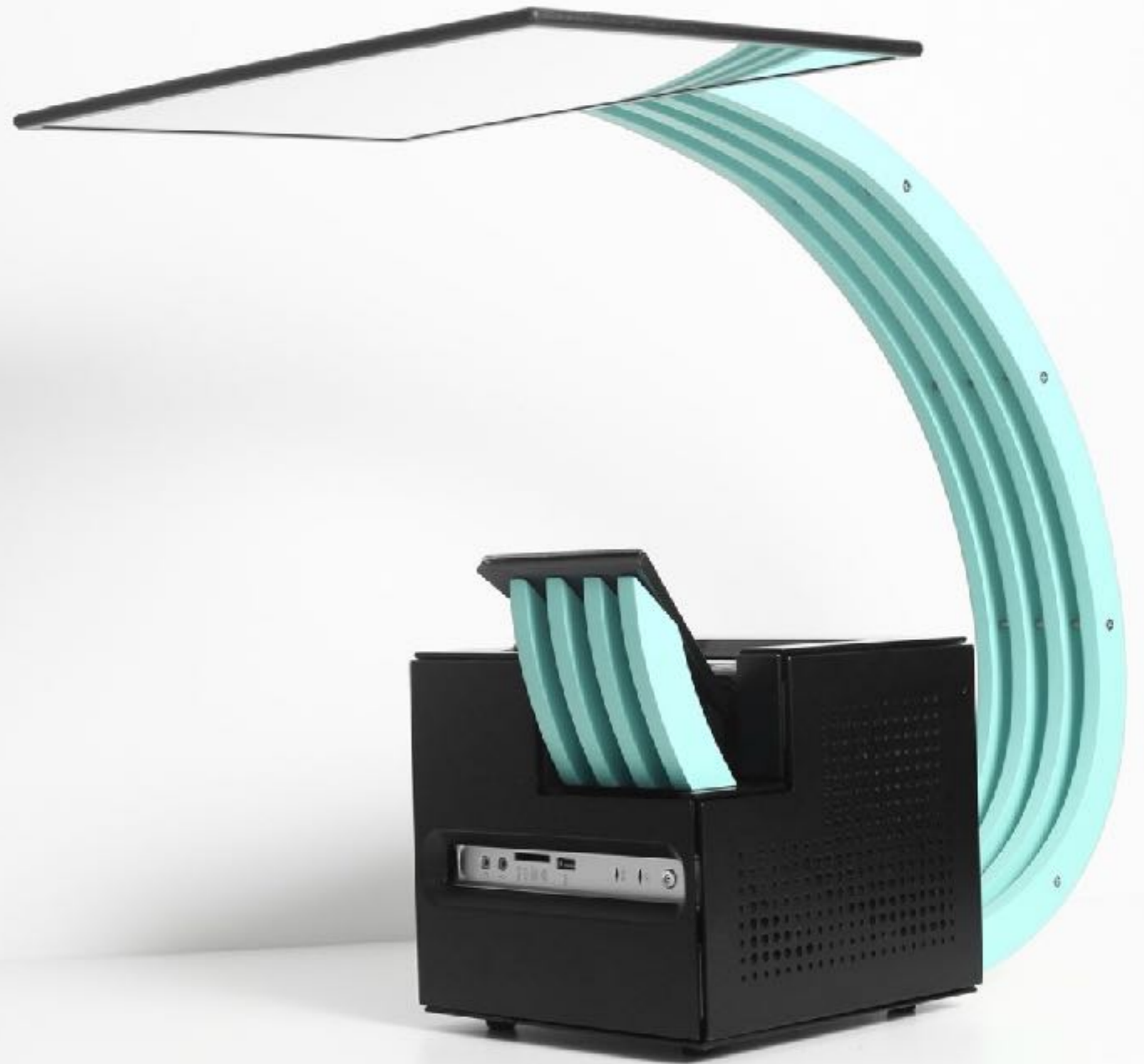


Zone pour poser les blocs

The « logistics » of education

- How much time is lost before they really start?
- Does the teacher see what the students are doing?
- Can the teacher walk between the tables?
- How to cope with absences?
- Does the activity leave traces?

“no worth a theory”



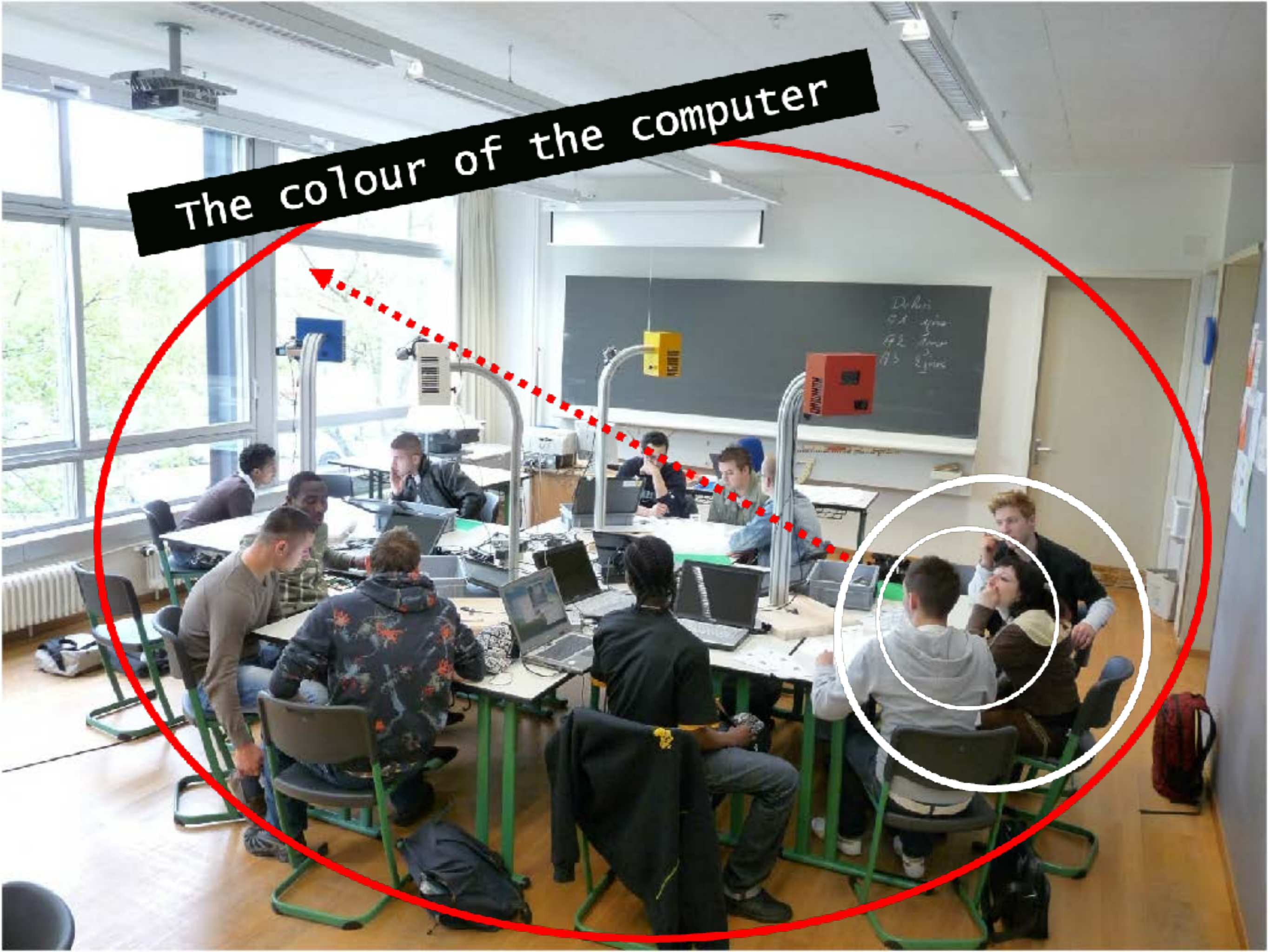


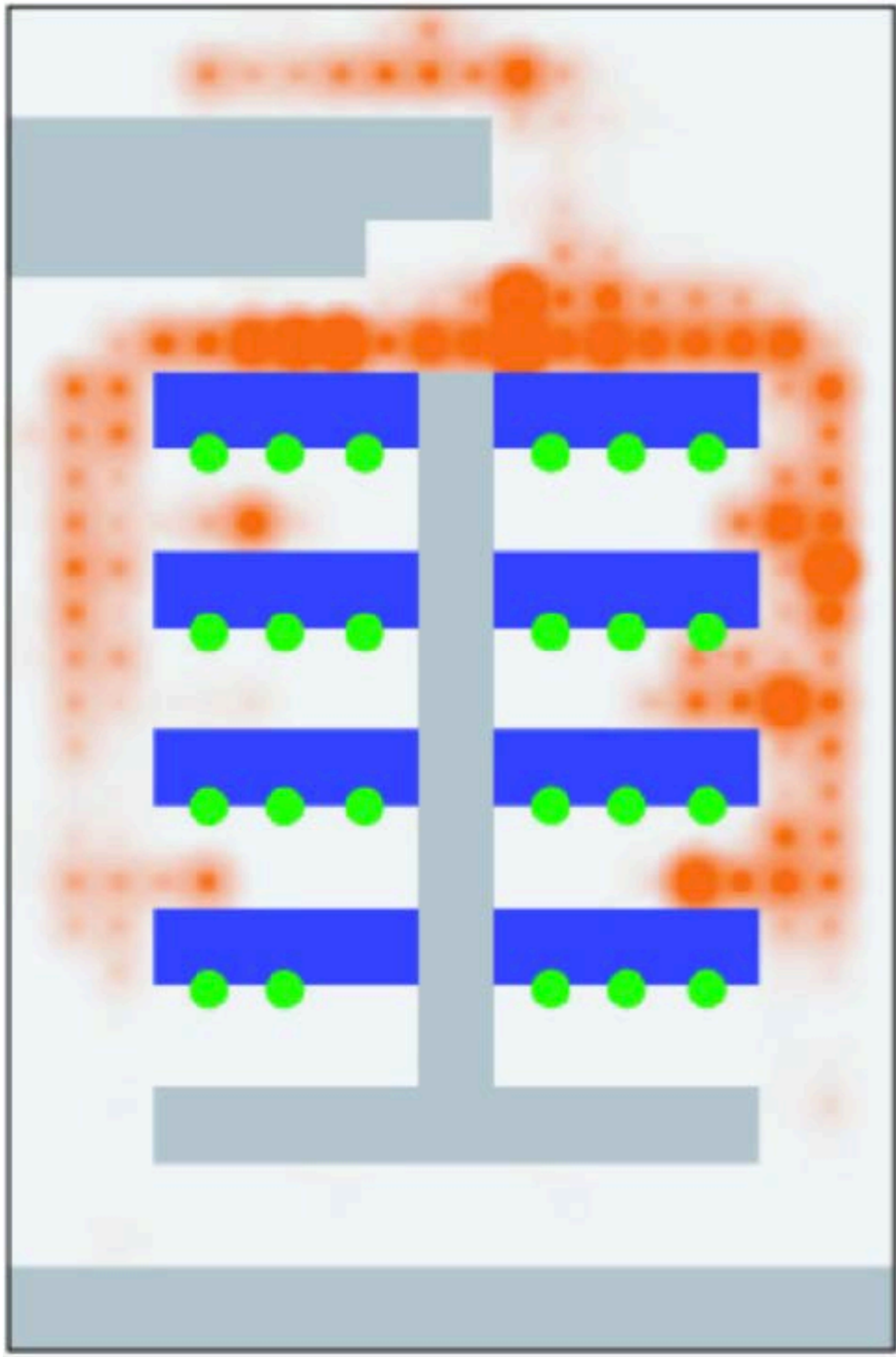
D'Esposito & Gaillard



Y. Guibinelli

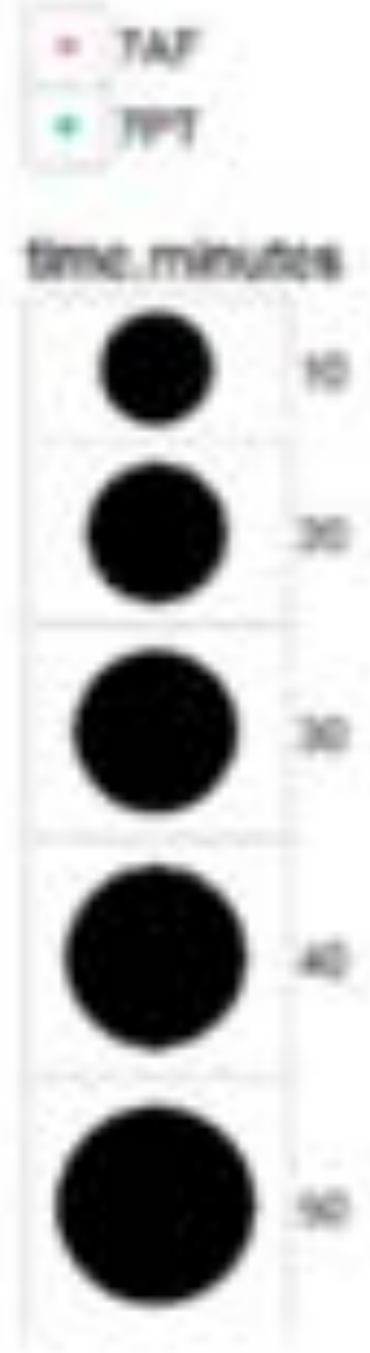
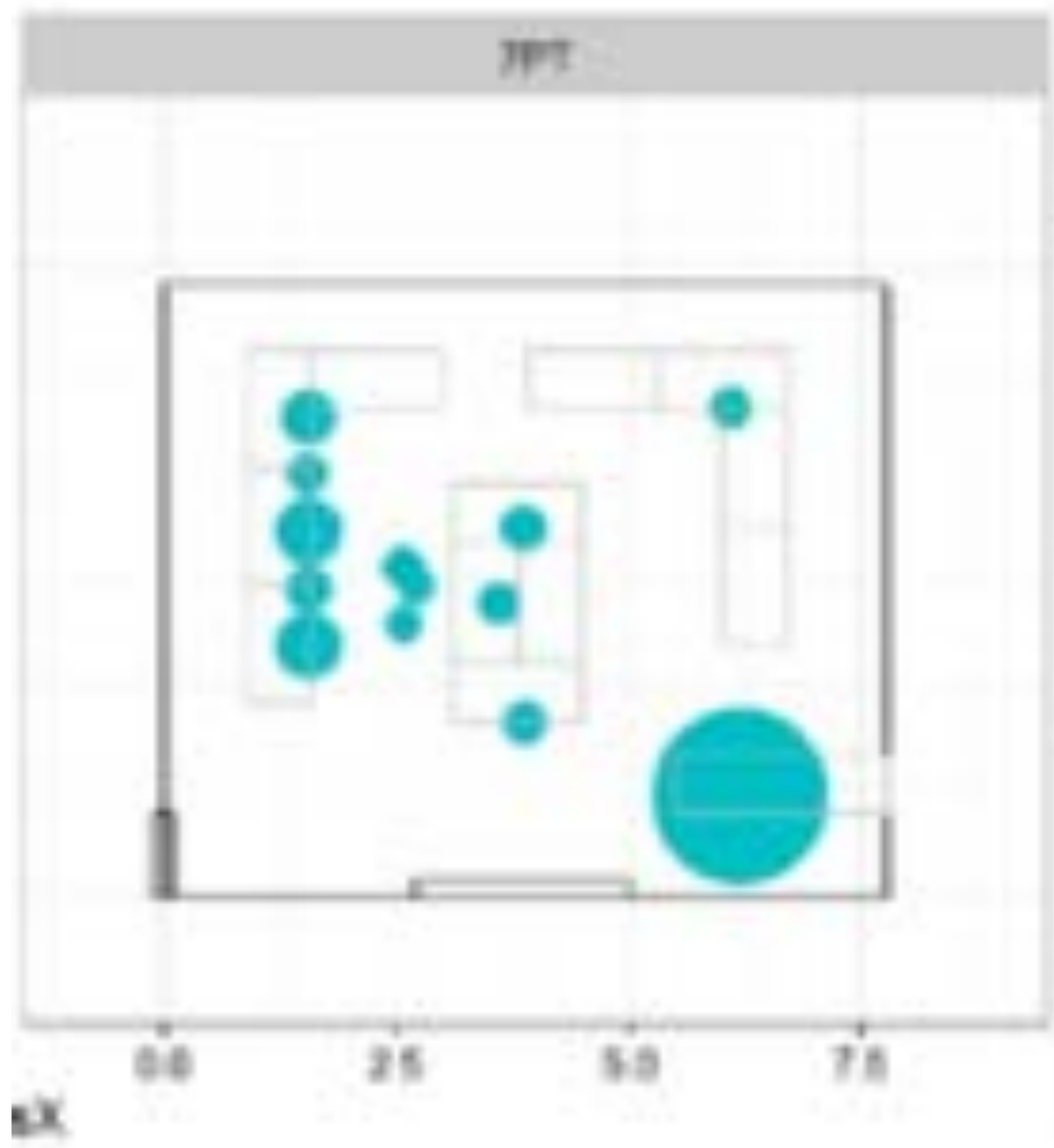
The colour of the computer





Teacher position
heat map

I. Sarrade



EPFL Exercises Session

assistant

works



waits





“While Waiting Productivity” LOSS : 62% → 6%



“While Waiting Productivity” LOSS : 62% → 6%

The 3 circles of usability

The user is...

Usability constraints are...

3. Classroom

*Discipline, Curriculum, time,
Time segmentation, Safety,
sustainability, grading, ...*

2. Group

Interdependence, WYSIWIS,...

1. Individual

Cognitive load, pre-requisites,...

What should change?

Does your EdTech solution
consider extrinsic-constraints?

- Keeping control
- Producing grades
- Leaving traces
- Handling late comers
- ...

Teachers are a key variable
in the EdTech effects equation

