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## A modern & innovative space for educational research: the "Jacques Ginestié" experimental platform

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# A modern & innovative space for educational research: the "Jacques Ginestié" experimental platform

Jonathan MIRAULT, Mathilde FAVIER, & Nicolas MASCRET

# Plan

## 1. Context

## 2. Furnishings

## 3. Methodologies

## 4. Future prospects

# Opening – 01.16.2023



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# 1. Contexte

Ampiric Aix-Marseille

## Structurer le pôle pour articuler recherche-formation-terrain

**Développer et renforcer les interrelations entre :**

- Les équipes de recherche  
22 laboratoires engagés (dont 20 constituent SFERE-Provence)
- Les équipes pédagogiques des écoles et établissements scolaires  
21 réseaux académiques dont 8 au cœur de l'expérimentation (214 000 élèves concernés)
- Les équipes de formation  
90 enseignants INSPE, Formateurs de terrain, Licence, Master MEEF, Formations continuee et continue
- Les équipes des entreprises partenaires  
Coordination de l'ANRT  
11 entreprises engagées
- Les équipes des associations et collectivités  
L'ensemble des associations du CAPE  
Soutien des collectivités territoriales

**Améliorer les performances des élèves dans leurs apprentissages fondamentaux en structurant les interactions recherche, formation, terrain**

**Tisser les liens entre recherche et terrain  
Valoriser et disseminer les solutions efficaces**

**Adosser la formation initiale et continue des enseignants à la recherche**

**Renforcer le continuum formation initiale, continue et continue**

**Recherche**  
SFERE-Provence

**Terrain**  
Réseaux académiques

**Formation**  
ESPE et académique

NSRF

ANRT

ANR

RESEAU SUD

ANR

ANR



## 2. Furnishings

### 2.1. Main classroom



- 2 fixed white board
- 2 mobile white board
- 1 interactive video-projector
- Chairs and tables with different sizes for youngs and adults
- Camera & Microphones
- Indoor tracking

## 2. Furnishings

### 2.2. Control room



- Control of the camera
- Control of the microphones
- Data storage Server

## 2. Furnishings

### 2.3. Physiological room



- Eye-tracking (screen based)
- EEG (128 ch.)
- Facial emotion recognition (FaceReader)
- Computers « Big Data »



## 2. Furnishings

### 2.4. Virtual Reality room



- 2 headsets
- 1 headset VR + Eye-tracking
- Totally secured for users

## 2. Furnishings

### 2.5. Observation room



- 2 one-way windows
- 1 computer for VE creation
- 3D Printer

## 2. Furnishings

### 2.6. Reserve



- Tablets (iOS, Windows, Android)
- Wireless EEGs
- Wireless Eye-trackers
- Robots
- Cameras
- Microphones
- Smartwatch

# 3. Methodologies

## 3.1. Behaviour

The screenshot displays the ELAN software interface for the file 'ELAN 5.7-FX - 031\_18M\_SYMPLAY\_S1\_C1\_MIN1.ACLEW.eaf'. The interface is divided into several sections:

- Video View:** Shows a man kneeling on a rug playing with a child.
- Grid View:** A table with columns: Nr, Annotation, Begin Time, End Time, Duration.
 

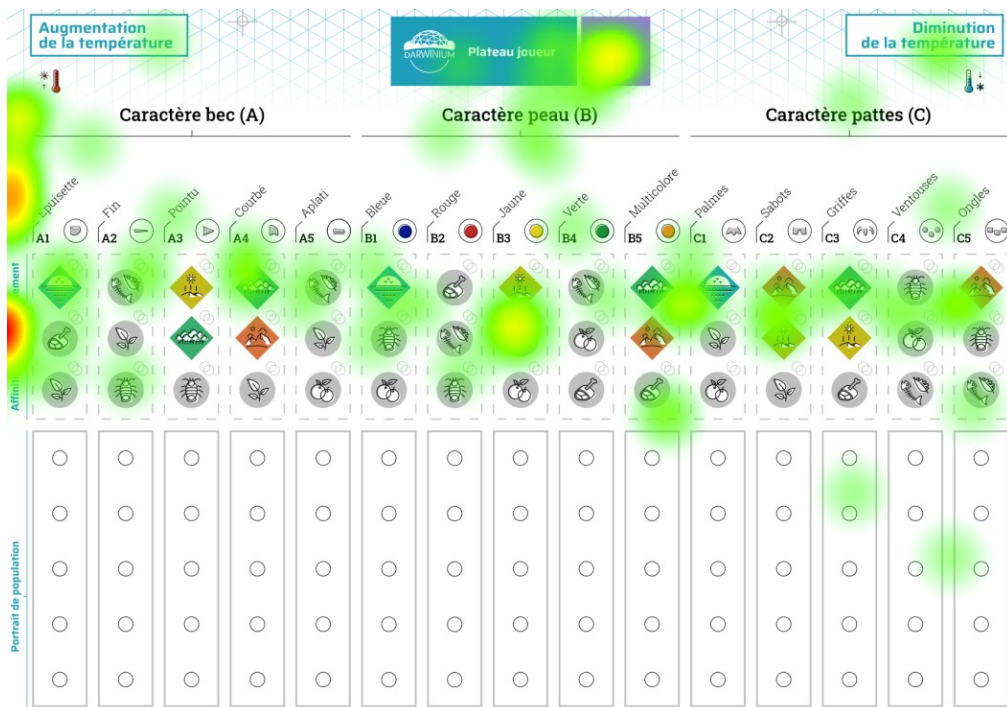
Nr	Annotation	Begin Time	End Time	Duration
6	oh .	00:00:08...	00:00:09...	00:00:00...
7	a square .	00:00:09...	00:00:10...	00:00:00...
8	oh .	00:00:13...	00:00:13...	00:00:00...
9	what's that ?	00:00:15...	00:00:15...	00:00:00...
10	the blue cross .	00:00:15...	00:00:16...	00:00:00...
11	and the +... [+ IN]	00:00:17...	00:00:17...	00:00:00...
12	oh dear .	00:00:17...	00:00:18...	00:00:00...
13	where's the basket gone ?	00:00:20...	00:00:21...	00:00:00...
14	where's it gone ?	00:00:22...	00:00:22...	00:00:00...
- Audio Waveform:** Shows the audio signal for the selected segment (00:00:08.074 - 00:00:08.359).
- Phonetic Transcription:** Shows a hierarchical tree structure for the transcription, including labels like CHI, vcm@CHI, lex@CHI, mwu@C, MA1, and xds@MA1. The transcription itself shows: 'the C W 1 oh . a square oh . wha the blue cross and th'.

➤ Qualitative & quantitative analysis with ELAN

➤ Transcription With Python algo. based on Whisper

# 3. Methodologies

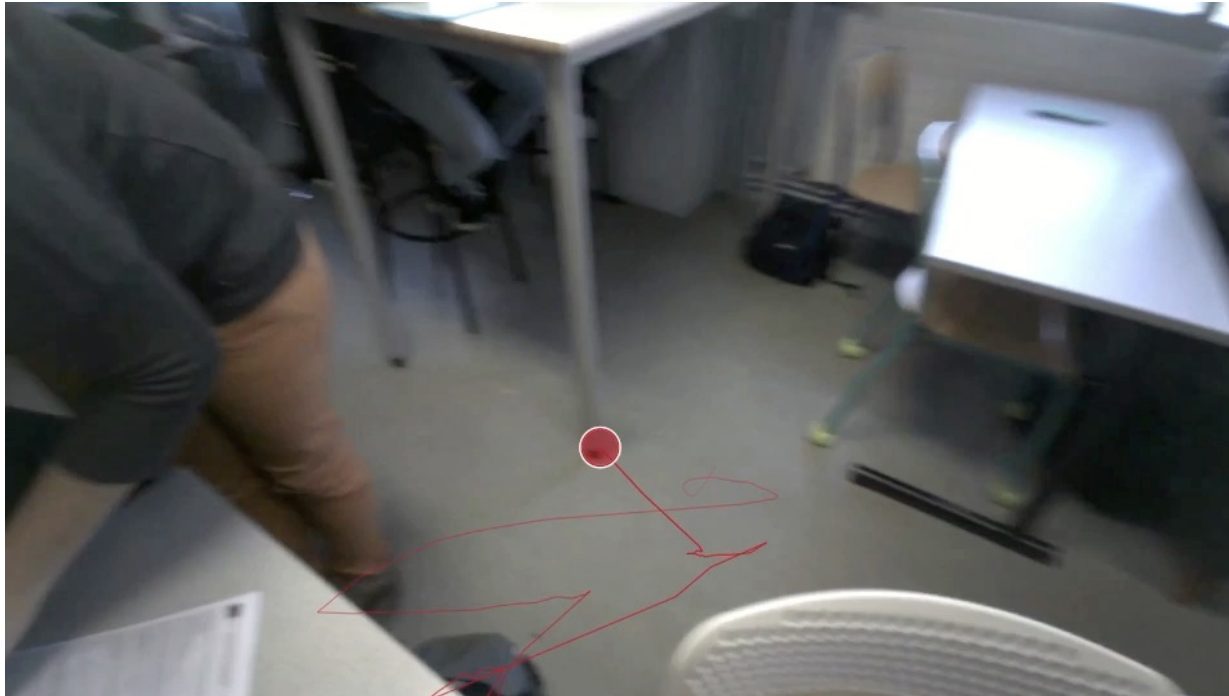
## 3.2. Eye-tracking (desktop)



➤ Pupil's gaze behavior during an exercise

## 3. Methodologies

### 3.2. Eye-tracking (mobile)



➤ Teacher's gaze behavior in class

## 3. Methodologies

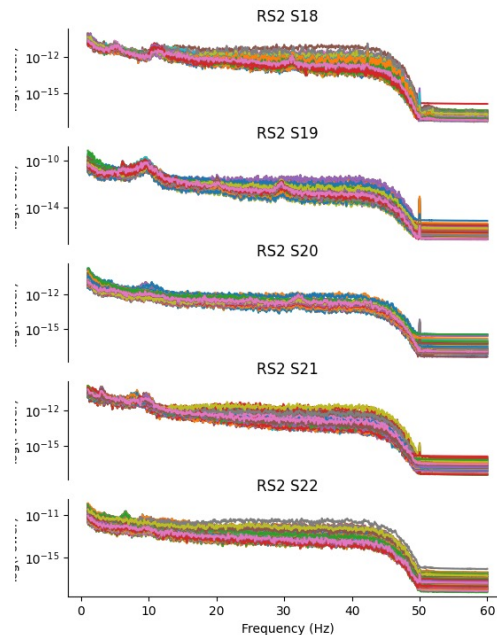
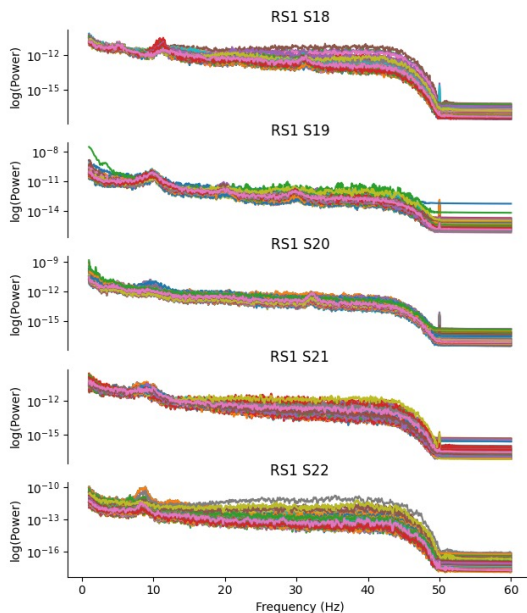
### 3.3. EEG



- Brain activity during task (resting state)

## 3. Methodologies

### 3.3. EEG



➤ Brain activity during task (resting state)



## 3. Methodologies

### 3.4. Virtual reality



- Presentation and interaction in virtual environment

## 3. Methodologies

### 3.5. Video (machine learning, gesture)



➤ Body detection  
and gesture analysis



## 3. Methodologies

### 3.7. Robotics (educative bots)



➤ Bots as a tools  
for teaching

## 3. Methodologies

### 3.8. Conception 3D (creation and print)

- Educational board game



Coupaud et al., (2023)

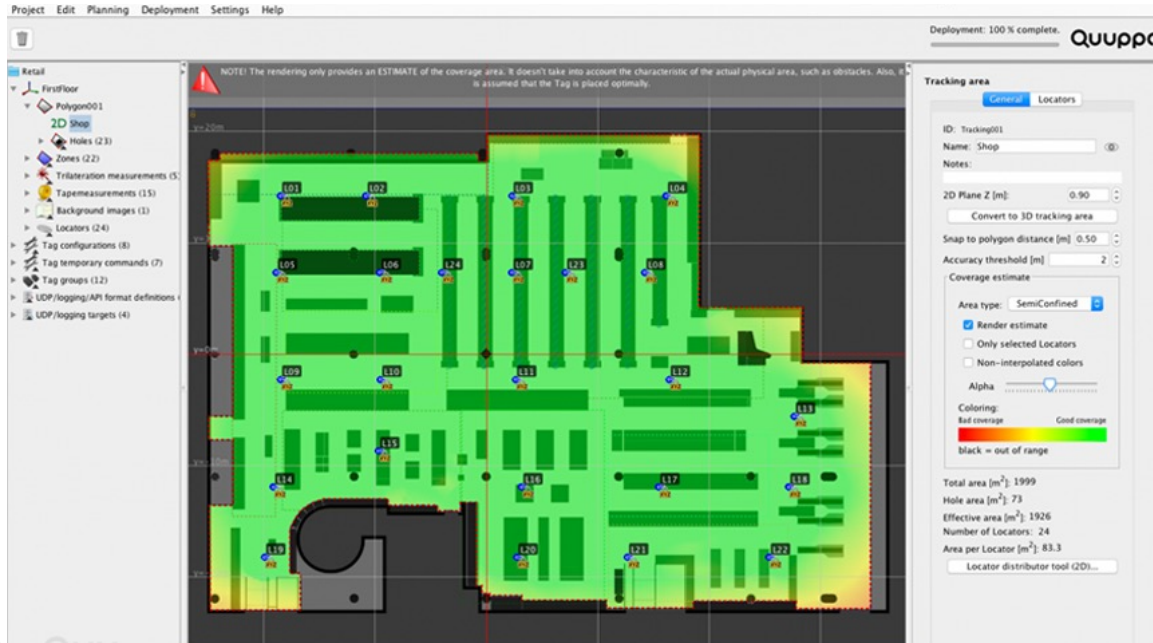
- study of room layouts materialized with 3D objects



Diop et al., (2023)

# 3. Methodologies

## 3.9. Indoor tracking



➤ Body tracking in link with motivational and perceptive styles

## 4. Future prospects

### A CHALLENGE FOR EDUCATIONAL RESEARCH



- \* A unique space for experimental studies in a quasi-ecological context
- \* Interdisciplinarity through the cross-fertilization of theoretical models
- \* Multimethods (physiological, psychological, behavioral measurements, etc.)

### A CHALLENGE FOR TEACHING, STUDENT LEARNING, AND TEACHER TRAINING



- \* Understanding teaching and learning processes
- \* Testing the effects of new teaching methods and devices
- \* Linking pre-service and in-service teacher training to research

# Thank you for your attention !



Scan me!

