

# Exploring Representations Of Student Time-Use

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// scope

visual content analysis  
student-produced representations  
personal time-use



**// motivation**



How do students think about managing their time?

(Fernex, Lima & de Vries, 2014)

# // time-use data



**Activity**



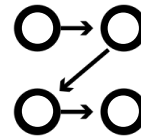
**Duration**

*{ Quantity of time }*



**Timing**

*{ Temporal location }*



**Sequence**

*{ Order of Activities }*



**Frequency**

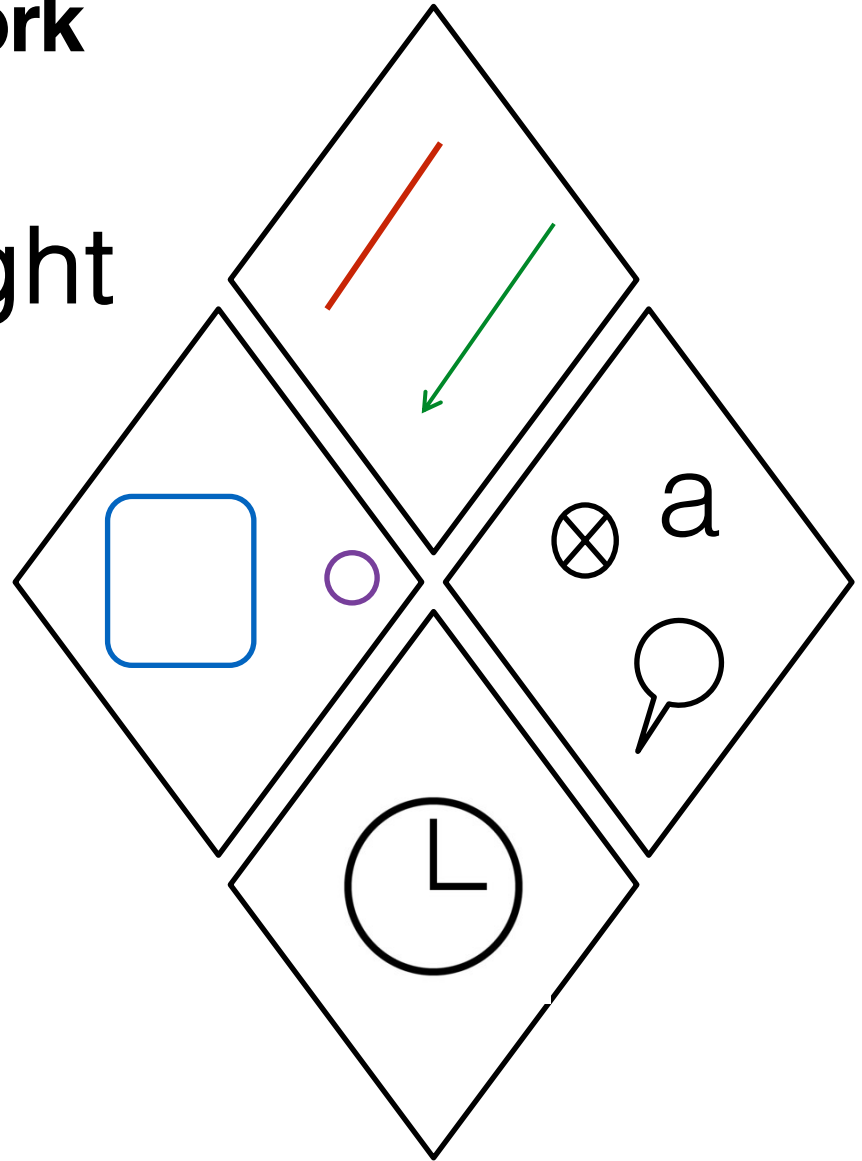
*{ Quantity of occurrences  
}*

// conceptual framework

visualizing thought

use of *space*

use of *form*



# // research questions

1. How do students use space and form to represent time-use?
1. What mechanisms are used to represent each component?  
*{ sequence, timing, duration & frequency }*





// method

# visual content analysis

{directed approach}

(Hsieh & Shannon, 2005)



## develop categories

aligned with research questions  
structured by (Tversky, 2011)

## gather content

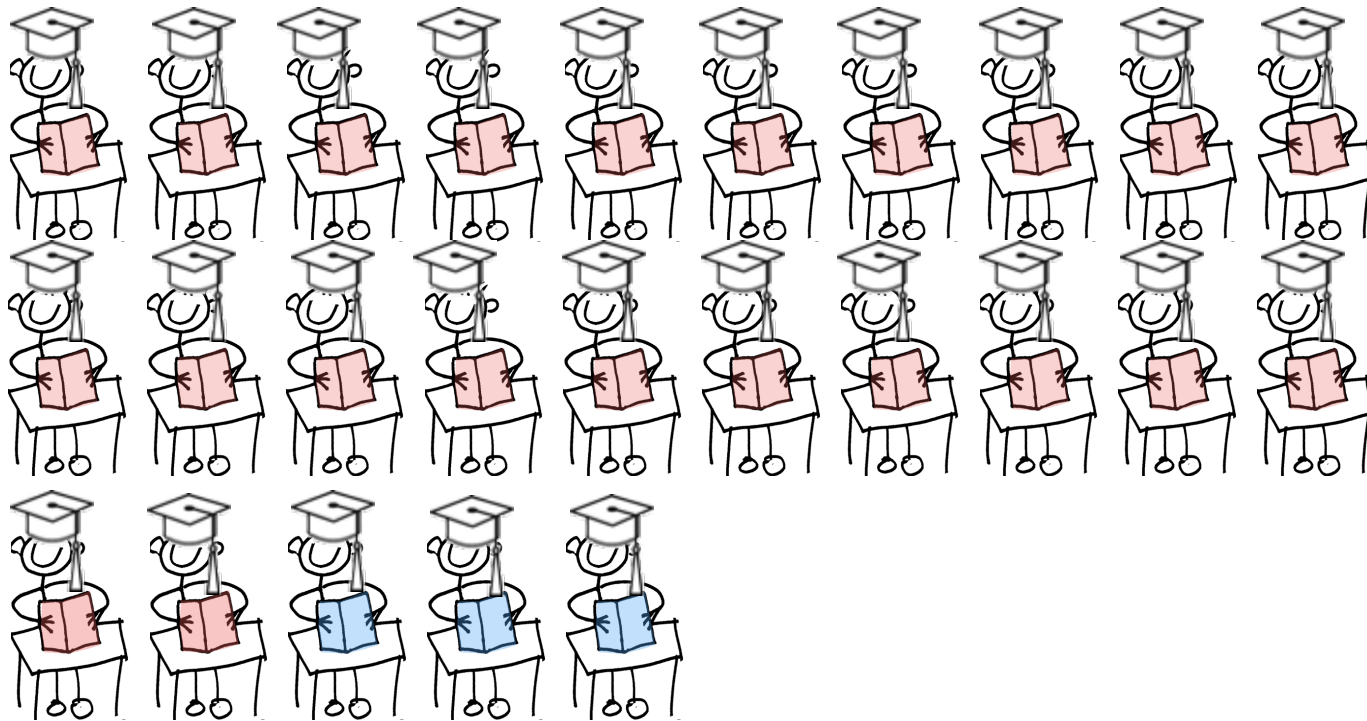
diagramming activity

## iterate coding scheme rate assess reliability

(space)  $\alpha = 0.876$   
(form)  $\alpha = 1.000$   
(mechanisms)  $\alpha = 0.972$

# // participants

n = 25 (22 f, 3 m)    Median = 23





# // materials & procedure



## Visualizing the Everyday

Imagine the earth is about to be hit by an asteroid. You are rescued by a race of friendly aliens. The aliens offer to transport you to another planet with human life. In order to choose a suitable plant, they need to understand how you spend your time.

While you cannot communicate by speaking (the aliens do not have ears), you can communicate in writing and drawing. The aliens understand drawings, and French and English writing.

Your task is to create a representation of how you spend your time. You choose to represent a regular school day, in a regular school week. It is of the utmost importance that you accurately present how you actually spend your time (and not how you wish you spend your time). Your representation should communicate the activities you perform, as well as their duration (during the day), timing (during the day), sequencing (during the day) and frequency (over a week). You can create as many representations as you wish, on one piece of paper.

Good Luck!

# // coding – *space*

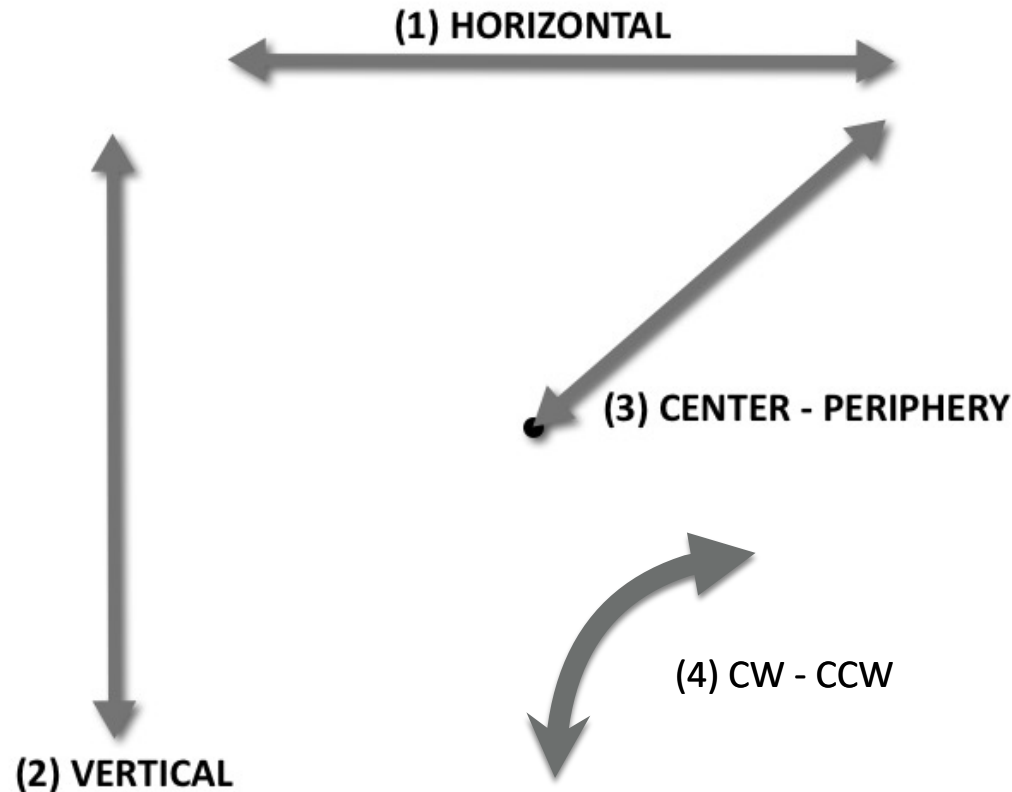
## Visualizing the Everyday

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Participant Number \_\_\_\_\_

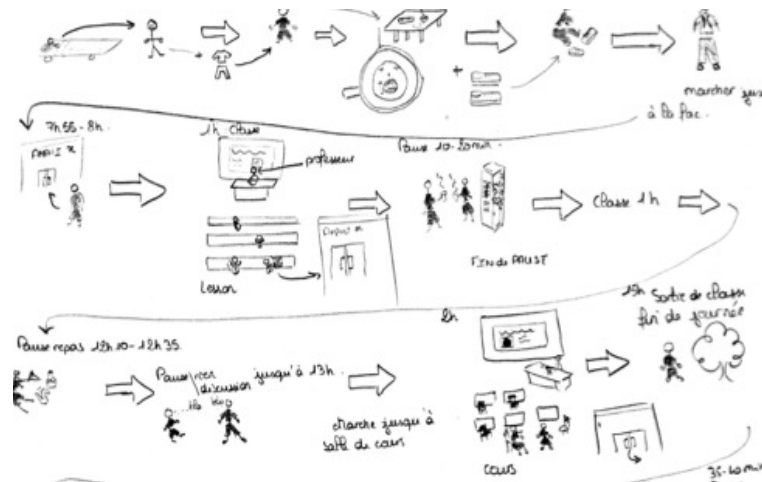
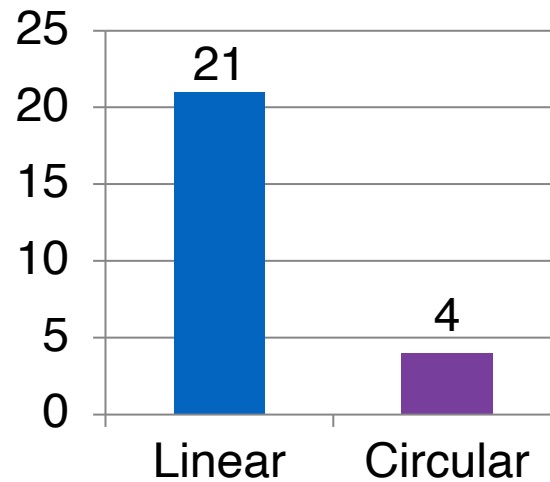
First Language \_\_\_\_\_

Right/Left Handed \_\_\_\_\_

Date \_\_\_\_\_

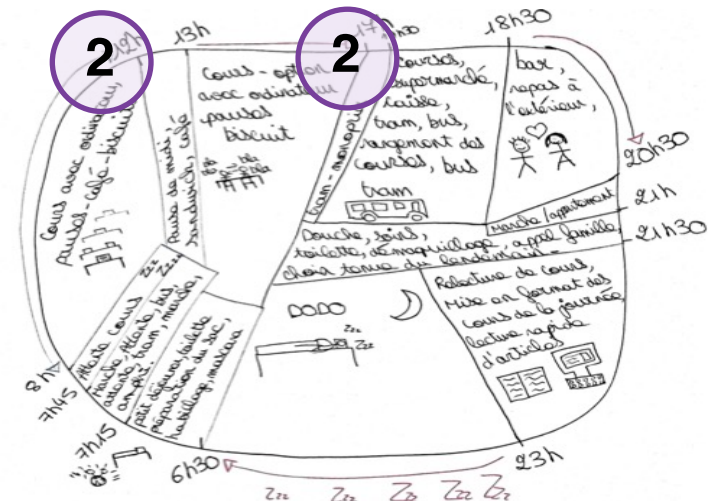
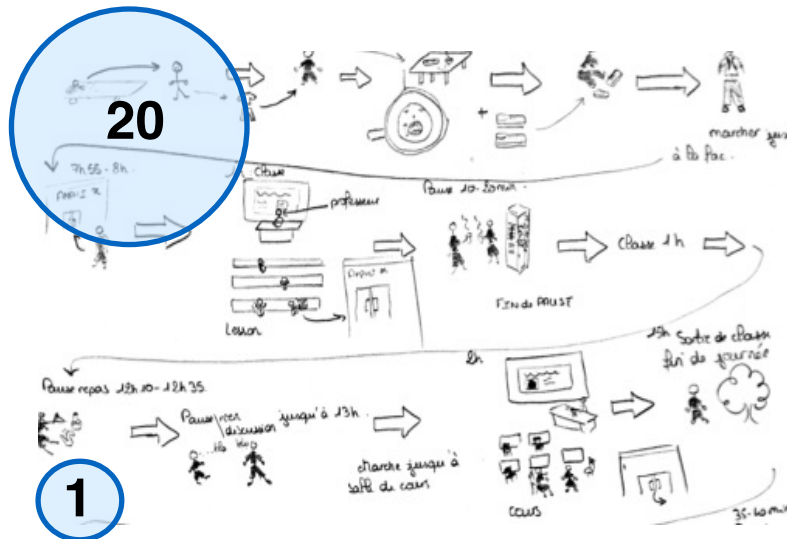
# // results

{ gestalt use of *space* }



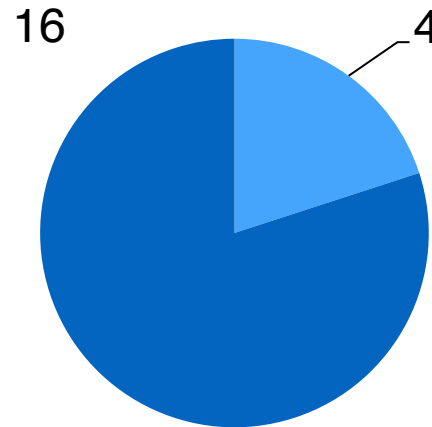
# // results

{ *space* - start of day }

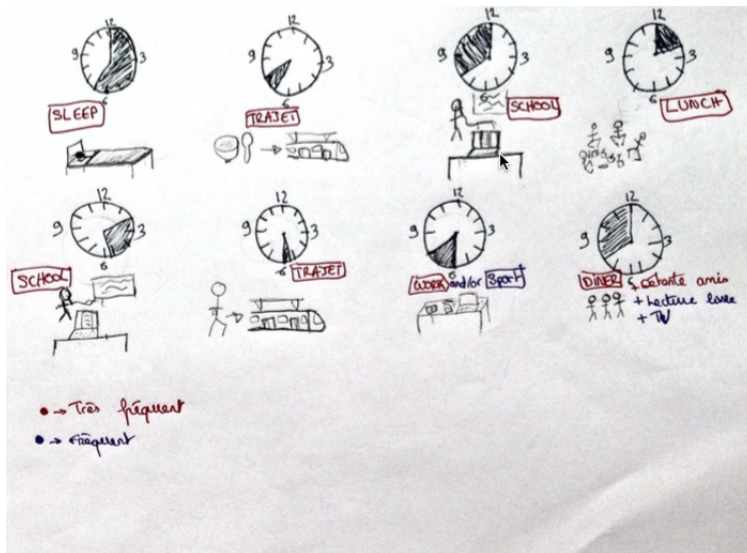


# // results

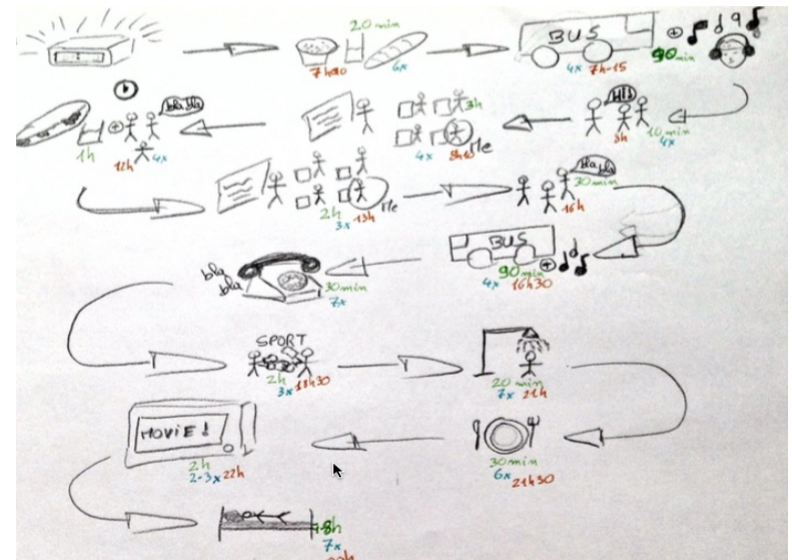
{ *space* – linear direction }



left-to-right

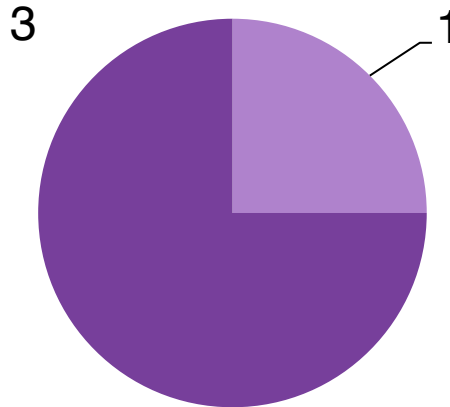


“snake”



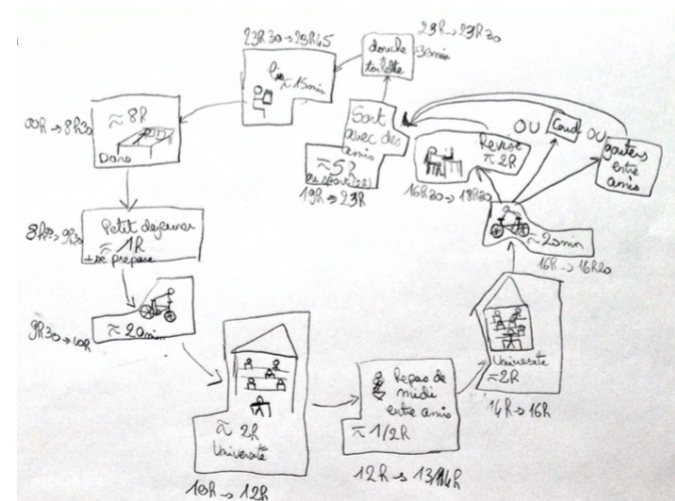
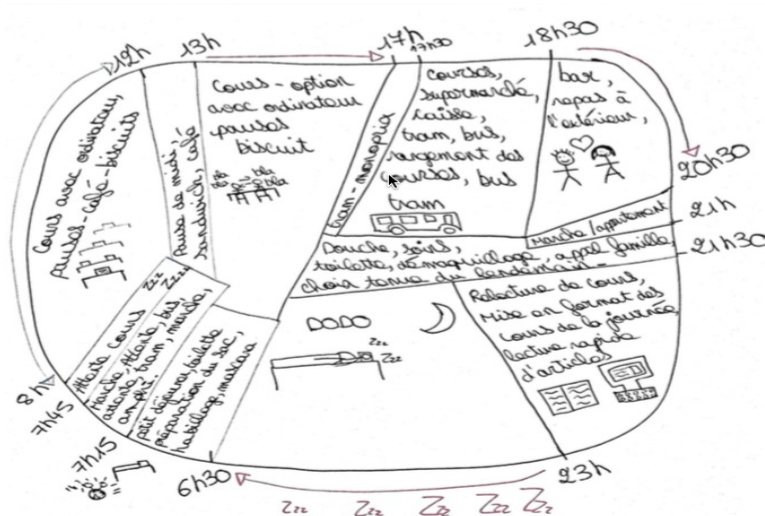
# // results

{ *space* – circular direction }



clockwise

counter-clockwise





# // coding – form

## Visualizing the Everyday

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Good Luck!

(1) TEXT

*Et puis je prends un petit verre...*

(2) NUMBER

12pm - 4 am; 2 x

(3) ARROW



(4) DEPICTION



(5) COLOR



Participant Number \_\_\_\_\_

First Language \_\_\_\_\_

Right/Left Handed \_\_\_\_\_

Date \_\_\_\_\_

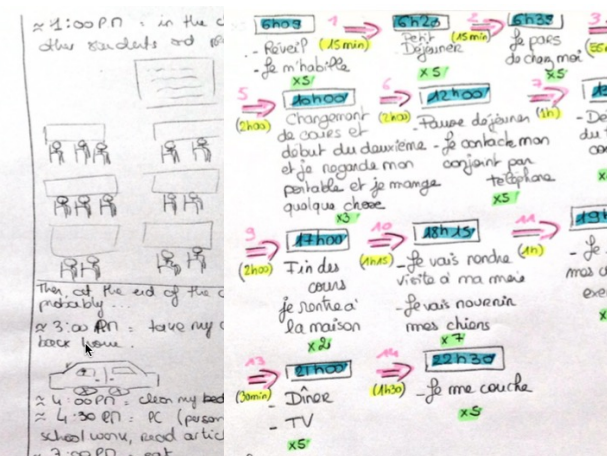
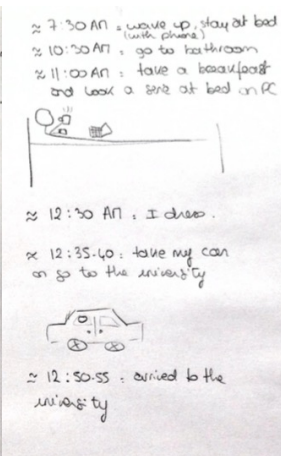
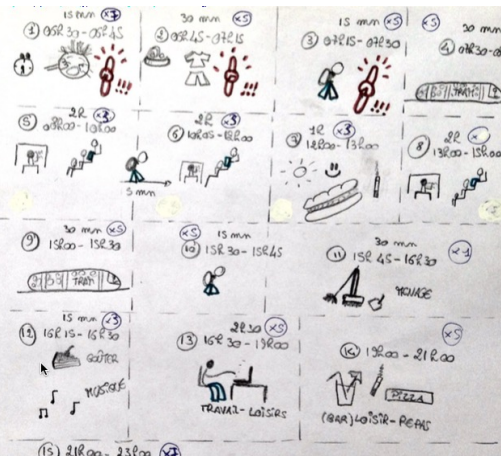
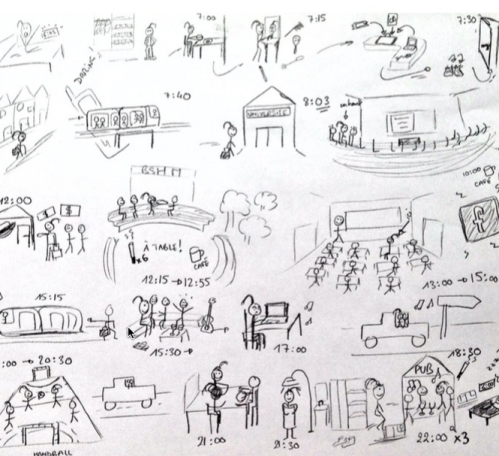


# // results

{ use of *form* }

	LINEAR																		CIRCULAR								
ID	14	4	28	7	16	10	11	26	27	18	24	21	20	1	6	8	5	17	12	13	23	29	2	22	9	TOTAL	
NUMBER	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	23
TEXT	1	1		1	1	1	1	1	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1	21
ARROW		1	1		1	1	1	1	1	1	1	1		1	1		1	1	1	1	1	1	1	1	1	1	21
DRAWING			1	1	1	1	1	1	1				1	1	1	1	1	1	1	1	1			1	1	1	19
COLOR										1	1	1	1	1	1	1	1	1	1	1	1					1	13

highly depictive - - - - - highly descriptive



# // coding – *primary mechanisms*



**Activity**



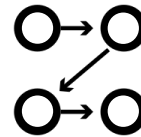
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**Sequence**

*{ Order of Activities }*



**Frequency**

*{ Number of occurrences }*  
}

## // results

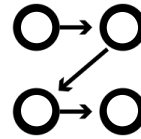
{ primary mechanisms }



## Duration



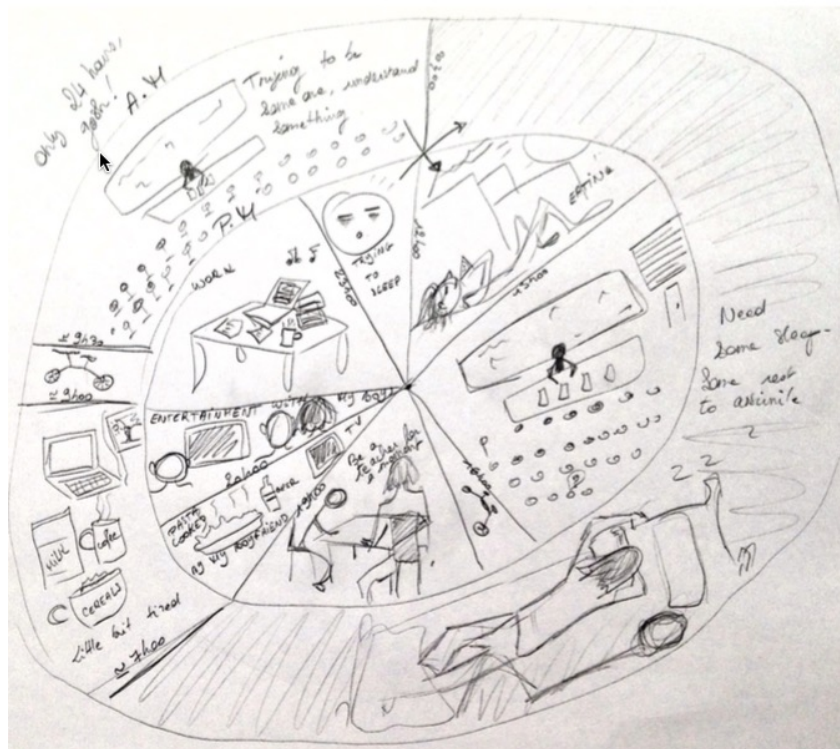
## Timing



## Sequence



## Frequency



# // observations

## SPACE

- Consistent w/ external spatial representations of time
- Preference for linear over circular

## FORM

- Absence of meaningful glyphs other than arrows

## MECHANISMS

- Exclusively spatial-position to represent sequence
- Spectrum of pictures --- text for activities
- Number for timing
- **Duration & Frequency generally neglected**

## GENERAL

- Difficult to represent all components in 1 diagram
- Preference for single integrated diagram
- No statistical charts or graphics
- ~ Resemblance to agendas and calendars

# // future directions

## Student Intervention

- » bring awareness to the (diagrammatically neglected) duration & frequency

## Scale

- » differentiating communicative purpose
- » samples w/ differing domain knowledge
- » cross-cultural

## Diversify

- » correlation with time planning & management tools
- » representations of multi-tasking
- » time-course of construction

# // thank you

Fernex, A., Lima, L., de Vries, E.: Exploring time allocation for academic activities by university students in France. *Higher Education* pp. 1–22 (2014)

Tversky, B. (2011). Visualizing Thought. *Topics in Cognitive Science*, 3(3), 499–535. doi:10.1111/j.1756-8765.2010.01113.x

Hsieh, H.-F. & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15, 1277-1288.

