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# User Experience Design Method for an Elementary School EFL Serious Game



# A serious...

Gradual introduction to the English language



Increase the difficulty of exercises as the student progresses

120+ activities with different interaction modes



Rich and varied lexical themes

Animals  
Colors & numbers  
Action verbs  
Emotions  
Clothing  
Cultural elements...



Cultural awareness

+ Over 4,000 sounds recorded by native speakers with different accents



Unlimited use of the lexicon

Context-sensitive help



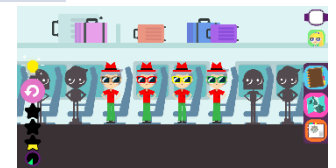
Repeat activities ad infinitum

Exercises in context

Word association exercises

Memory exercises

Working on listening comprehension +++

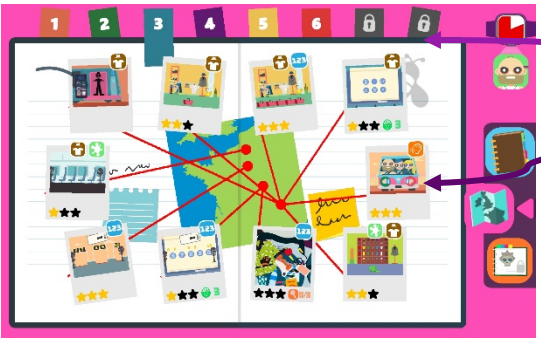
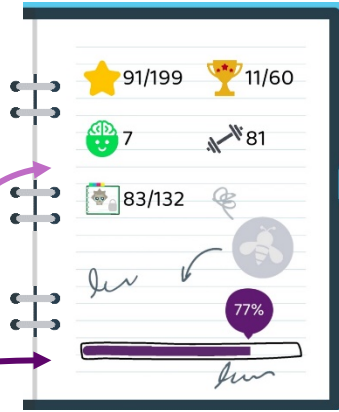


Working on phonology +++



# Game !

(Loiseau & Noûs, 2022)



8 missions with game-related objectives (e.g. free the animals)



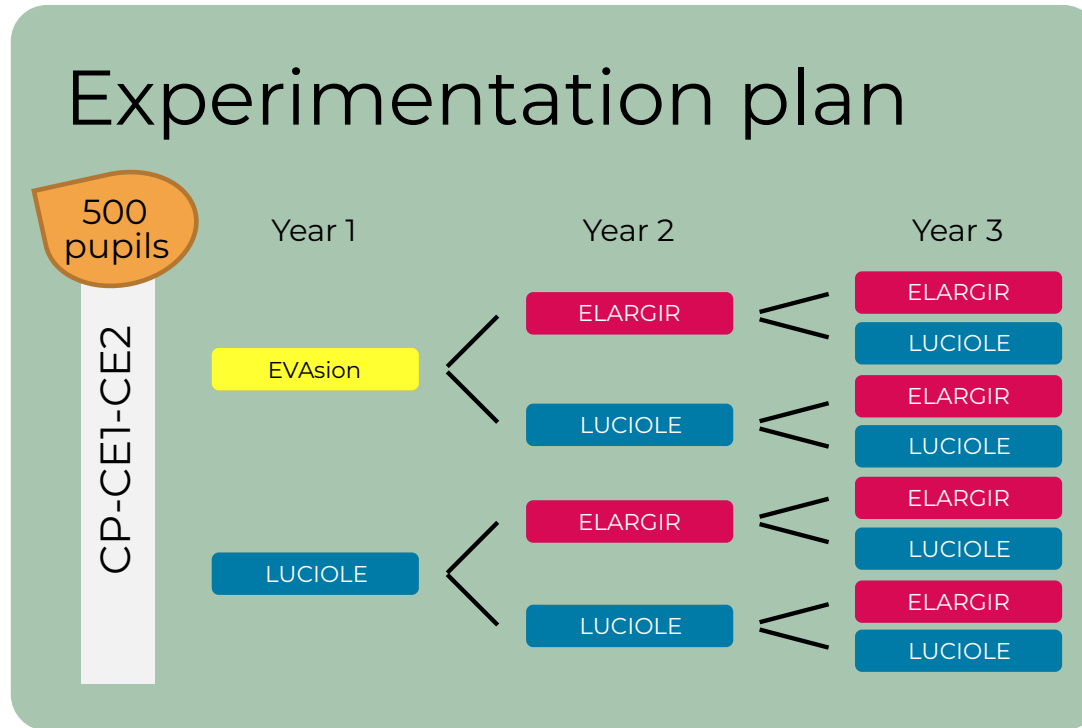
# Context of the study: neutralizing the Hawthorne effect (Koch et al., 2018, p. 3)

EVAsion & ELARGIR Teams POV

Test groups

Control groups

52 schools  
730 pupils

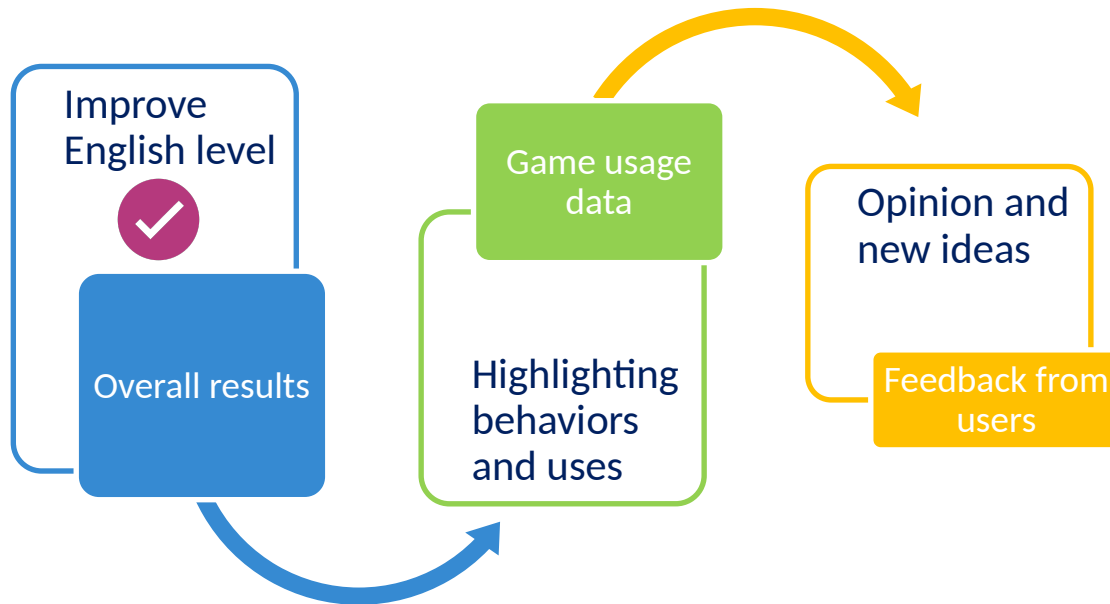


Luciole Team POV

Test groups

Control groups

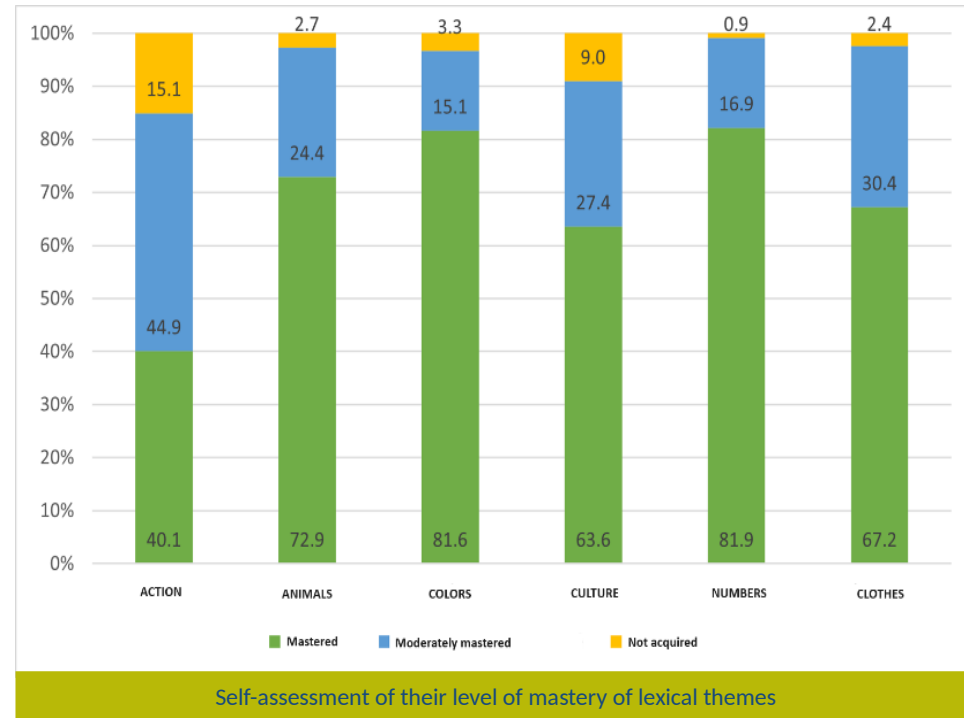
# Context of the study



# Data analysis

## Game usage data

- Replay
  - No replay of activity (even after low score)
  - Underuse of "training center"→ More replay (repeated input)
- Self-assessment questionnaire
  - 62.7% reported understanding the story
  - 53% game easy, 43.7% moderate, 3.3% difficult
  - 100% "Luciole was great game"
    - NB : 40% of students did not go beyond mission 4



# Data analysis

## Game usage data

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    - NB : 40% of students did not go beyond mission 4
- Vocabulary: Sounds are often replayed
  - 746 students (92.6%) used the notebook
  - 327 of them more than 20 times
  - 65% of replayed sounds related to current activity.→ More notebook use

Performance 

# Complementary data collection

Feedback from users

- Field survey: One to one interview and observation (July 2023) with 18 elementary school pupils
  - Unable to show their progression in the game (how many stars they've earned or their secret agent rank)
  - Misunderstanding the notion of stars earned in the activities played and their impact on the game
  - Misunderstanding how to access certain features
- Semi-structured interview with 3 teachers
  - Highlight the pupils' lack of motivation to replay activities because they didn't see the point in the game.
  - Difficult to work on words learned in class



# Complementary data collection

Feedback from users



Environment

Images and sound are beautiful

it's good to free the animals

Learning words

I like learning colors

I like winning medals

rewards

narrative story line

It's so cool to drag clothes

Exploration

I love when we go on adventures

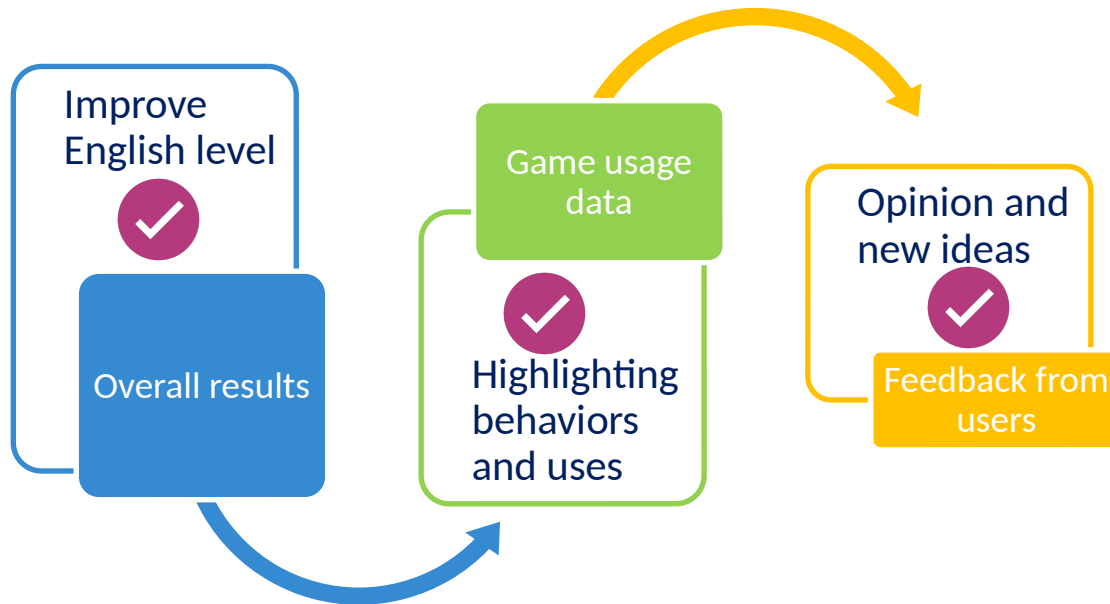


Sometimes I need help because it was too hard

I don't like when they chat for too long

- Activities perceived as too challenging
- Instances of lengthiness or incomprehension in dialogues

# Context of the study



# Method: Study design and procedure

- Increase activity replay by a complete redesign of the dashboard and reward system
- The co-design method intended to :
- Population :
  - Nine primary school pupils
  - All participants had previously tested Luciole for 10 weeks the year before.
  - Children were divided into 3 groups, each workshop conducted within all 3 groups.
  - For each group, there were 2 adults present, one observer and one leader.
  - Workshops took place in June 2023.

Encourage participation

Facilitate open discussion

Foster consensus building

Generate new ideas

Test understanding / interest for prototype

Evaluate enthusiasm and appreciation of proposals

# Method: Study design and procedure

- Data collected :
  - Audio recording , observation grids, photos
- Method
  - The **laddering technique**, based on the Means-End theory

(Zaman & Abeele, 2010)  
**Note-taker**



*each question provides deeper insights*



It's fun

I love saving animals !

Why is it fun for you ?

What do you like about playing Luciole ?

Start with an "Icebreaker"



**Interactor**

**RECOMMANDATIONS**  
Attitude of ignorance and questioning  
Casual clothing  
Equivalent relationship with the child  
Cool attitude

**Focus on concrete aspects : characters, game features, or challenges**

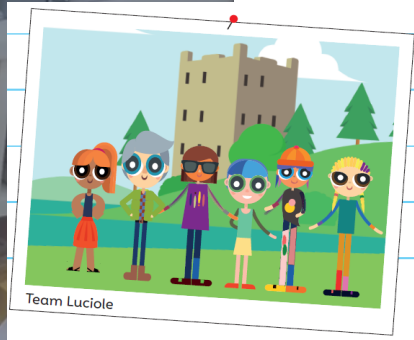
# Method: Stages



Previously :  
Installation



Team Presentation +  
Objectives of the day



We'd like to improve Luciole. Make it super cool. But we don't know how. Do you want to help us ?



Remember What is Luciole ?



ICEBREAKER

Presentation +  
Icebreaker

STARS

ANIMAL  
RANKINGS

QUALIFIERS

RANK  
PROGRESSION

May 23rd 2024



UX Design Method for Elementary School

# Visualizing star gain in an activity



Interactive support



Presentation +  
Icebreaker

STARS

ANIMAL  
RANKINGS

QUALIFIERS

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May 23rd 2024

# Stars

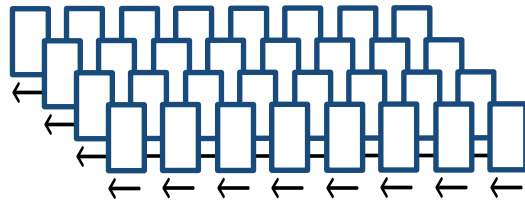
- This or That ?
  - For the 3 groups: VERTICAL
- Why ?
  - Notion of rising, evolution, prettier, easier to understand; more practical and more attractive ; Horizontal presentation takes up more space, and it's ugly
- Note
  - They don't immediately notice the difference between empty and collected stars.







Animal grade image cards (32 cards) (4x8)  
Ranking card track x4



Number to rank in order of preference



## Non digital support

Presentation +  
Icebreaker

STARS

ANIMAL  
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May 23rd 2024



Why is vertical stars your favorite ?



it's going up, so we're making progress!

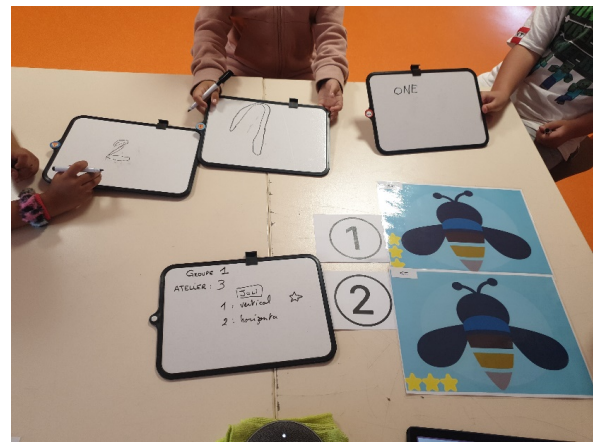


Why number 1 for marine animals ?

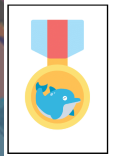
I love dolphins!



Swordfish is too strong!



# Animal rankings

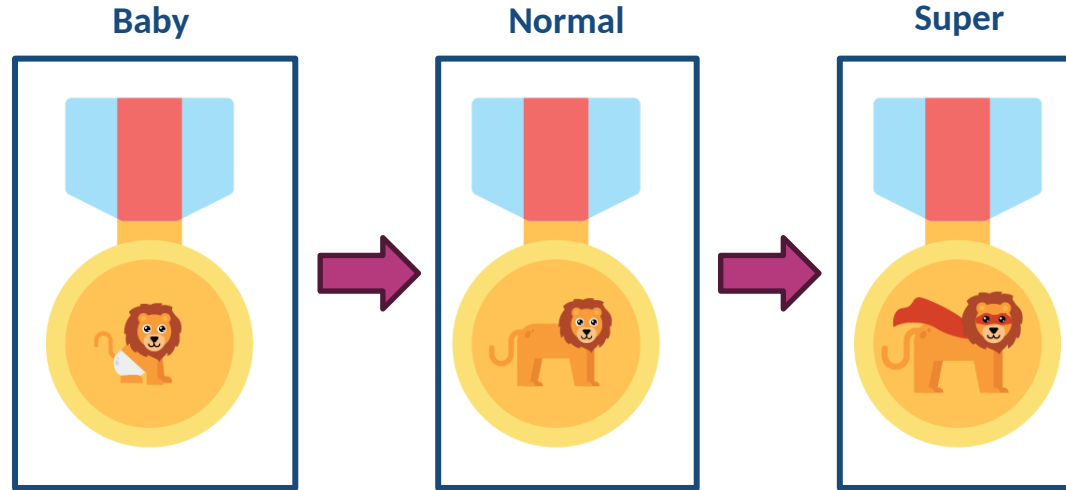


Favorite animals



Animal Set	Group 1	Group 2	Group 3
<b>Food chain</b>	Confuses grasshopper and cricket, dog and wolf; owl better than snake; suggests putting owl in order 3; change order snake and owl; bear strongest. Grasshopper or fly least strong.	Suggests that the owl is stronger than the snake the weakest: fly the strongest: bear	Don't recognize grasshopper/cricket; confuse owl; strongest: wolf and bear; weakest fly.
<b>Sea animals</b>	Seal difficult to recognize; swordfish unrecognized; killer whale confused with whale; suggest changing order between crab and octopus //change order between swordfish and dolphin; killer whale and swordfish strongest; shrimp weakest;	Cites sea lion instead of seal; can't find the names swordfish and killer whale; dolphin too big; weakest: crab; strongest: killer whale	Confuses dolphin and whale; change octopus order to put before seal; swordfish the most dangerous to put after dolphin; mentions sharks as the most dangerous (add after killer whale as even stronger)
<b>Birds</b>	Ostrich: unrecognized; confuses owl with owl; suggests changing peacock order and ostrich to hen or duck the least strong ;	Ostrich weaker than swan Strongest: eagle; weakest: sparrow	Confuse sparrow/throat; change order ostrich and owl; stronger: eagle
<b>Cool</b>	Debate over who is stronger between the lion and the giraffe	Is it a raccoon?	the worst = ant; the best = lion but they hesitated with the giraffe because it is bigger

# Is our subranking scale understandable?



Non digital  
support



May 23rd 2024

# Subranks qualifiers

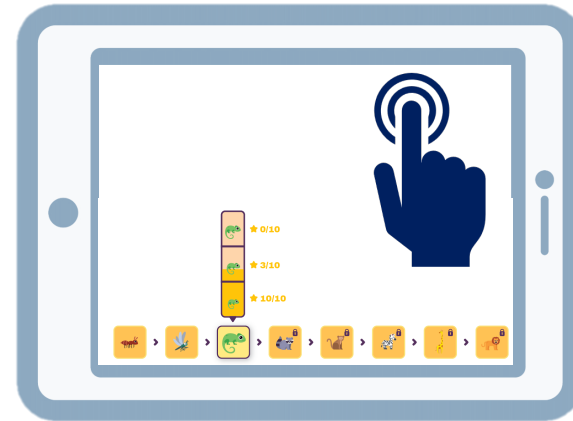
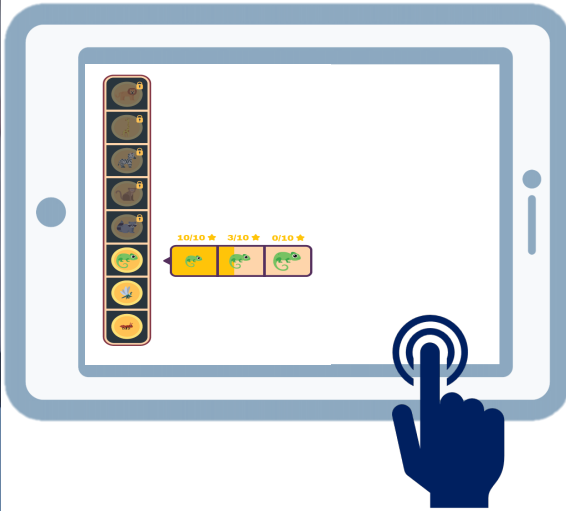
**This or That ?** Adjective evolution is understood by all; there's nothing wrong with being a baby in a diaper; the superhero is great



Baby, adult and superhero evolution: designed for all ranks, with a creative touch for each animal.

# Making rank progression understandable

Interactive support



Presentation +  
Icebreaker

STARS

ANIMAL  
RANKINGS

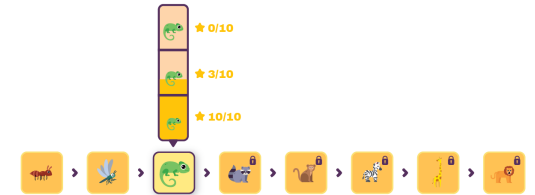
QUALIFIERS

RANK  
PROGRESSION

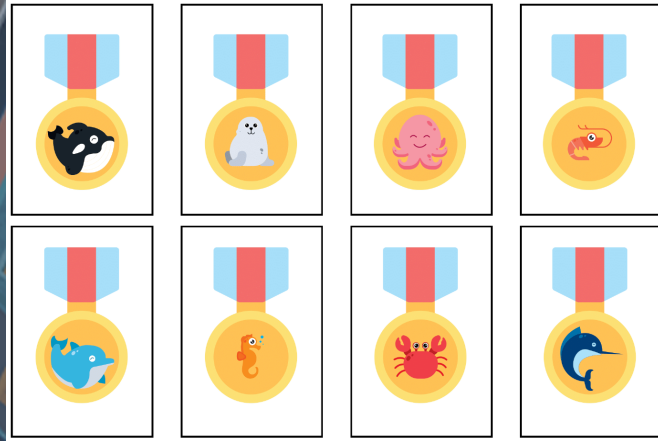
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# Rank progression visualisation

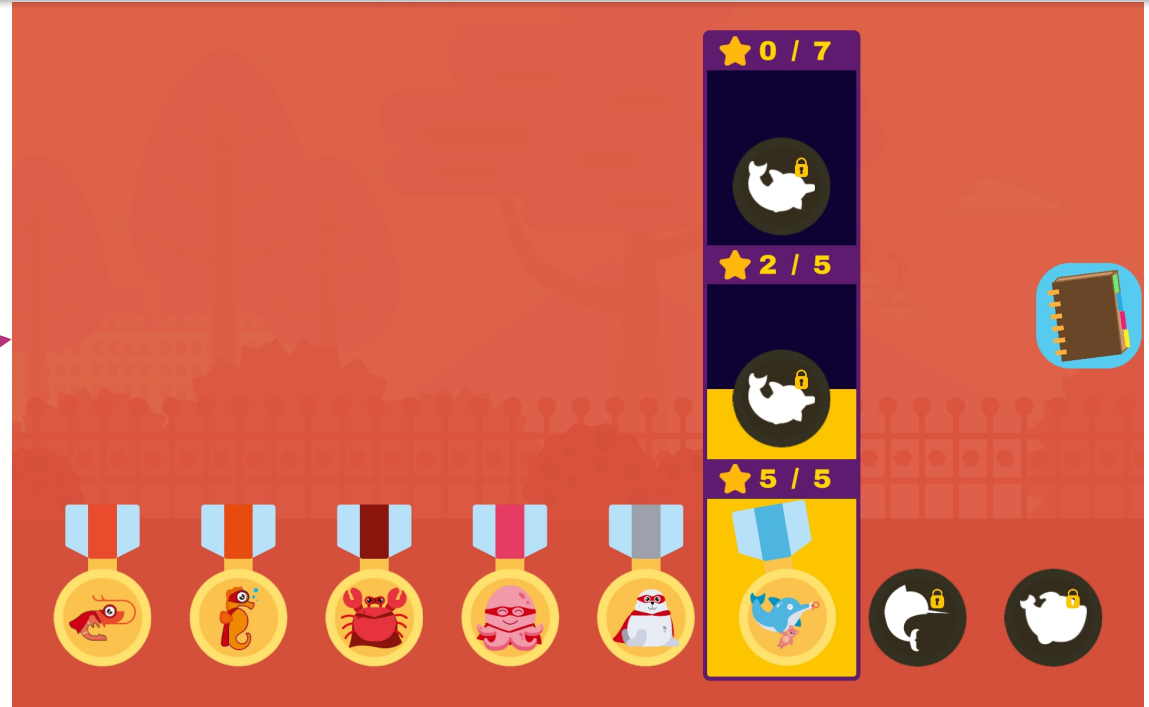
- This or That ?
  - For the 3 groups: HORIZONTAL
- Why ?
  - easier to understand; takes up more screen space, so easier to read
- Vertical presentation
  - too small, images too close together



# Results: Rank progression



V2





# Future works

- Post-experiment evaluation of the new version
- Sub-projects
  - New missions
  - Collectible album
  - Board games

## Bibliography

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