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ToGather, an interactive website for the stakeholders of school inclusion of children with ASD: an iterative design including user testing

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ToGather, an interactive website for the stakeholders of school inclusion of children with ASD: an iterative design including user testing

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Progress of the presentation



Introduction



Material and
methods



Results



Discussion and
conclusion

Autism and schooling

Neurodevelopmental condition

- French prevalence : 36,5/10,000 persons
(Fombonne, *et al.*, 2019)
- Impairments in communication, social skills, restricted interests and activities
(APA, 2013)
- Large inter-individual variability
→ huge personalize care and support
(Fage, *et al.*, 2016)
- The earlier they are included,
the more they benefit
(Ferraioli & Harris, 2011; Osborne é Reed, 2011; Salceanu, 2020)

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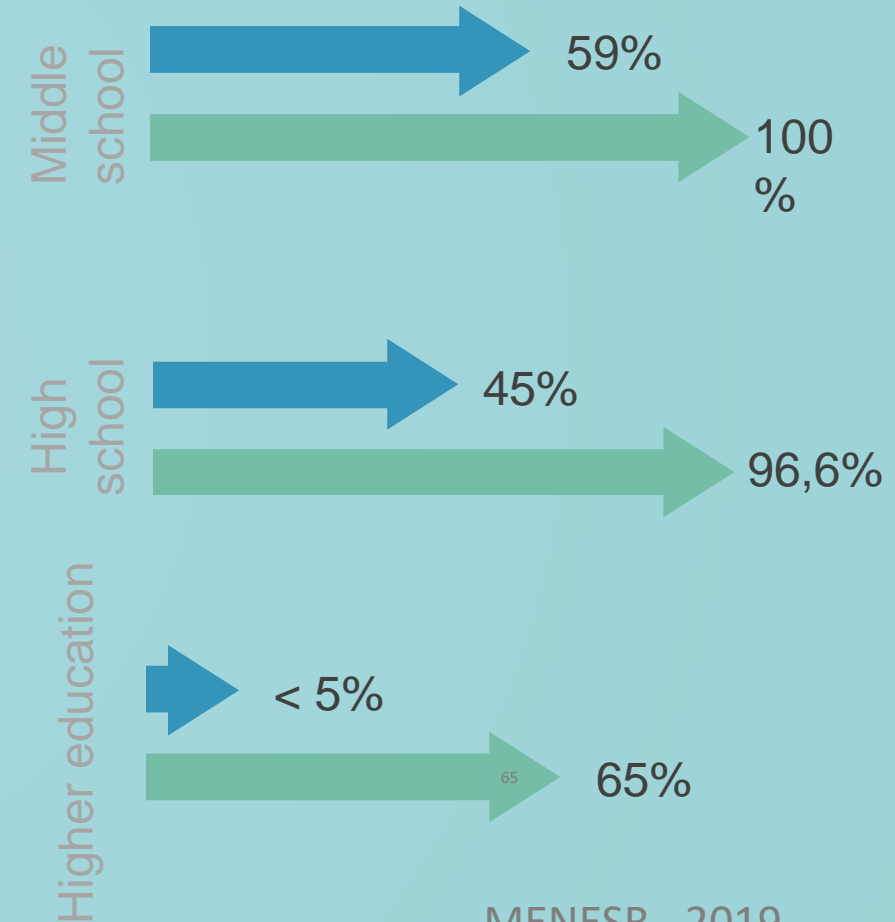


Results

Neurotypical

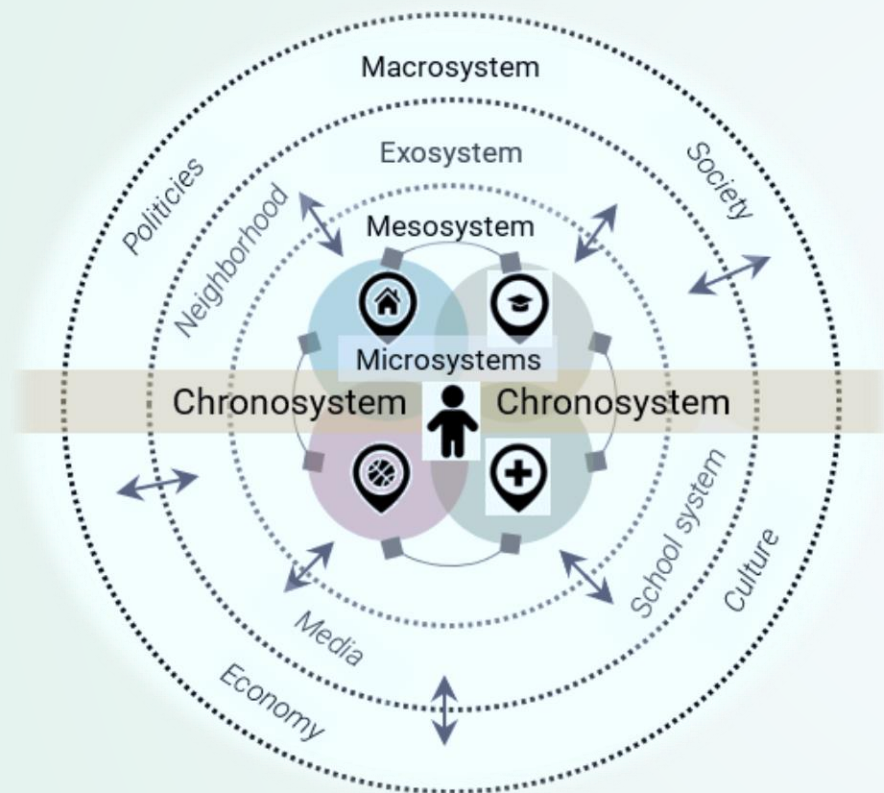
Discussion and conclusion

ASD

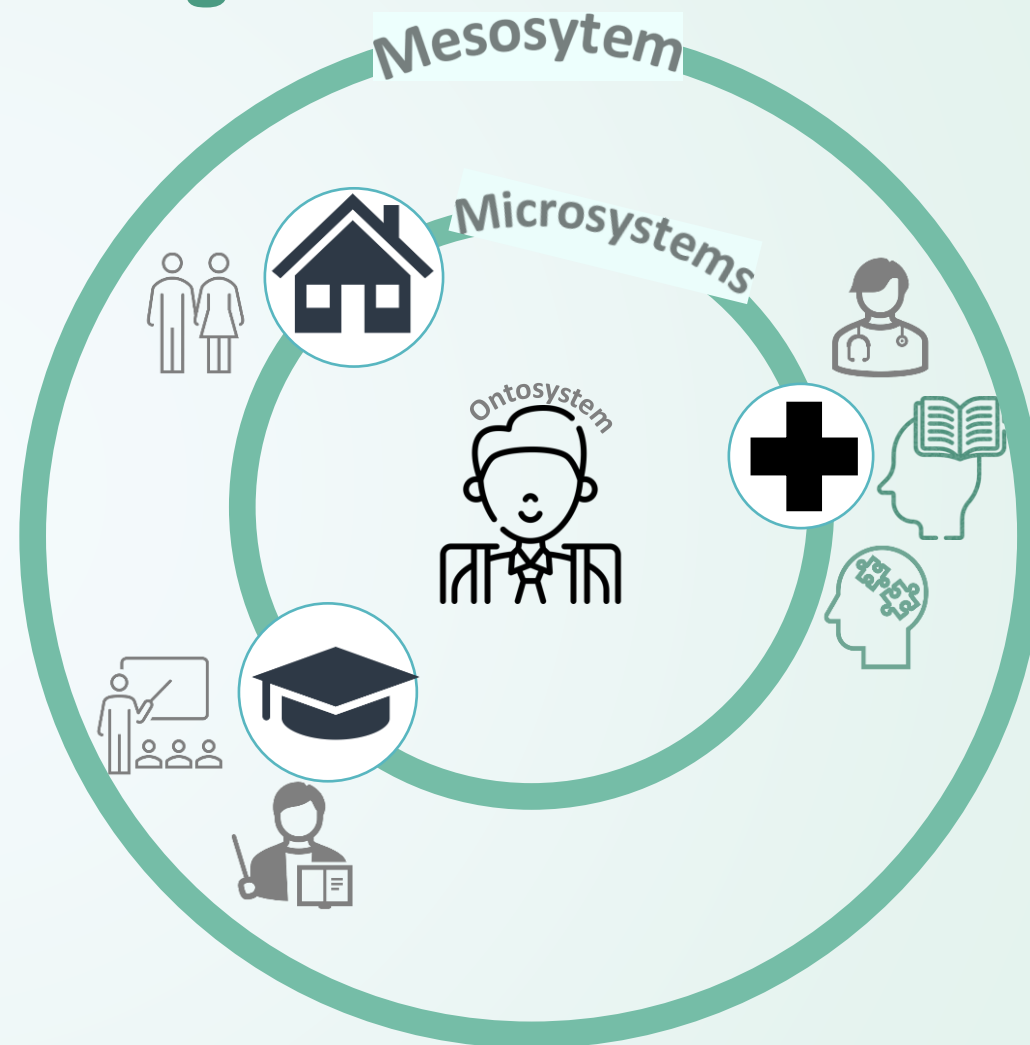


MENESR., 2019

The ecosystemic approach to leverage the environment



Mazon, 2019



Factors impacting the school inclusion

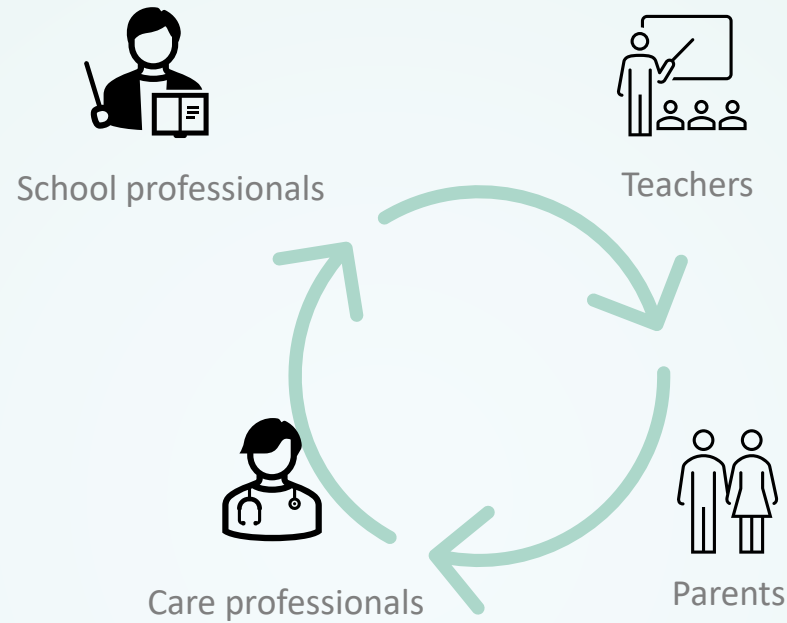
Main barriers to the co-education process:

- Cultural information gap on ASD
- Time availability of the parties involved
- Multi-sectorial information gap
- Evolutivity of the child's educational needs

→ No technology designed to lever up those factors.

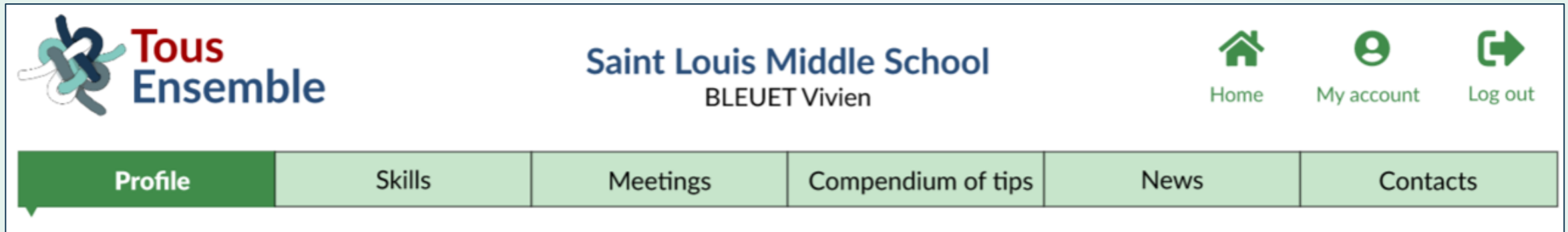
Previous work

- Design with and for:



- Promote communication and collaboration
- Improve the co-education process
- Produce innovation to address societal issues

Previous work – the mock-up



Profile

Particularities of the child
for a quick familiarization

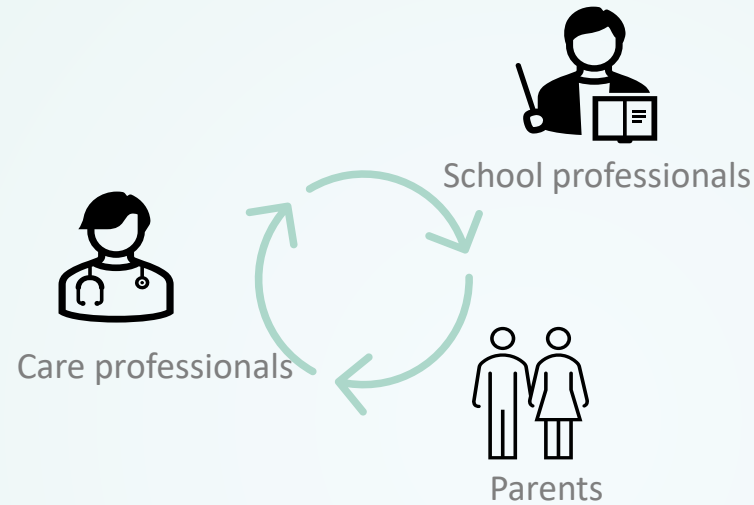
Previous work – the mock-up



Compendium of tips
Psycho-educational tips for
the pupil

Design of the methodology

- Different schedules
- Limited time
- Different goals



- Usual testing method : free web browsing



Participants

Personas

Roles



Alex

Parent



Jupiter

Teacher

Care



Jessie

Referent

Nielsen & Landauer (1993) : 5-10 subjects to detect 85% of the main ergonomics design errors



7 

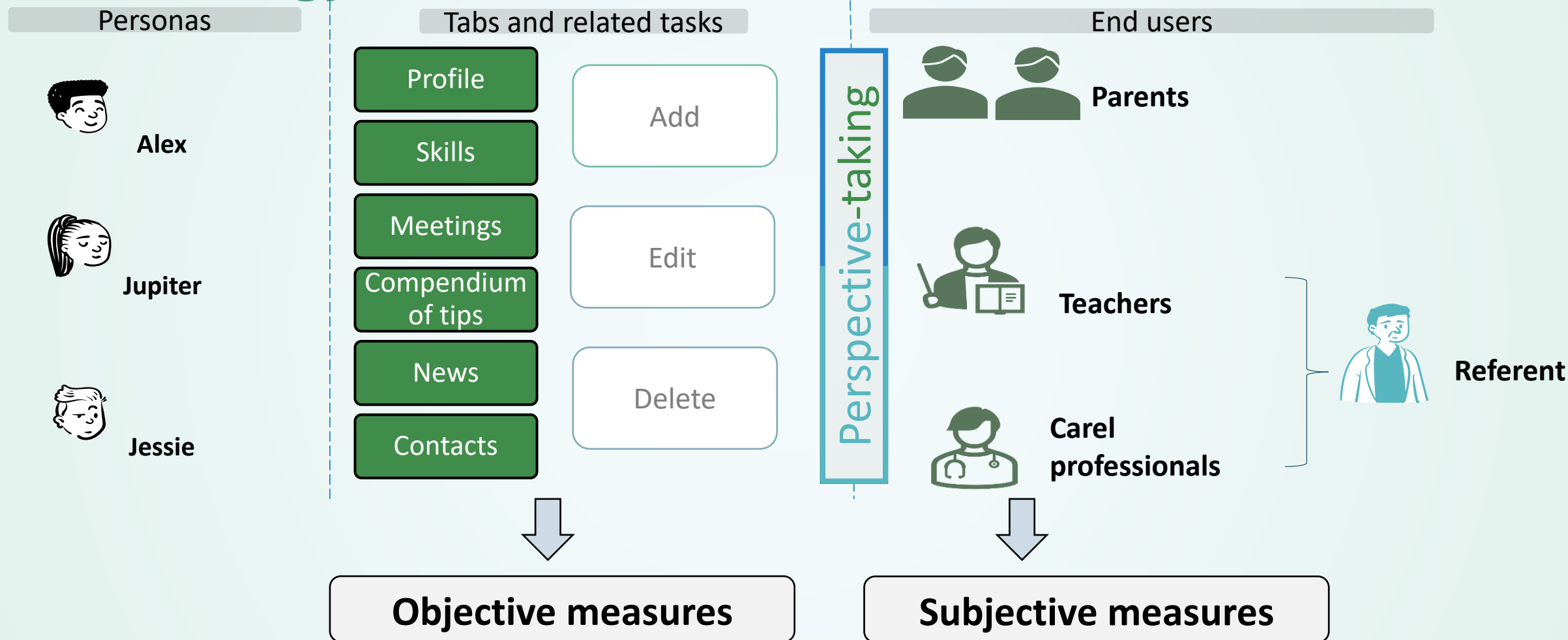


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Methodology



Methodology

Objective measures

- Proportion of correct responses
- Number of active interaction per minute
- Optimality score

Subjective measures

- Scenario-based Subjective usability
- System Usability Scale
- User Experience Questionnaire
- NASA-TLX
- Elicited self-determination for a collaborative work

**Objective
measures**

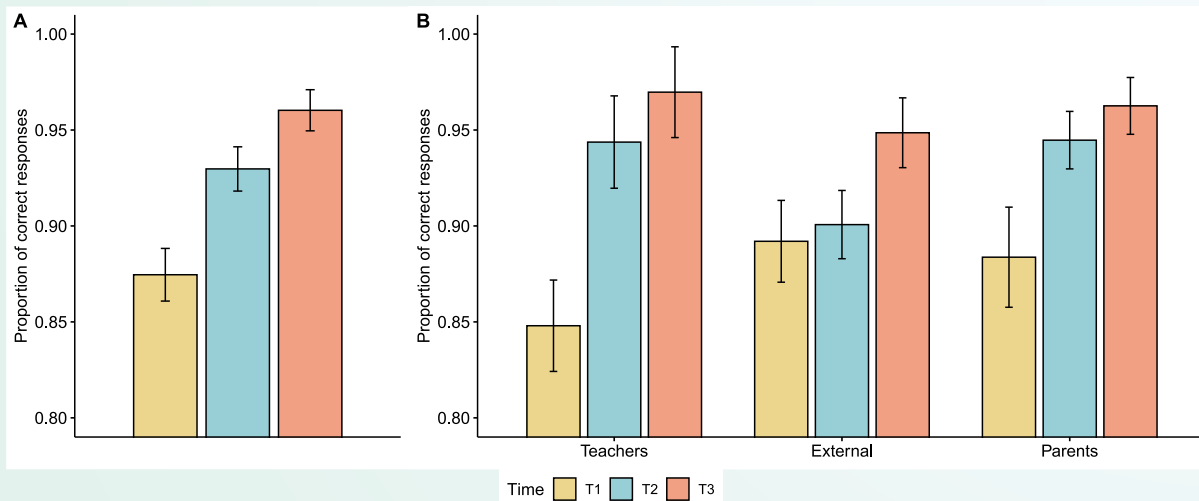
**Subjective
measures**

Objectives measures

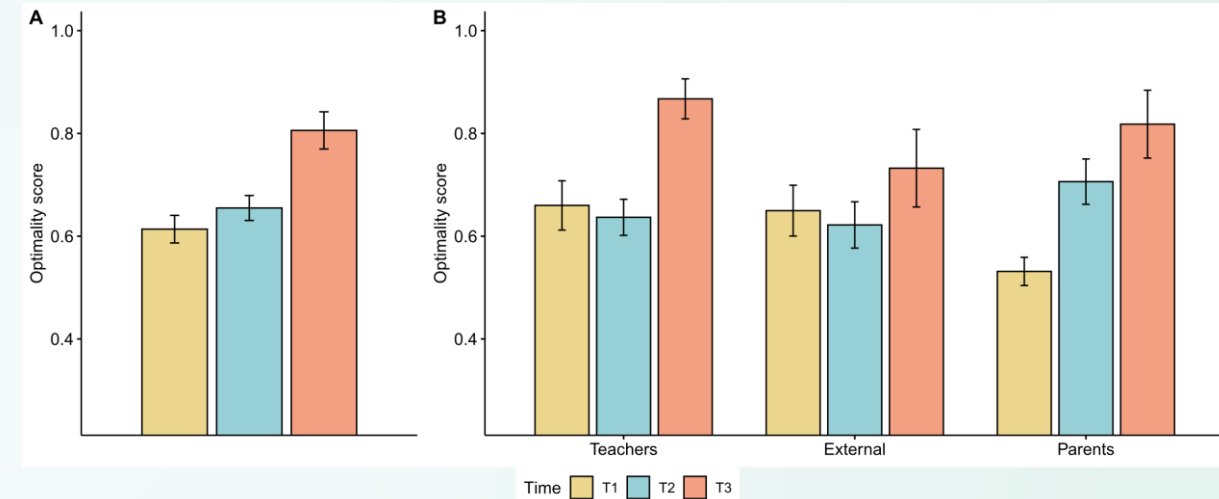
Inter-rater reliability

- $r=9.968$

Proportion of correct responses



Optimal score

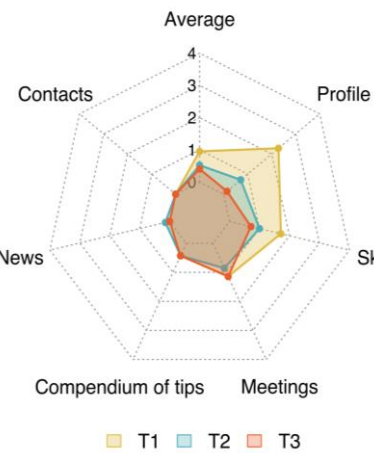


Subjective measures

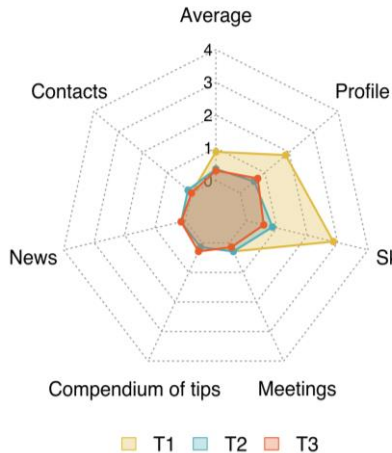
Scenario-based subjective usability

User Experience Questionnaire

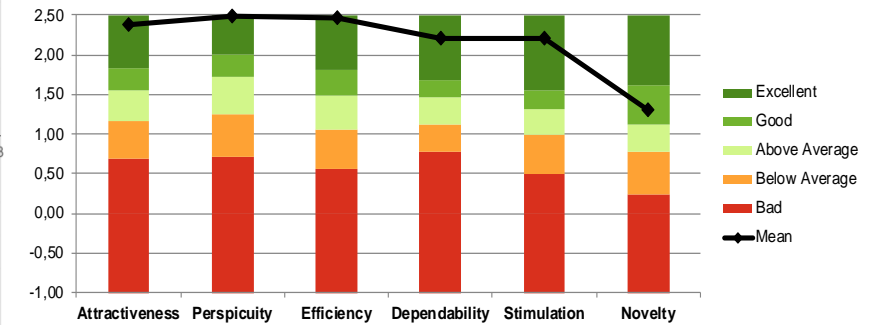
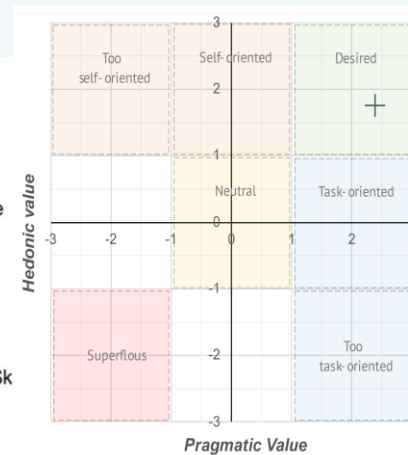
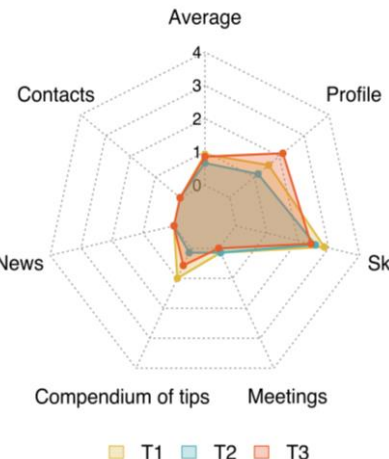
Parents



Teachers

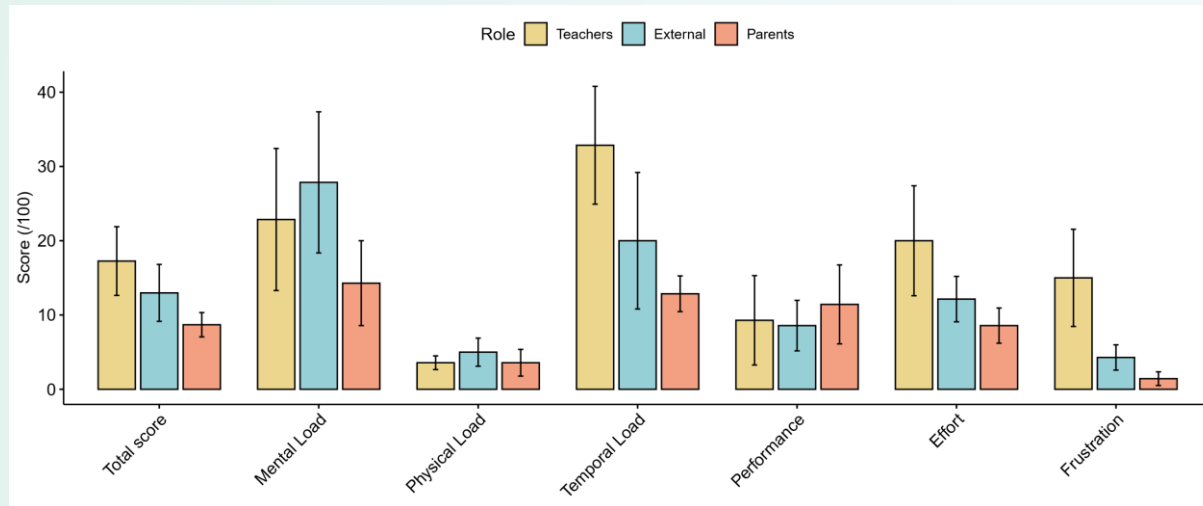


External actors



Subjective measures

Cognitive Load



Self determination feeling

- Great level of self-determination feeling for collaborative activities

Discussion

- Great self-determination feeling underlines the need for a collaborative tool
 - Gather information
 - Empowers each stakeholder
 - Participate in every collective decision
 - Coordinate actions
- Difficulties decreased and even disappeared across scenarios
- Conducting user test before the final version is crucial to meet users' needs



Limitations

- Non-homogeneous features across tabs

Average number of features per tab

Dashboard	Profile	Skills	Meetings	Compendium of tips	News	Contacts
2	4,5	7	1 to 10	1 to 8	3	1

- Collection of interaction data



- Usage of scenario



Conclusion


- Participatory design
- ToGather meets the demands
 - Excellent user experience
 - Low cognitive load
 - Easy to use

The screenshot shows a user profile page for Vivien BLEUET. The page is titled "CoEd logo" and "Saint Louis Middle School" with the user's name "Vivien BLEUET". Navigation links include "Home", "My account", and "Log out". The profile section includes a cartoon avatar, the name "BLEUET Vivien", "Class: 8", and "Age: 15 years old". There are three main sections: "Strengths", "Difficulties", and "School experience", each with a list of bullet points and edit/delete icons. A "What's up?" notification box is also visible.



CoEd logo Saint Louis Middle School
Vivien BLEUET

Home My account Log out



Profile Skills Meetings Compendium of tips News Contacts

 **BLEUET Vivien**
Class: 8
Age: 15 years old



What's up?
Mark everything as read
New solution
By E. MARTIN
On Friday, January 1st, 2022
New news
By E. MARTIN
On Friday, January 1st, 2022

Strengths  

- Aware of external danger
- Autonomy, performs daily tasks alone
- Concentration higher than 20 min
- Finds his way in space

Difficulties  

- Can not orally give complex explanations.
- Difficulty to locate in time
- Difficulty to assess social codes (Write a letter, handle his money).

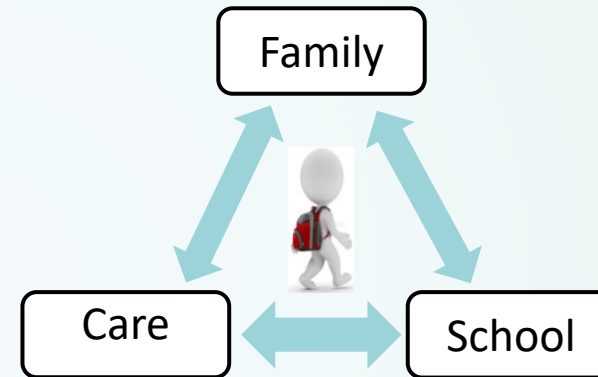
School experience  

- Year 2020-2021: Considerable progress: Asks teachers for help when he does not understand.
- Arrived in the middle of school year in 2019 in middle school : did not speak at all.

What comes next

A field assessment

- To test ToGather in the field via a weekly use
- Recrutement of dyad minimum composed of:
 - Parent & specialized teacher / main teacher
 - Parent & main carer (often specialized educator)
- 2 semesters
- 3 assessments spaced 3 months appart



In the future: *ToGather* from middle school to University

THANK YOU !



TOUS ENSEMBLE

Time for questions