



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

Isabeau Saint-Supery

► To cite this version:

Isabeau Saint-Supery. ToGather, an interactive website for the stakeholders of school inclusion of children with ASD: an iterative design including user testing. English Seminar - ACTIVE team, Nov 2022, Bordeaux, France. hal-03898722

HAL Id: hal-03898722

<https://inria.hal.science/hal-03898722>

Submitted on 14 Dec 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

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

I.Saint-Supery

PhD Student

Supervised by H. Sauzéron & C. Mazon

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 & Reed, 2011; Salceanu, 2020)

Autism and schooling

Neurodevelopmental condition

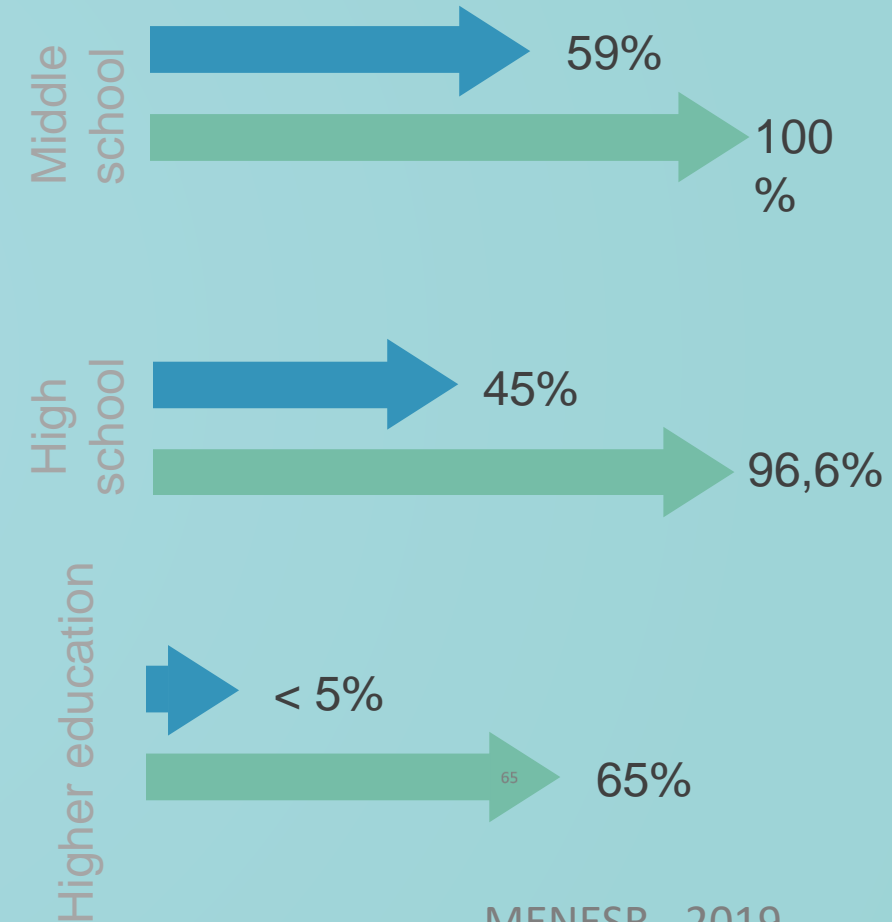
- French prevalence : 36,5/10,000 persons
(Fombonne, *et al.*, 2019)
- Impairments in communication, social skills, restricted interests and activities
(APA, 2013)
- Large inter-individual variability
→ huge personalize care and support
(Fage, *et al.*, 2016)
- The earlier they are included,
the more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



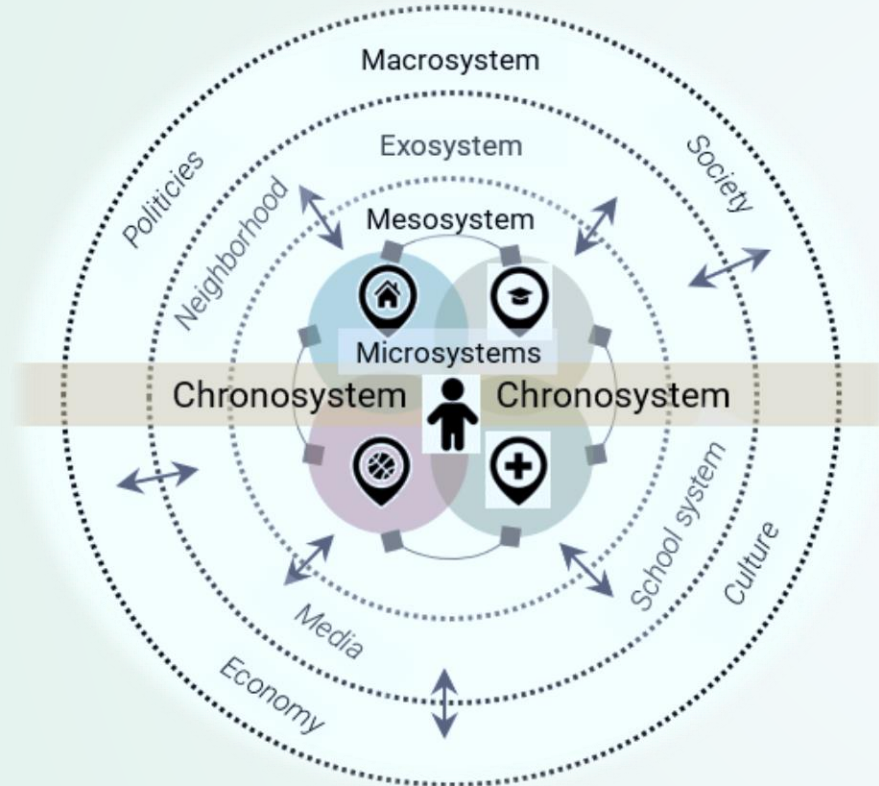
Neurotypical



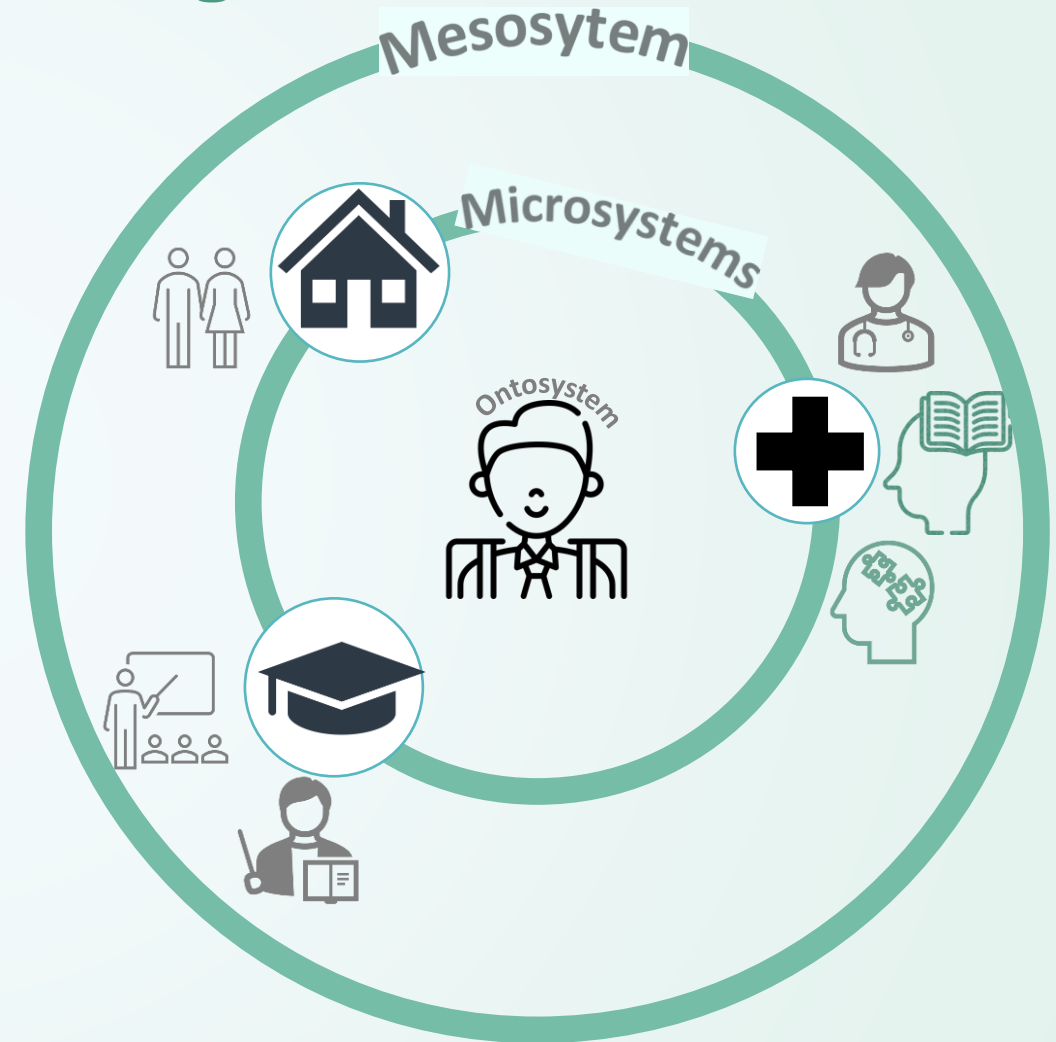
ASD



The ecosystemic approach to leverage the environment



Mazon, 2019



Factors impacting the school inclusion

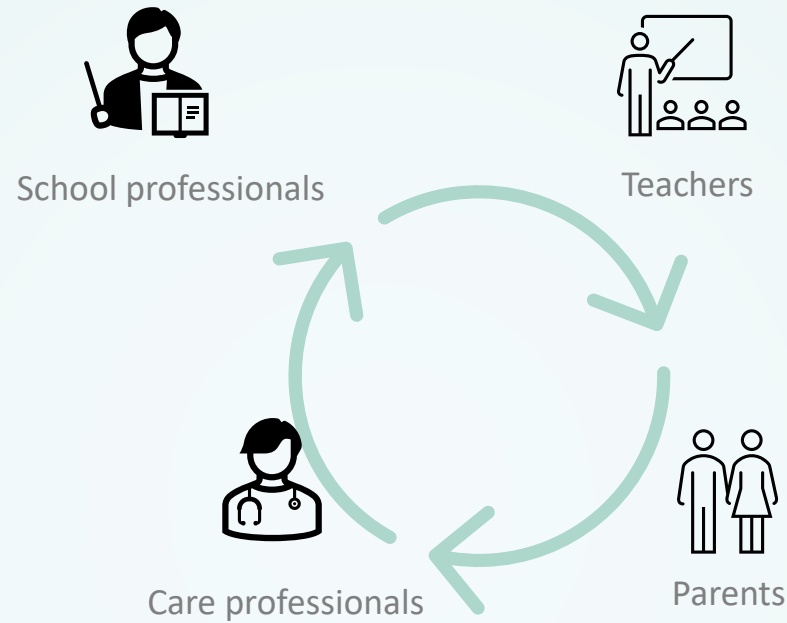
Main barriers to the co-education process:

- 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.

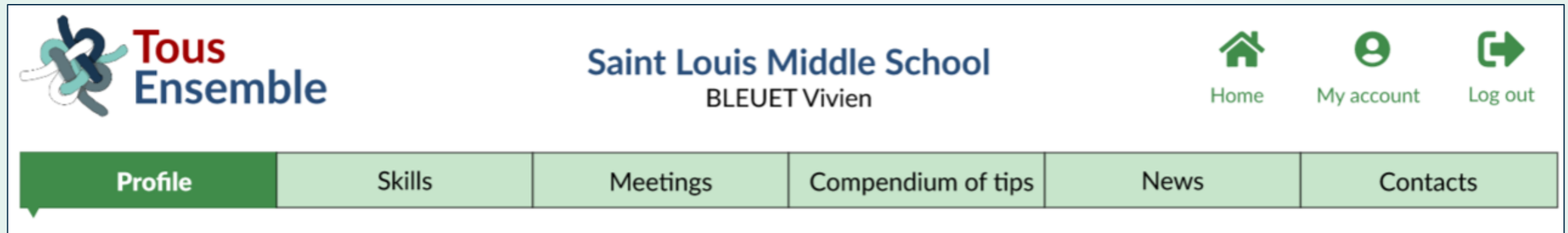
Previous work

- Design with and for:



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

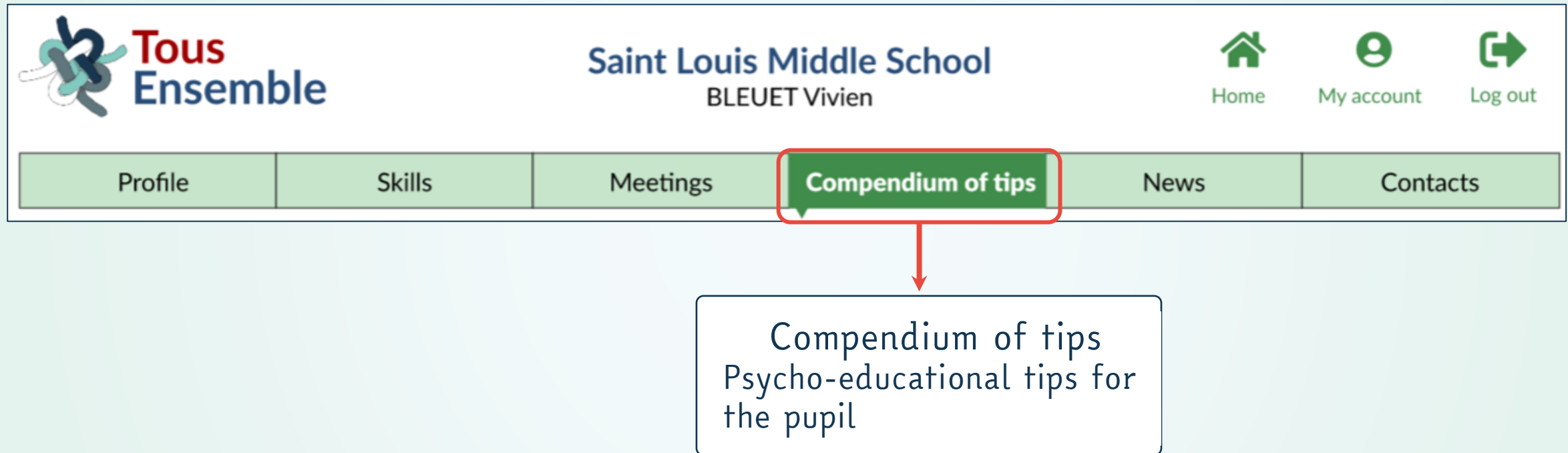
Previous work – the mock-up



Profile

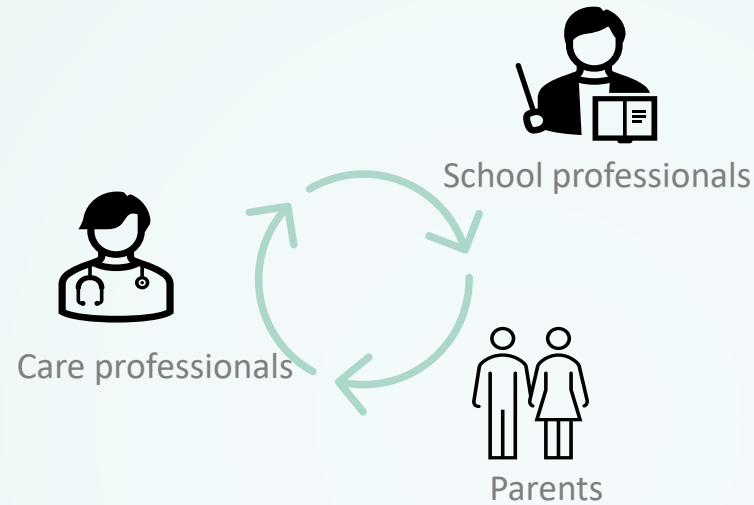
Particularities of the child
for a quick familiarization

Previous work – the mock-up

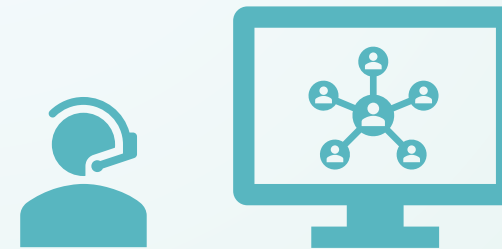


Design of the methodology

- Different schedules
- Limited time
- Different goals



- Usual testing method : free web browsing



Participants

Personas



Alex



Jupiter



Jessie

Roles

Parent

Teacher

Care

Referent

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



7 

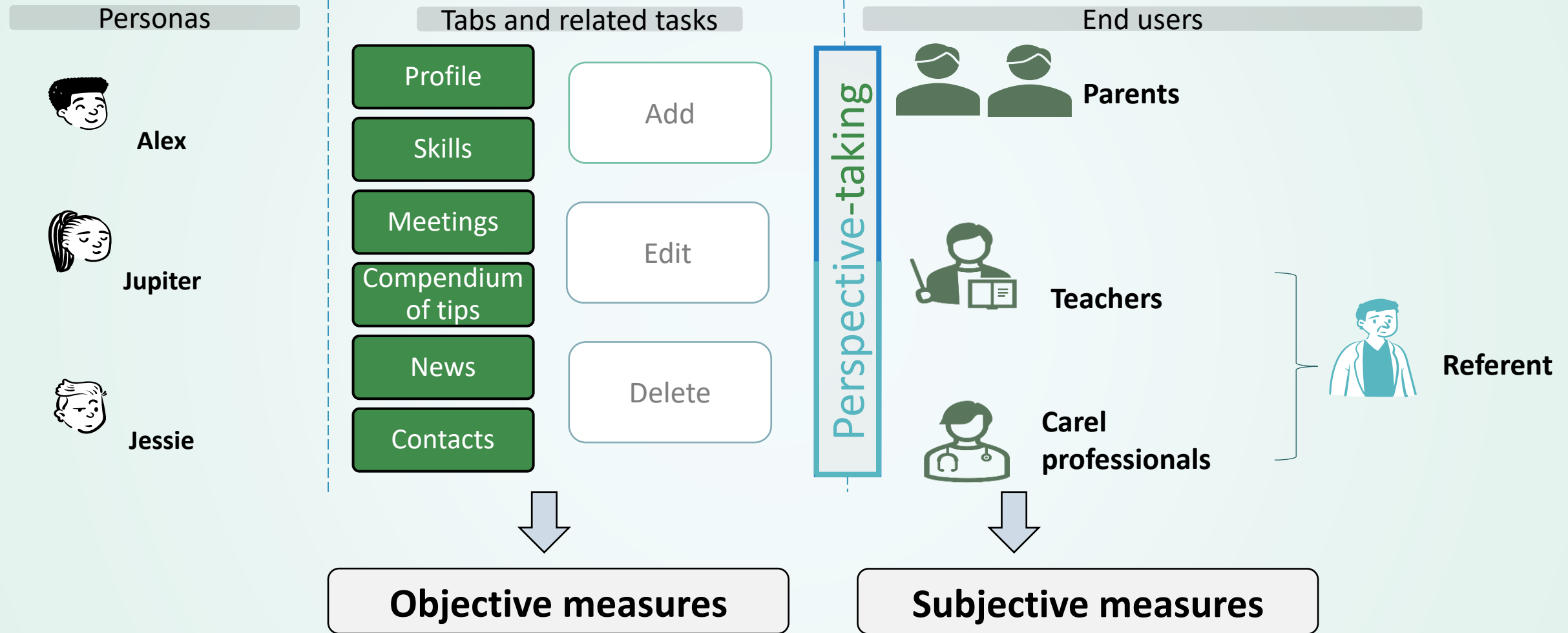


7 



7 

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**

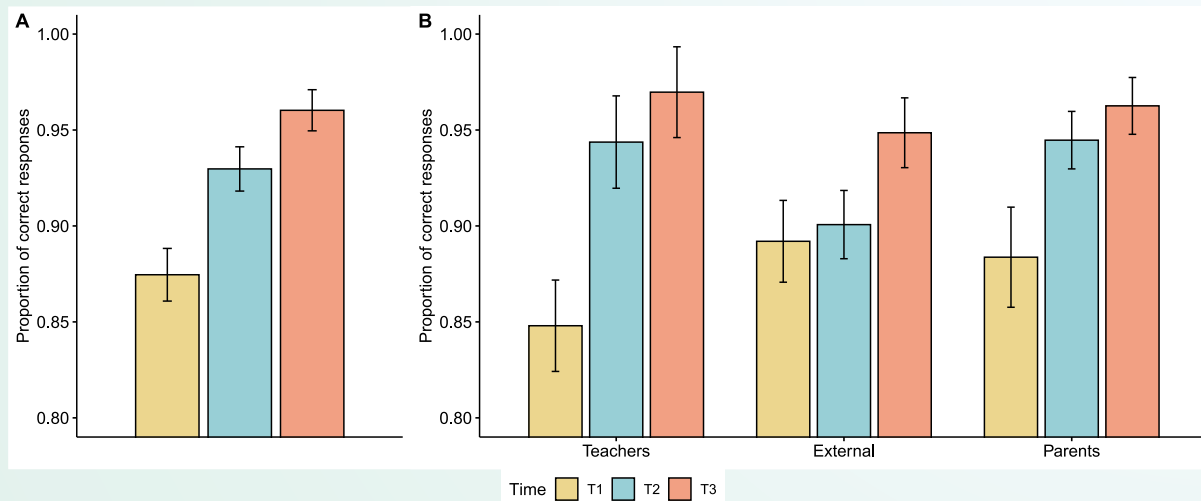
**Subjective
measures**

Objectives measures

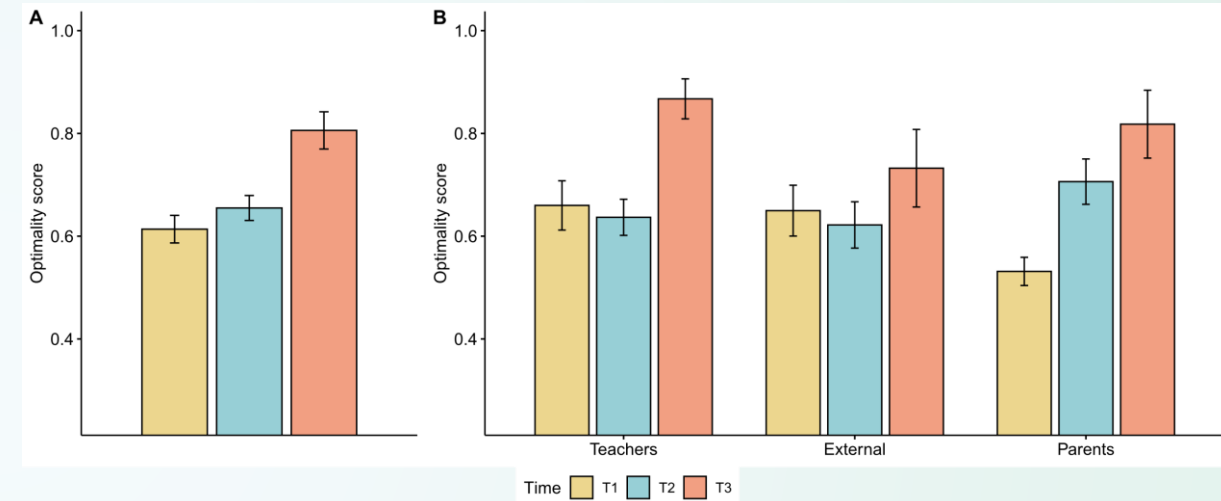
Inter-rater reliability

- $r=9.968$

Proportion of correct responses



Optimal score

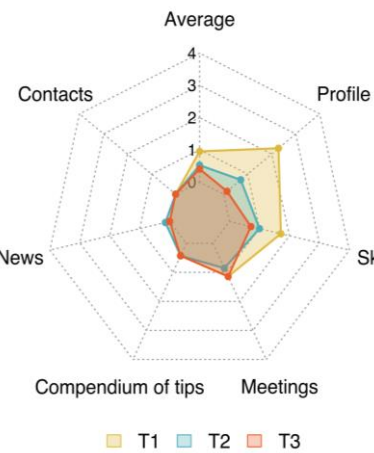


Subjective measures

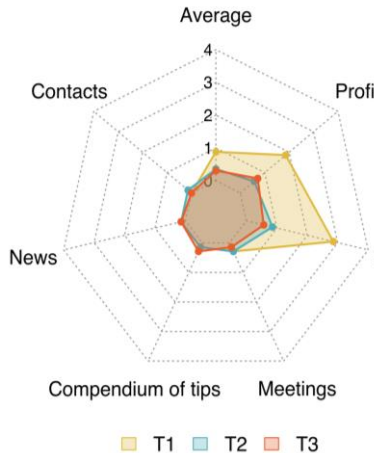
Scenario-based subjective usability

User Experience Questionnaire

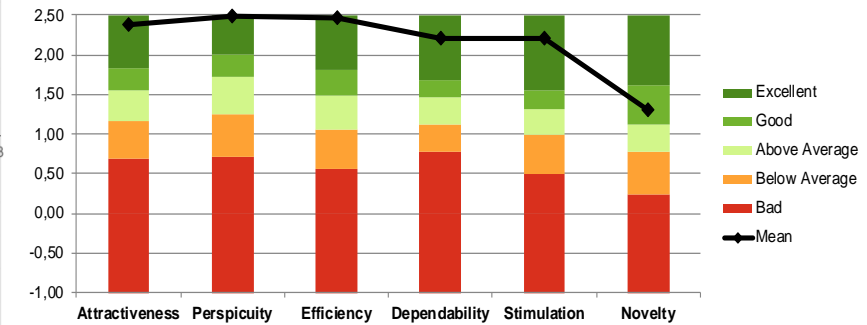
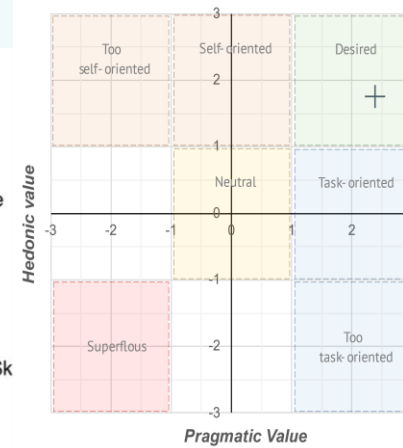
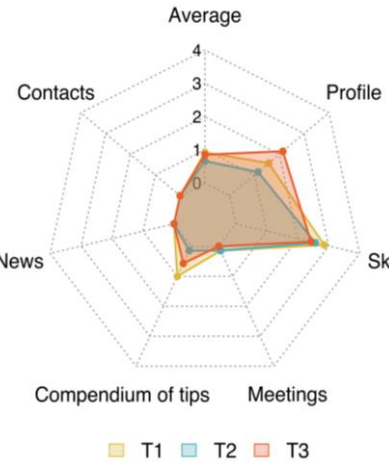
Parents



Teachers

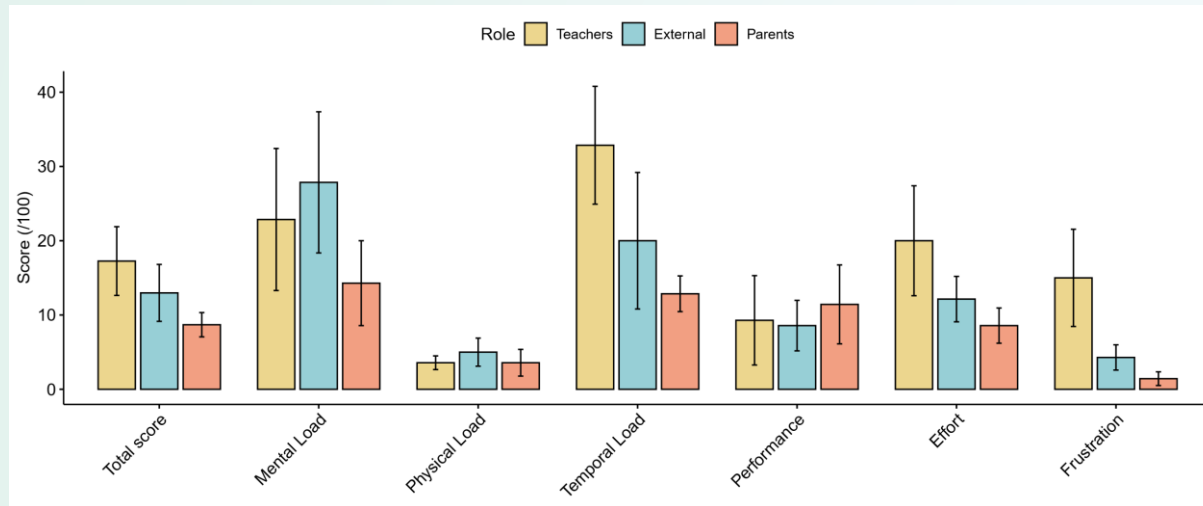


External actors



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 displays the CoEd user interface for Saint Louis Middle School. At the top, the CoEd logo is on the left, and the school name 'Saint Louis Middle School' with the user name 'Vivien BLEUET' is in the center. On the right, there are navigation links: 'Home' (house icon), 'My account' (person icon), and 'Log out' (logout icon). Below this is a horizontal menu with tabs: 'Profile' (active), 'Skills', 'Meetings', 'Compendium of tips', 'News', and 'Contacts'.

The 'Profile' tab shows a student profile for 'BLEUET Vivien', Class: 8, Age: 15 years old, with a cartoon avatar of a boy. To the right of the profile is a 'What's up?' notification box with a bell icon, containing a 'Mark everything as read' button and two news items: 'New solution' and 'New news', both by E. MARTIN on Friday, January 1st, 2022.

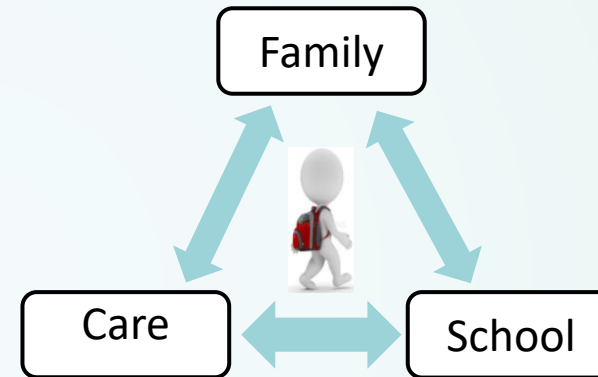
Below the profile, there are three sections: 'Strengths', 'Difficulties', and 'School experience'. Each section has a list of items and edit/delete icons.

Strengths	Difficulties	School experience
<ul style="list-style-type: none"> Aware of external danger Autonomy, performs daily tasks alone Concentration higher than 20 min Finds his way in space 	<ul style="list-style-type: none"> Can not orally give complex explanations. Difficulty to locate in time Difficulty to assess social codes (Write a letter, handle his money). 	<ul style="list-style-type: none"> 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