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Recruitment and selection: Using machine learning and psychometrics to pick the best talents

Digital Talent Ecosystem

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Business Research Unit

Lisb@20[20]

PORTUGAL 2020

UNIÃO EUROPEIA
Fundo Europeu de Desenvolvimento Regional

Topics

Recruitment and selection: Using machine learning and psychometrics to pick the best talents
Jorge Sinval (Business Research Unit [BRU-IUL], Instituto Universitário de Lisboa [Iscte-IUL])

Behind the Curtain of HR Selection Tools: Situational Judgement tests
Beatriz Regina Trigo (Instituto Universitário de Lisboa [Iscte-IUL])

A new breed of resume
Hugo Amaro (Instituto Pedro Nunes), José Silva (Instituto Pedro Nunes), Paulo Rupino (University of Coimbra), & Paulo Almeida (Neotalent)

AI-powered recruitment
Hugo Amaro (Instituto Pedro Nunes), José Silva (Instituto Pedro Nunes), & Paulo Almeida (Neotalent)

The wind of (digital) change
Paulo Almeida (Neotalent)

Recruitment and selection (R&S)

- R & S are ubiquitous for organizations
- Key aspect to retaint and contract the best talents
- Traditional paper-pencil format
- Fatigue

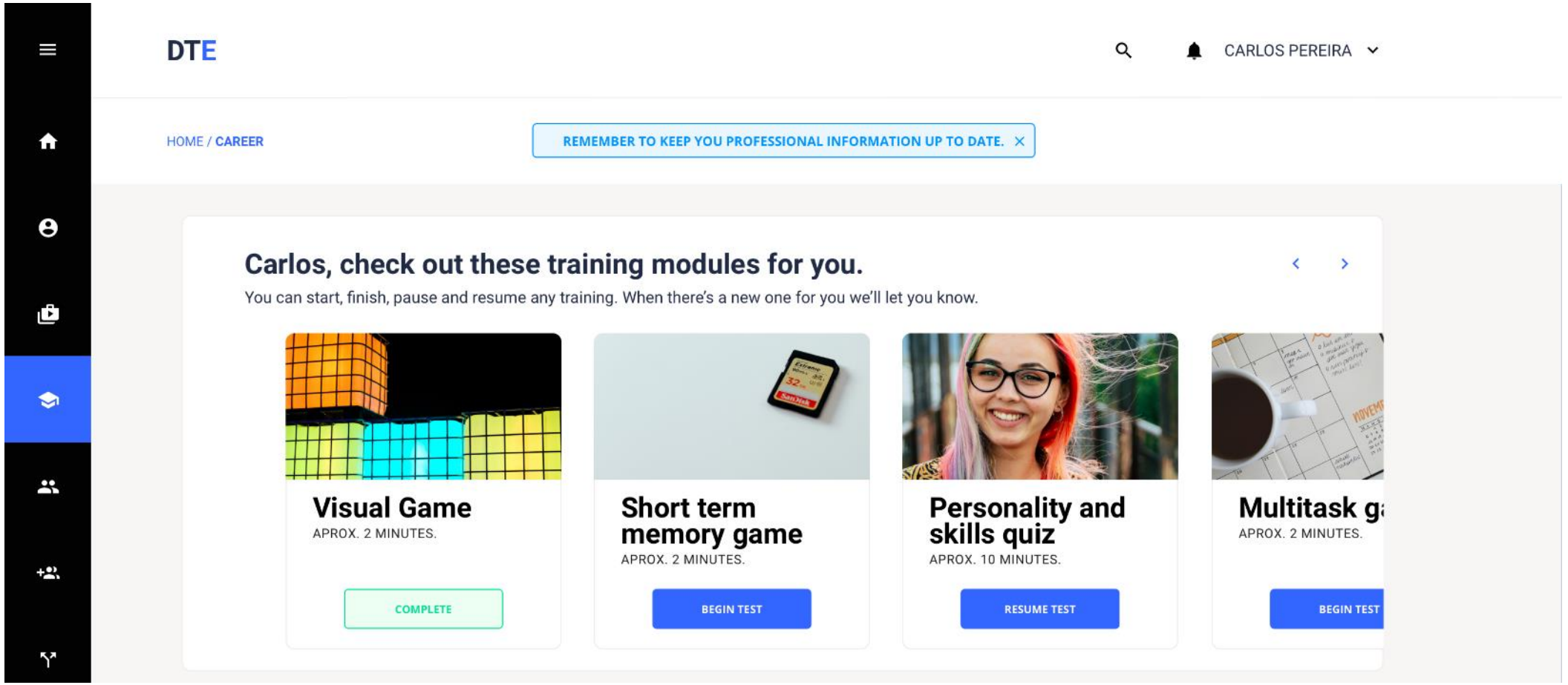
Some answers

- Digital transformation
- Gamification
- Modern Psychometrics
- Machine learning

The Project: Digital Talent Ecosystem

- Integrated digital platform
- User friendly interface both for candidates and managers
- Innovative instruments
- Feedback

A first glimpse



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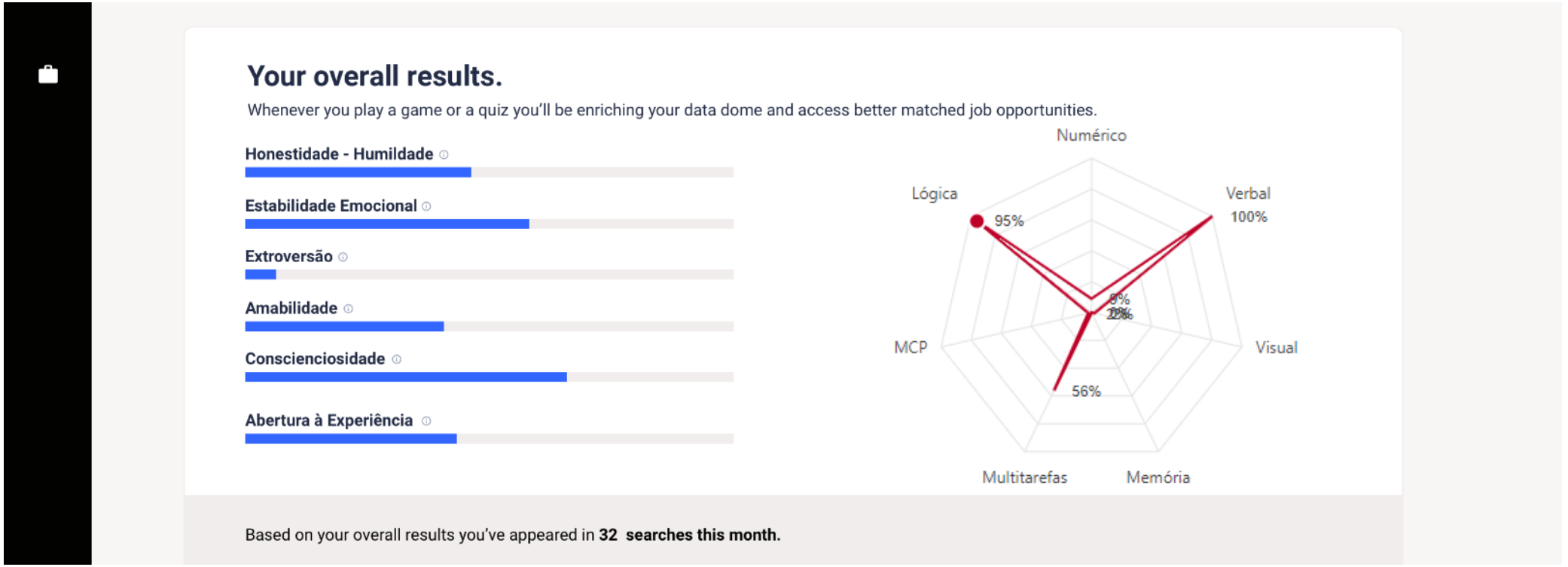

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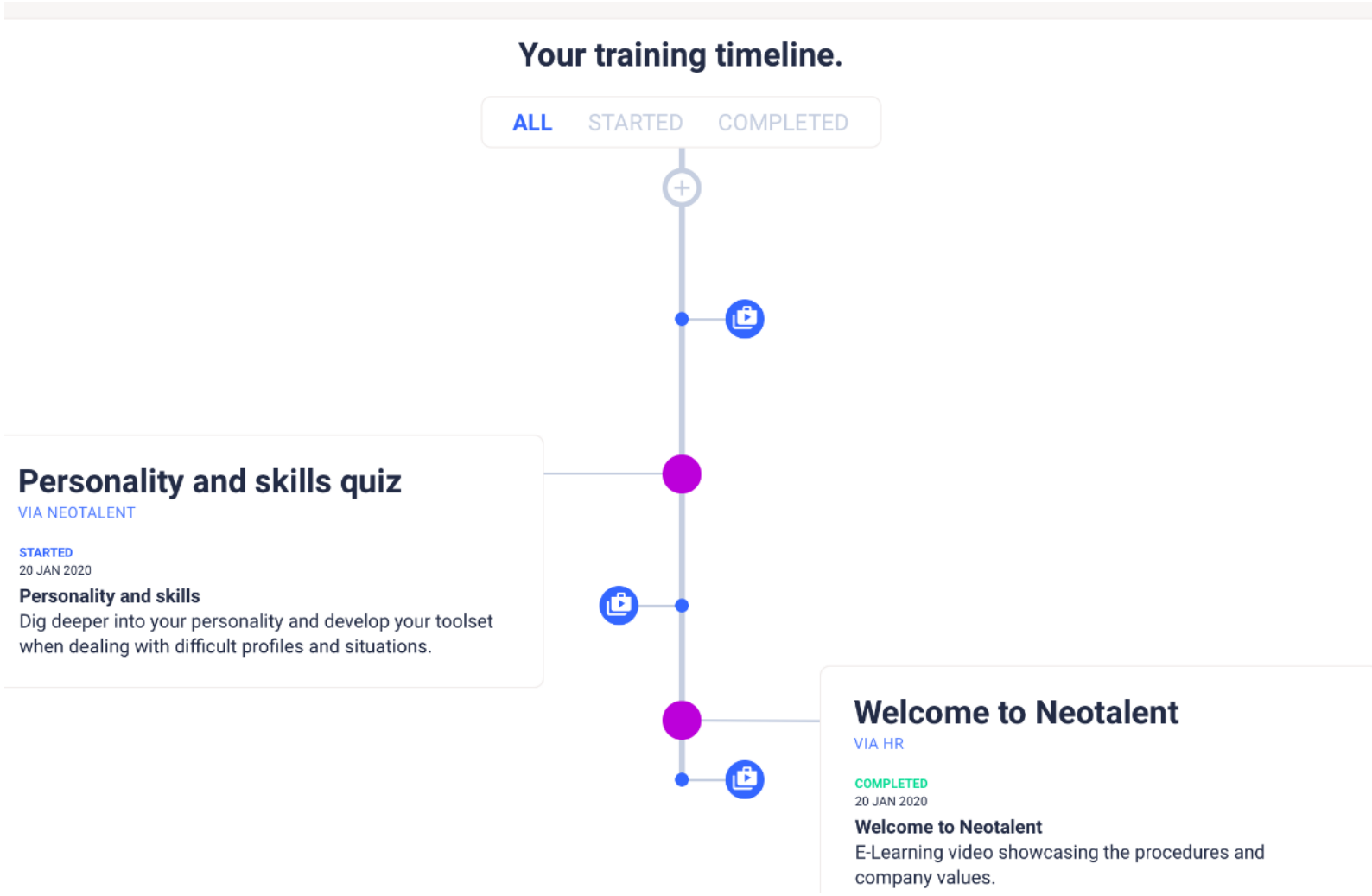
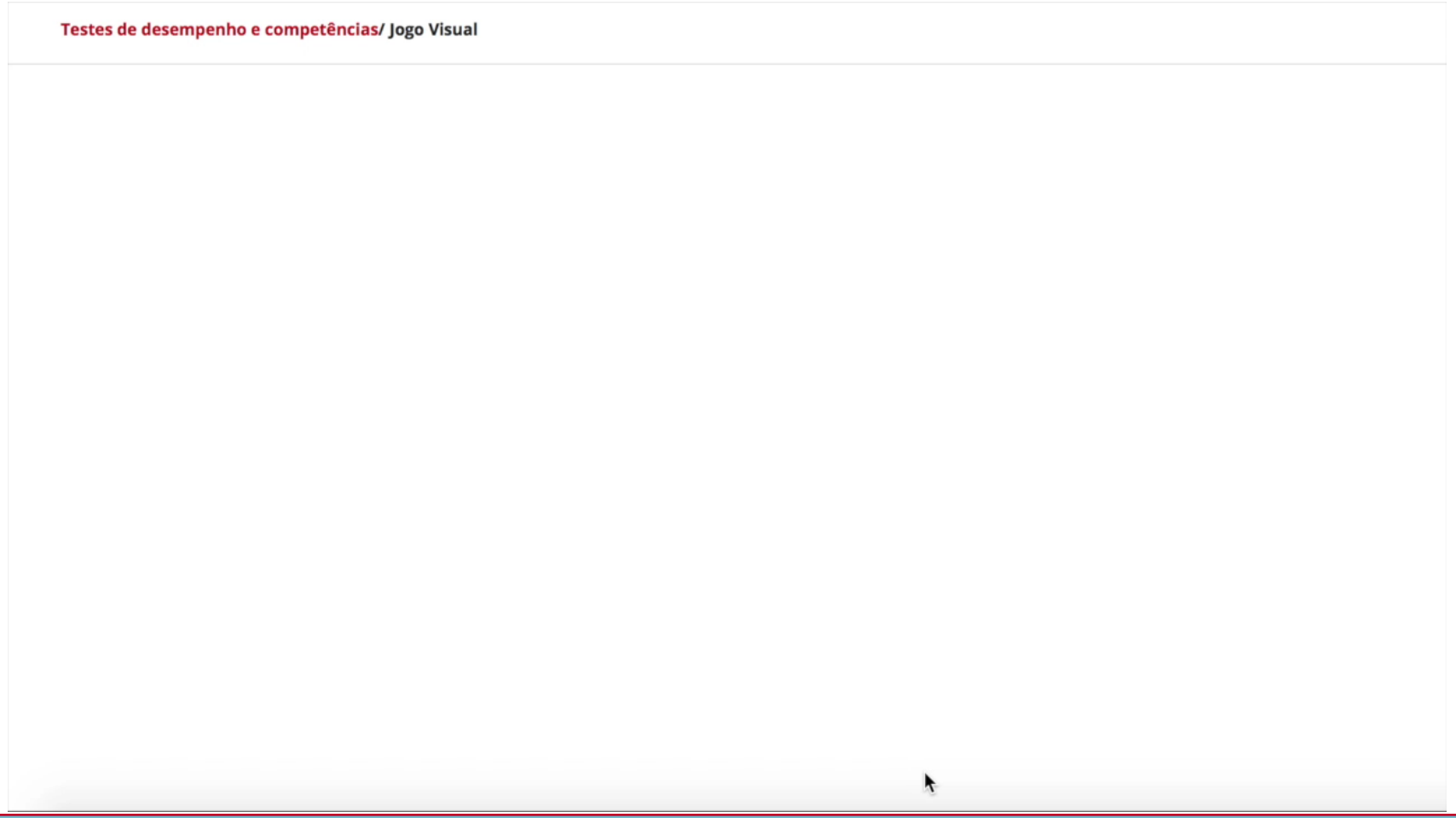
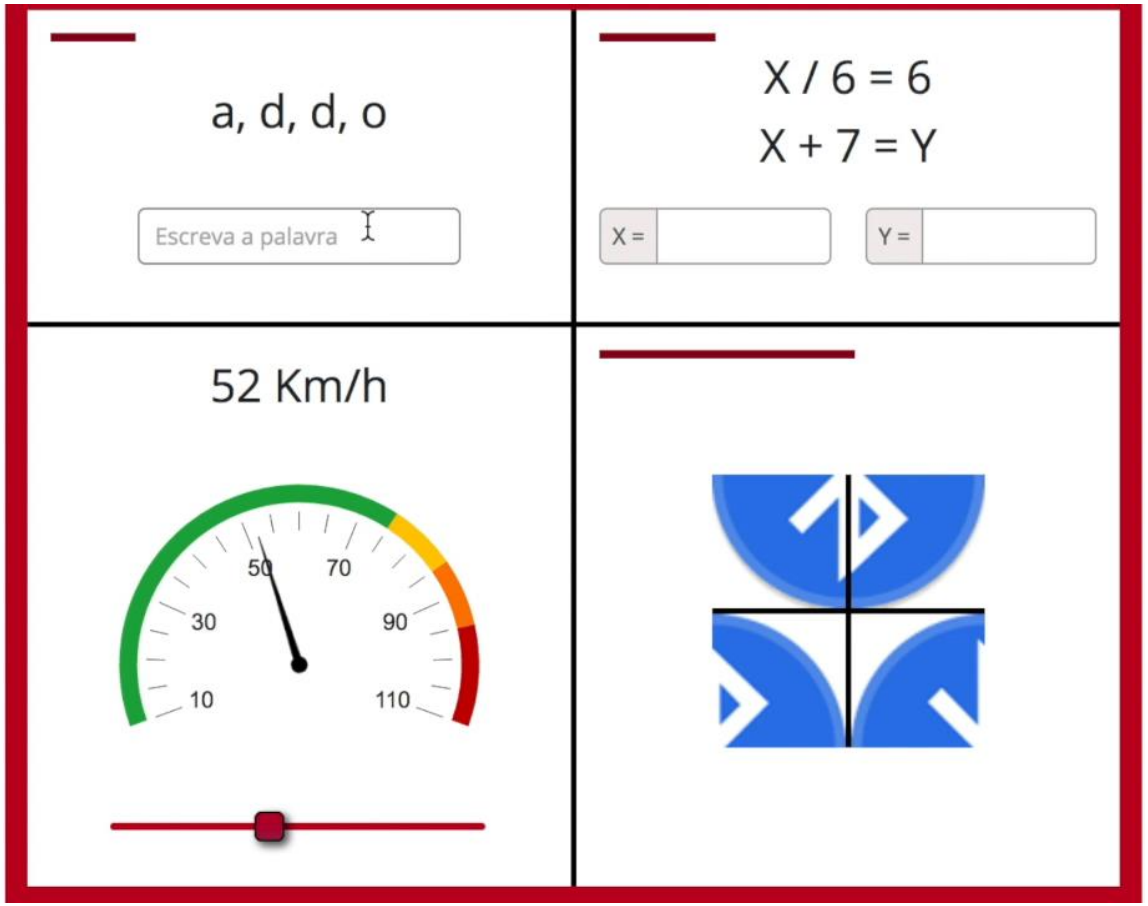


Some measures: Visuo-spatial ability

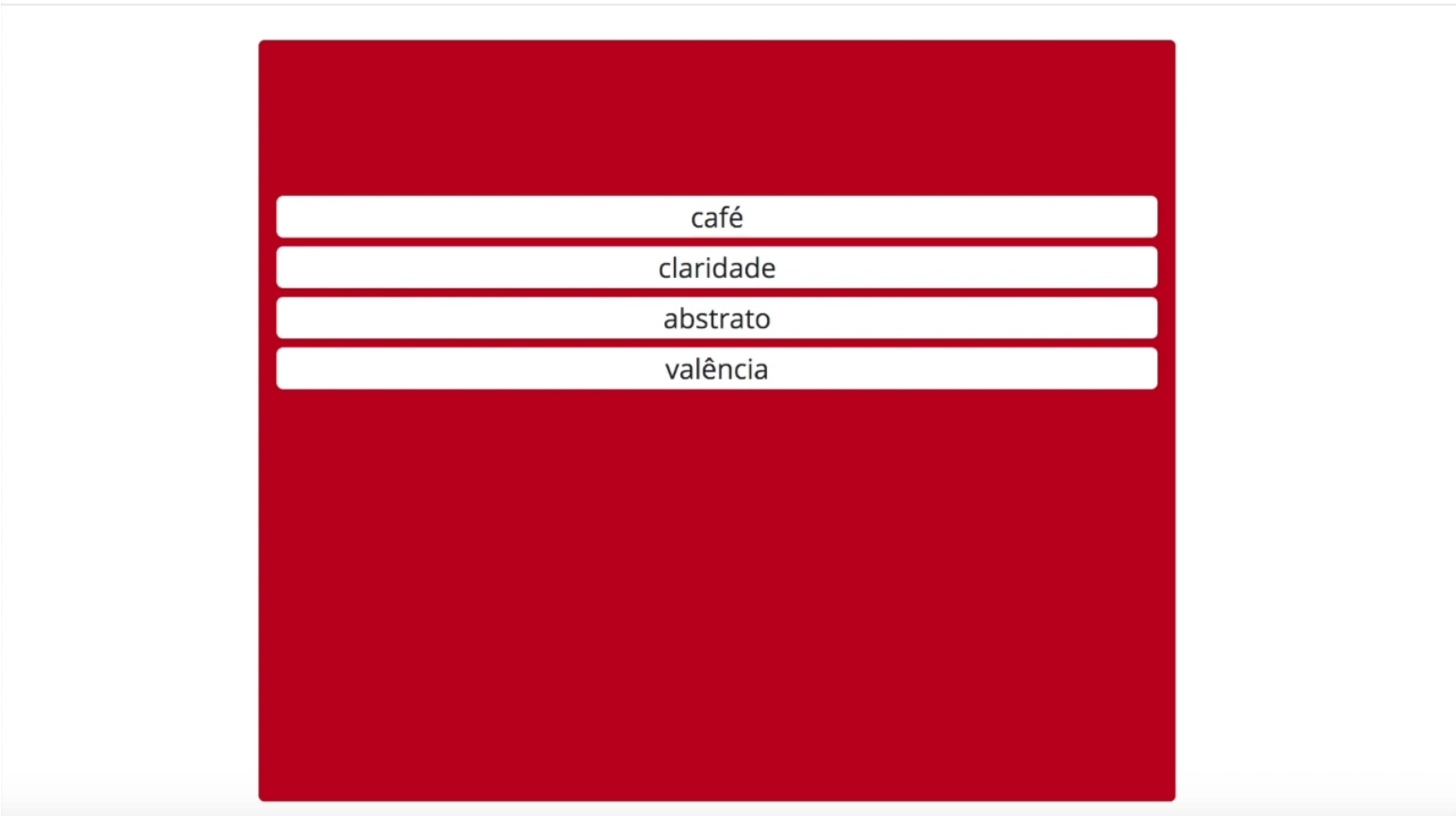


Some measures: Multitasking

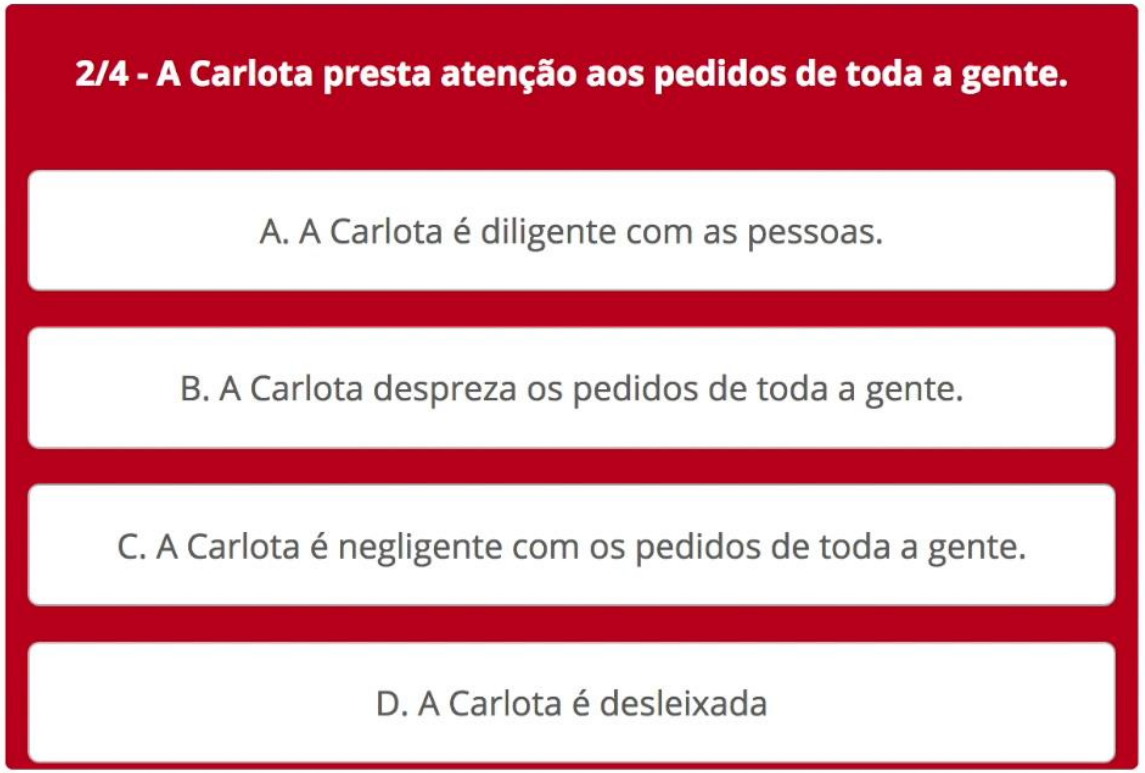


Some measures: Numerical reasoning

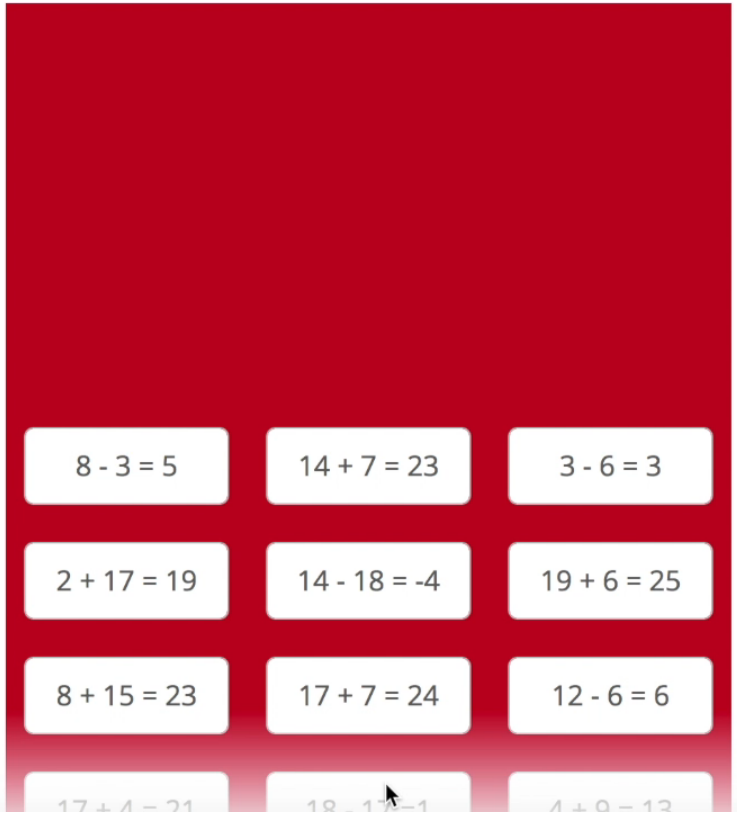
Some measures: Short-term memory



Some measures: Verbal reasoning and comprehension



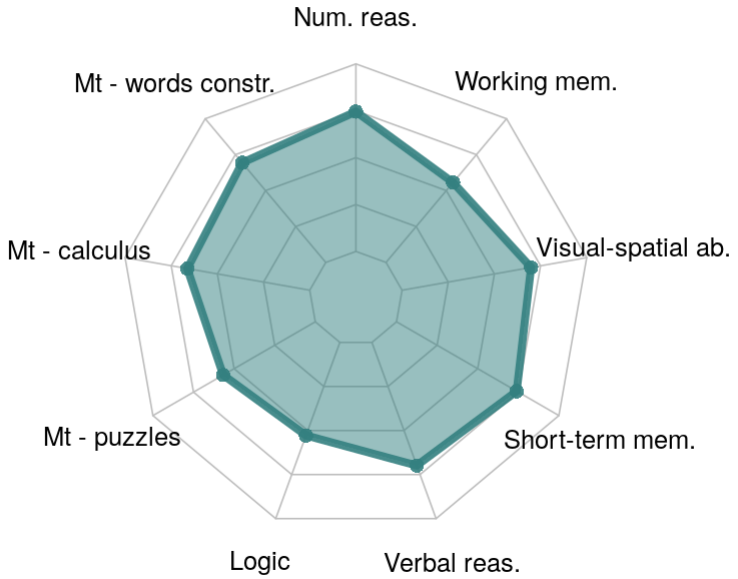
Some measures: Numerical reasoning, processing speed and selective attention



Some measures: Working memory

Feedback

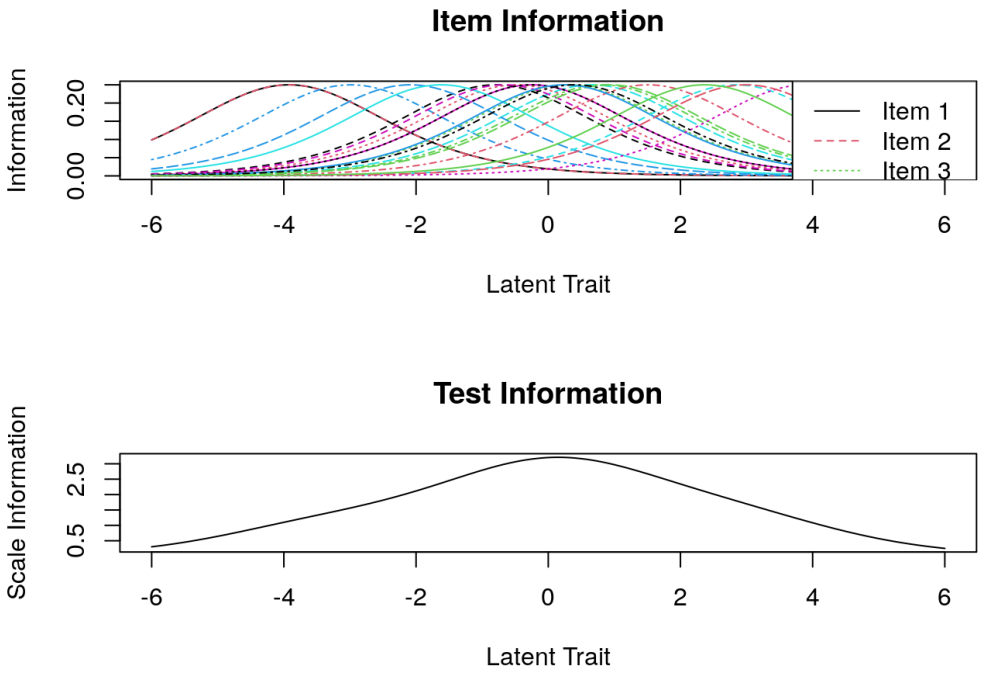
Variable	*M*	*SD*	*Min*	*Max*	Histogram
Numerical reasoning (scored from 0 to 1)	0.75	0.38	0.00	1.00	
Multitasking - words construction (scored from 0 to 1)	0.69	0.24	0.00	1.00	
Multitasking - calculus (scored from 0 to 1)	0.66	0.38	0.00	1.00	
Multitasking - puzzles (scored from 0 to 1)	0.57	0.31	0.00	1.00	
Logic (scored from 0 to 1)	0.53	0.17	0.00	0.81	
Verbal reasoning (scored from 0 to 1)	0.70	0.25	-0.13	1.00	
Short-term memory (scored from 0 to 1)	0.74	0.18	0.00	1.00	
Visual-spatial ability (scored from 0 to 1)	0.70	0.25	-0.13	1.00	
Working memory (scored from 0 to 1)	0.56	0.32	0.00	0.99	

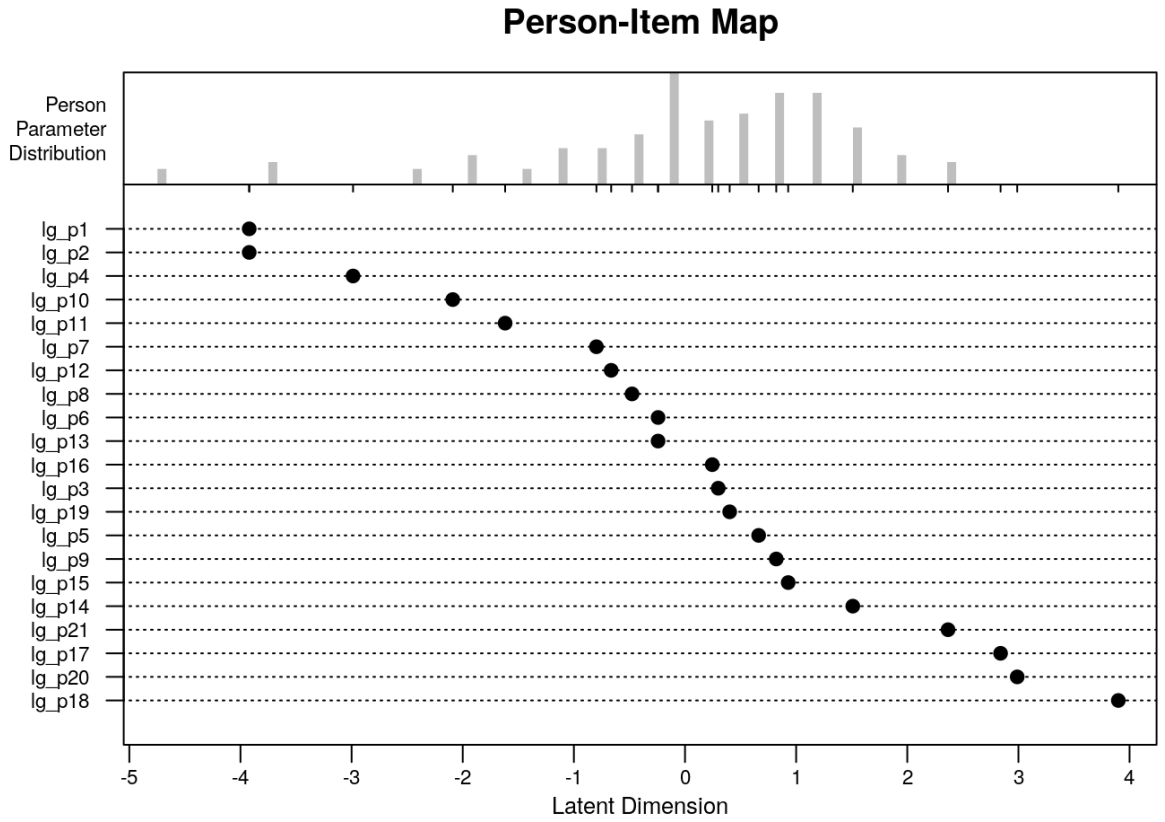


Analysis

- Dichotomous and Polytomous Rasch Models
  - Person-fit
  - Item Separation Reliability
  - Person Separation Reliability
  - Residuals' analysis
  - Item information curves
  - Outfit (Unweighted fit)
  - Infit (Information-weighted fit)

Some results: Item Characteristic Curves (ICC) and Person-Item Map





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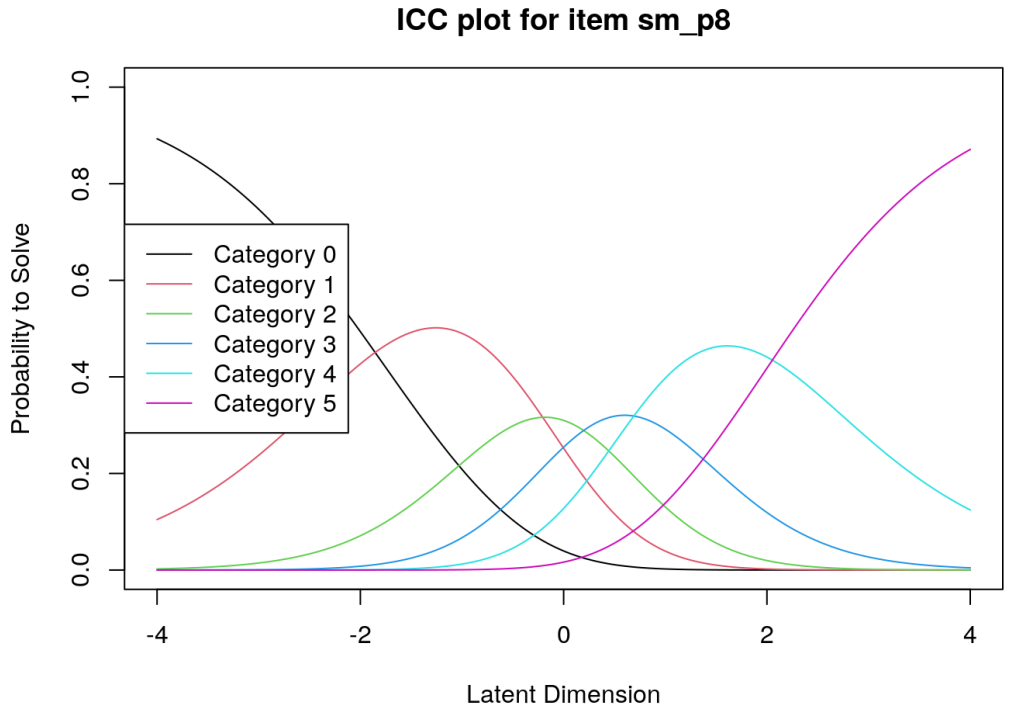

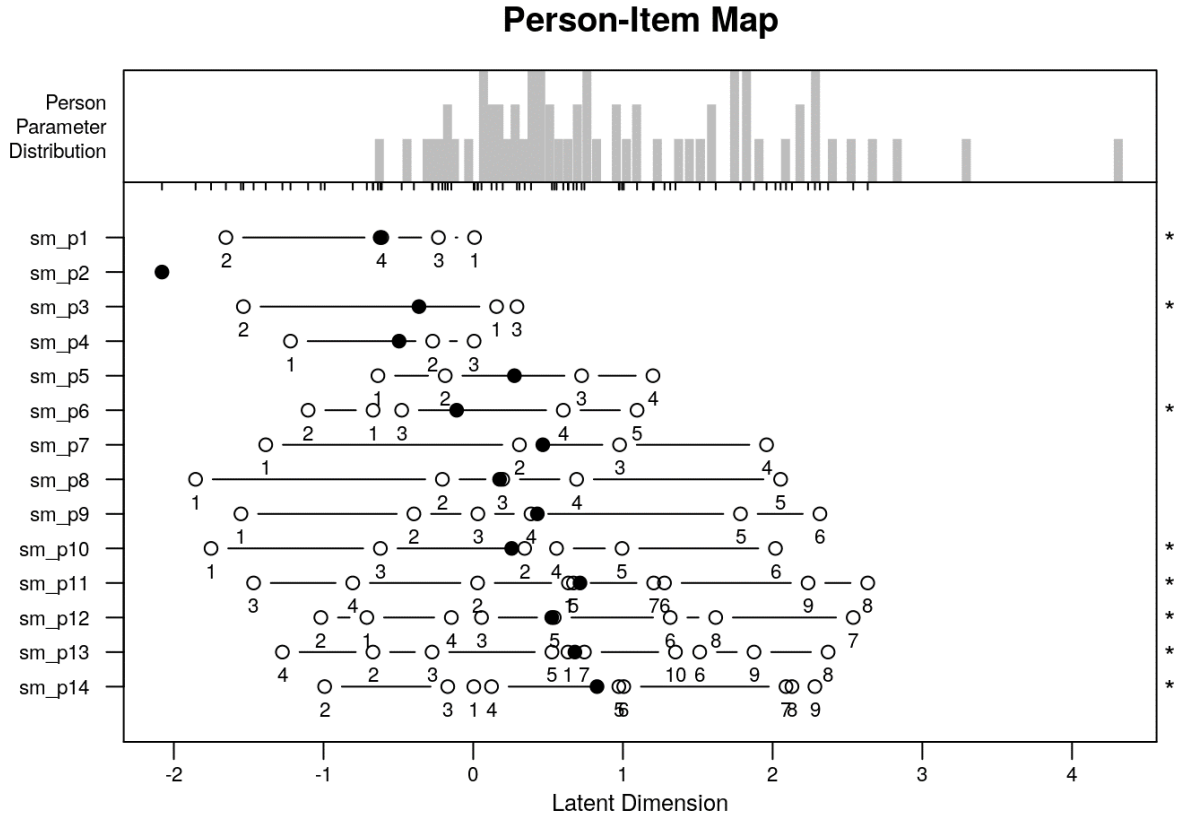

Next steps

- Collect more data
- Test the refined items
- Analyze again

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Thank you!

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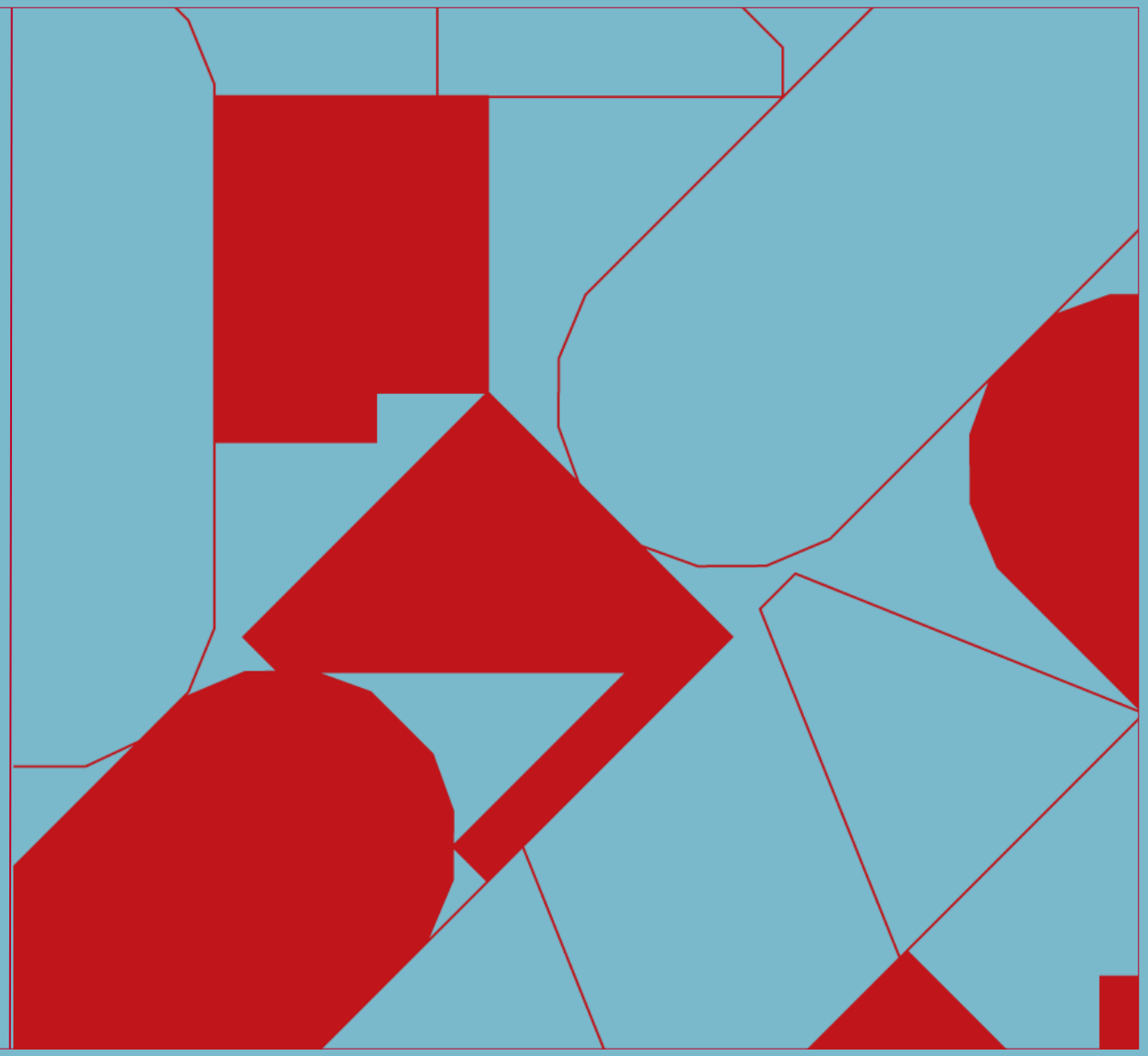
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