RT_tests is a flexible Python-based framework **for cognitive assessment**

We assessed **171 school students** in two weeks **on school computers**

Companion **web app** performs **visualization** of RT data

RT_tests: A new test battery to assess individual differences in mental speed

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Supported by RFBR, grant 17-36-01135

Goals

- To develop an offline test battery for cognitive assessment in schools
- To develop flexible framework for cognitive assessment

Software

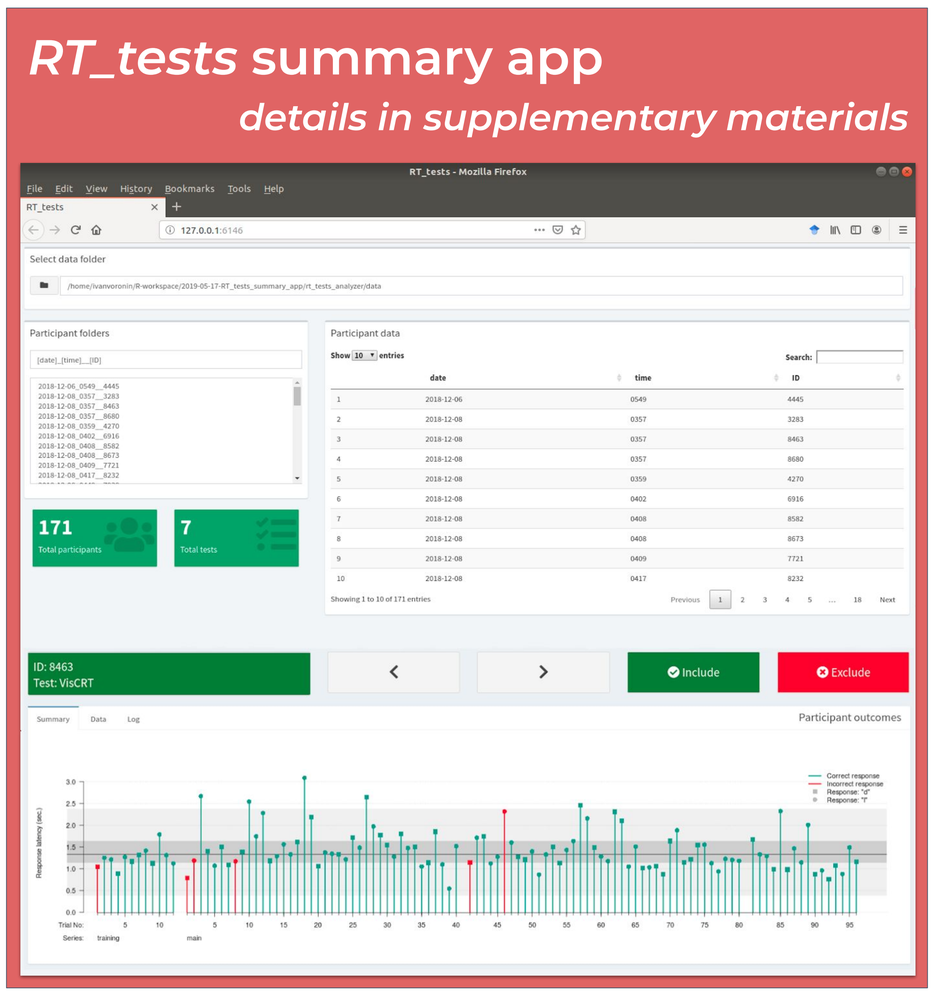
- Python (2.7), PsychoPy (1.90.3)
- github
- Lubuntu 18.10 live USB
- R shiny

Data collection

171 school students 11-16 years old (M = 14.1, SD = 1.5)

RT_tests summary app

details in supplementary materials



Current tests

SRT, CRT2, CRT4 - simple reaction time tasks with one, two and four positions

VerbCRT - verbal categorization: does the word refer to animal or to plant?

stroop2_1, stroop2_2 - Stroop task with two colors

VisCRT - visual categorization: similarity/dissimilarity by shape or color, depending on key stimulus

Battery specifications

Minimal accuracy	70%
Maximal sequence of invalid trials	10 trials
Periodicity of breaks	40 trials
Break duration	6 sec.
Execution limit	45 min.

The actual accuracy in main series was between 88% (VisCRT) and 98% (CRT2).

The actual execution time was 31.5-77.9 minutes (M = 45.8, SD = 5.7).

Test specifications

	Trials in main series	Trials in training series	Non-response time (sec.)
SRT	80	5-20	3
CRT2	80	7-20	3
CRT4	80	7-20	3
VerbCRT	120	12-30	5
stroop2_1	80	12-30	5
stroop2_2	80	12-30	5
VisCRT	96	12-30	7

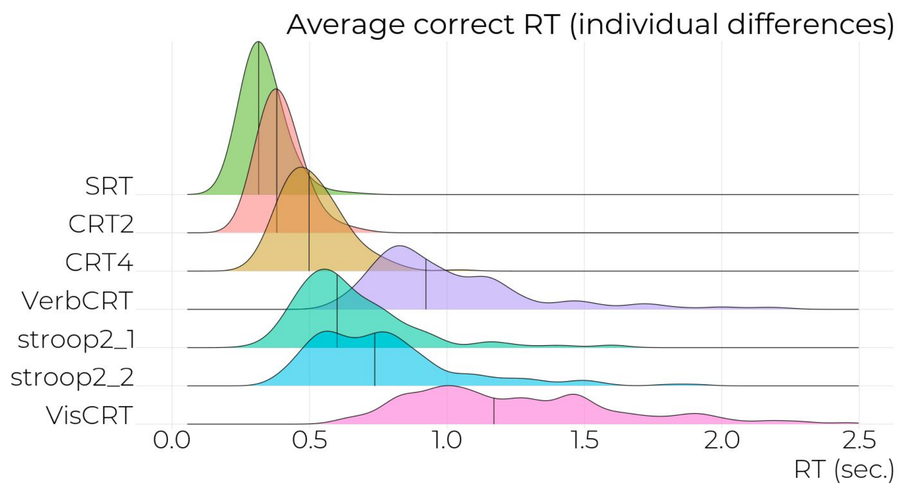
Execution time: M (SD), min.

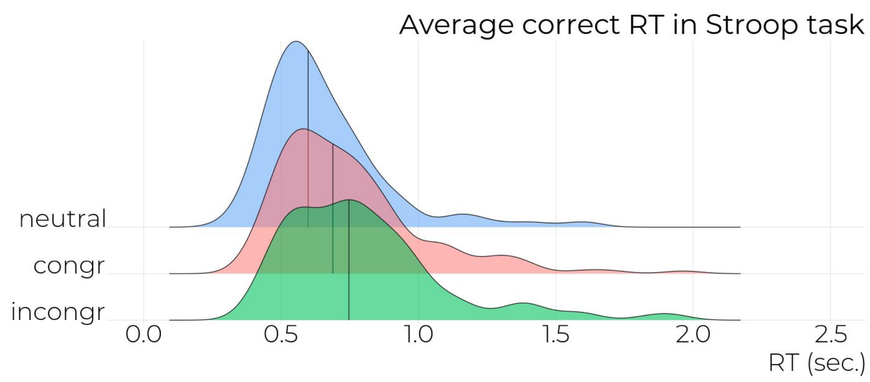
	Training	Main	Total
SRT	0.6 (0.3)	3.5 (0.1)	5.5 (0.8)
CRT2	0.5 (0.2)	3.7 (0.1)	5.1 (0.7)
CRT4	0.5 (0.1)	3.8 (0.2)	5.3 (0.6)
VerbCRT	0.9 (0.2)	6.9 (0.6)	8.8 (1.2)
stroop2_1	0.8 (0.2)	4.0 (0.3)	5.8 (0.5)
stroop2_2	0.9 (0.3)	4.2 (0.5)	6.1 (0.6)
VisCRT	1.2 (0.5)	5.9 (1.0)	8.3 (1.3)

Summary statistics for correct RT, accuracy and diffusion decision model parameters, M (SD)

	RT, sec.	Acc.	v	a	Ter
SRT	0.331 (0.066)	0.967 (0.031)	0.364 (0.119)	0.109 (0.032)	0.364 (0.119)
CRT2	0.397 (0.072)	0.977 (0.023)	0.349 (0.102)	0.121 (0.031)	0.349 (0.102)
CRT4	0.513 (0.114)	0.951 (0.037)	0.282 (0.084)	0.121 (0.035)	0.282 (0.084)
VerbCRT	1.010 (0.304)	0.920 (0.050)	0.156 (0.047)	0.175 (0.044)	0.156 (0.047)
stroop2_1	0.657 (0.219)	0.918 (0.055)	0.196 (0.071)	0.145 (0.046)	0.196 (0.071)
stroop2_2	0.774 (0.274)	0.921 (0.069)	0.174 (0.067)	0.170 (0.052)	0.174 (0.067)
VisCRT	1.283 (0.424)	0.876 (0.095)	0.122 (0.054)	0.194 (0.054)	0.122 (0.054)

v = drift rate
a = decision boundary
Ter = non-decision time
Parameters retrieved from EZ-model





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Take a picture to read supplementary materials