DscoreApp: A Shiny App for the computation of the IAT D-score

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Table 1: IAT structure.

Block	Function	Left key	Right key
B1	Practice	Flowers	Insects
B2	Practice	Good	Bad
B3	Practice Mapping A	Flowers + Good	Insects + Bad
B4	Test Mapping A	Flowers + Good	Insects + Bad
B5	Practice	Insects	Flowers
B6	Practice Mapping B	Insects + Good	Flowers + Bad
B7	Test Mapping B	Insects + Good	Flowers + Bad

$$D_{practice} = \frac{M_{b6} - M_{b3}}{sd_{b6,b3}}$$

$$D_{test} = \frac{M_{b7} - M_{b4}}{sd_{b7,b4}}$$

$$D_{score} = \frac{D_{practice} + D_{test}}{2}$$

Table 2: *D-score* algorithms.

D	Error inflation	Lower tail treatment
D-score1	Built-in correction	No
D-score2	Built-in correction	Delete trials $< 400\ ms$
D-score3	Mean (correct responses) $+ 2sd$	No
D-score4	Mean (correct responses) $+ 600\ ms$	No
D-score5	Mean (correct responses) $+ 2sd$	Delete trials $< 400\ ms$
D-score6	Mean (correct responses) $+ 600\ ms$	Delete trials $< 400\ ms$
D SC-IAT	Mean $+ 400ms$	Delete trials $< 350\ ms$

Table 3: Overview of the available options for computing the *D-score*.

	Open source	Programming skills	Multiple D-score	Plot
SPSS syntaxes	No	A bit	Yes	No
Inquisit scripts	No	No	No	No
`IATanalytics`	Yes	Yes	Not clear	No
`IATScore`	Yes	Yes	Not clear	No
`IAT`	Yes	Yes	Yes	Yes
`IATScores`	Yes	Yes	Yes	Yes

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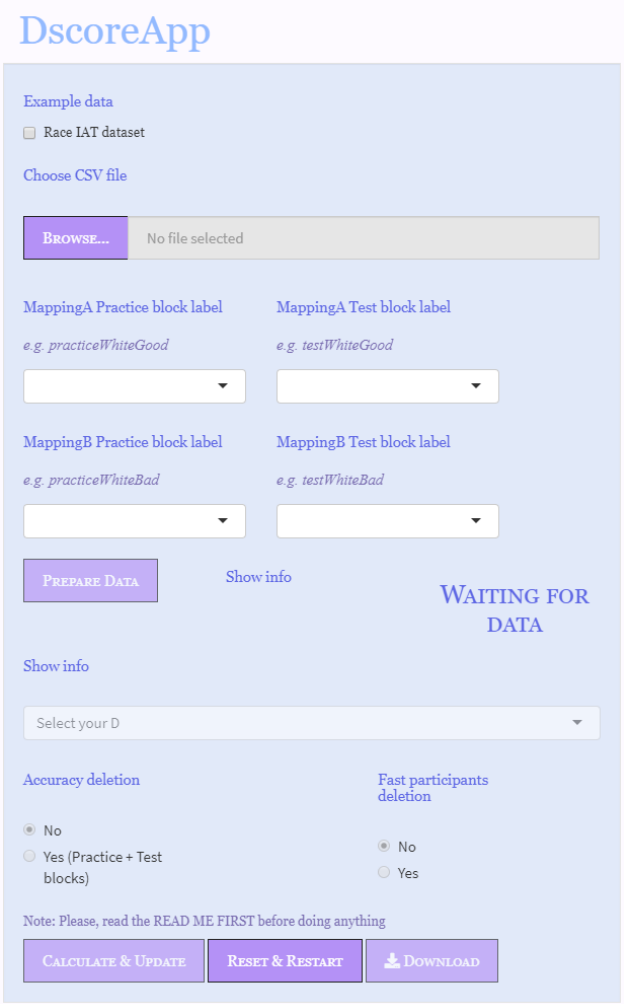
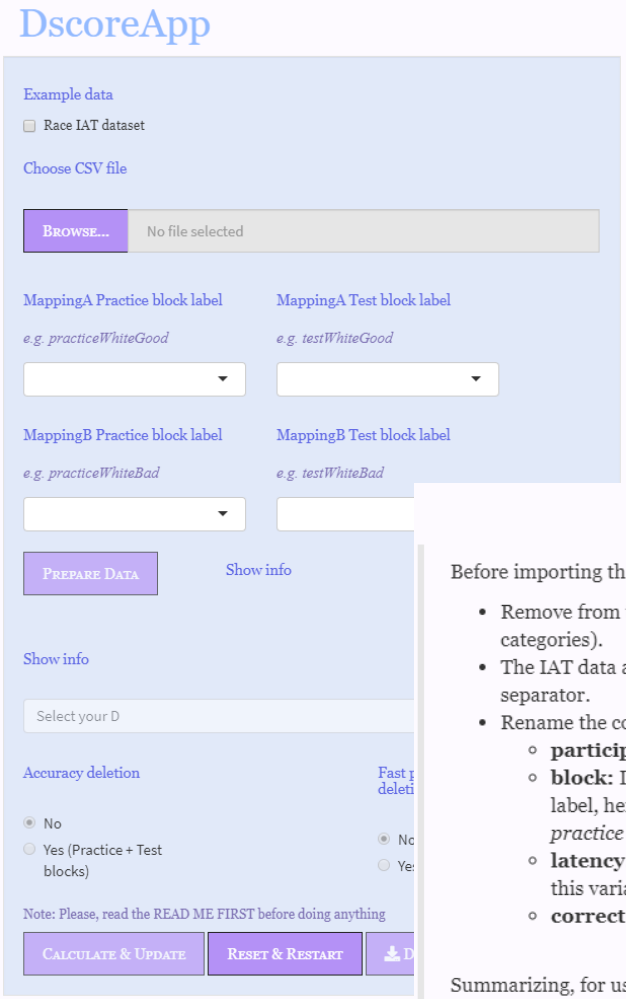
`IAT`	Yes	Yes	Yes	Yes
`IATScores`	Yes	Yes	Yes	Yes

Something Open Source, user-friendly, able to compute multiple scores



Read Me First | *D- Score results* | *Descriptive Statistics*



Read Me First | *D- Score results* | *Descriptive Statistics*

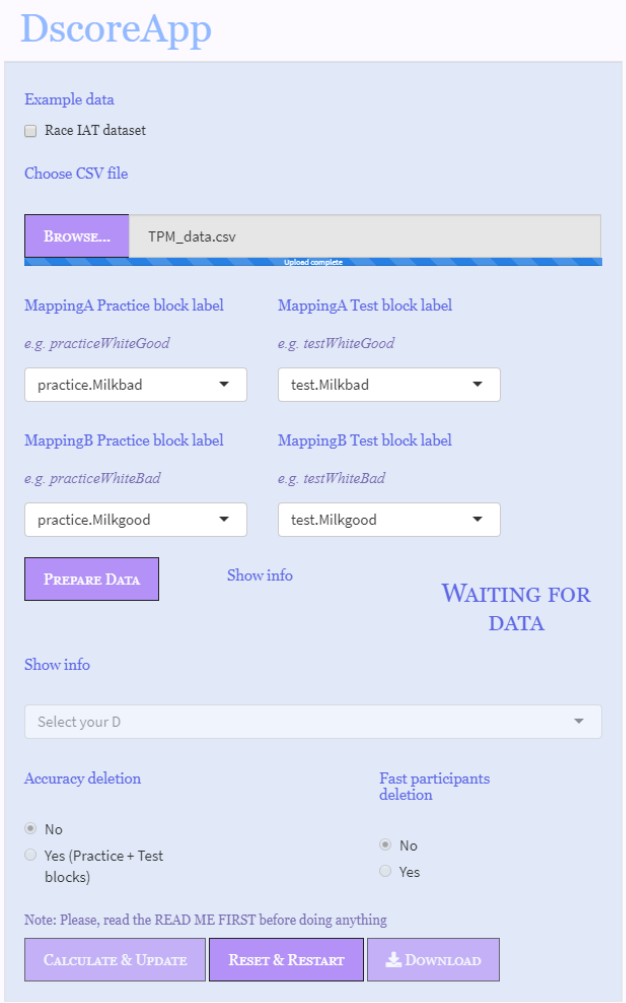
IMPORT DATA

Before importing the data:

- Remove from the dataset the pure practice blocks of the IAT (i.e., the blocks in which only either the target or the attirbute stimuli are sorted in their reference categories).
- The IAT data are in a CSV file with "," set as separator of the columns. In the template downloadable at "Download CSV Template", "," is already set as the column separator.
- Rename the columns according to the columns' names of the Template file, and define the variables as follows:
  - **participant:** it defines the ID of the participants. The IDs may be either numeric (e.g., 1,2,..300...450) or a string (e.g., ss01, aa05, JohnDoe1001 etc.).
  - **block:** It defines the blocks of the IAT. The labels identifying each block are not important *per se*. The important thing is that each block is defined by a unique label, hence there have to be ***four distinct labels*** defining the *practice* and *test* blocks of **Mapping A** (e.g., practiceWhiteGood, testWhiteGood) and the *practice* and *test* block of **Mapping B** (e.g., practiceWhiteBad, testWhiteBad).
  - **latency:** It contains the latencies of the responses expressed in millisecond. If the IAT **DID NOT include a built-in** correction, place the raw latencies in this variable. If the IAT **DID include a built-in** correction, please place the **already inflated** latency of the error responses.
  - **correct:** It contains the correct and error responses to the IAT. Correct responses have to be coded as 1, error responses have to be coded as 0.

Summarizing, for using the App it is fundamental that the dataset contains the four abovementioned variables with the specific associated names.

DOWNLOAD CSV TEMPLATE



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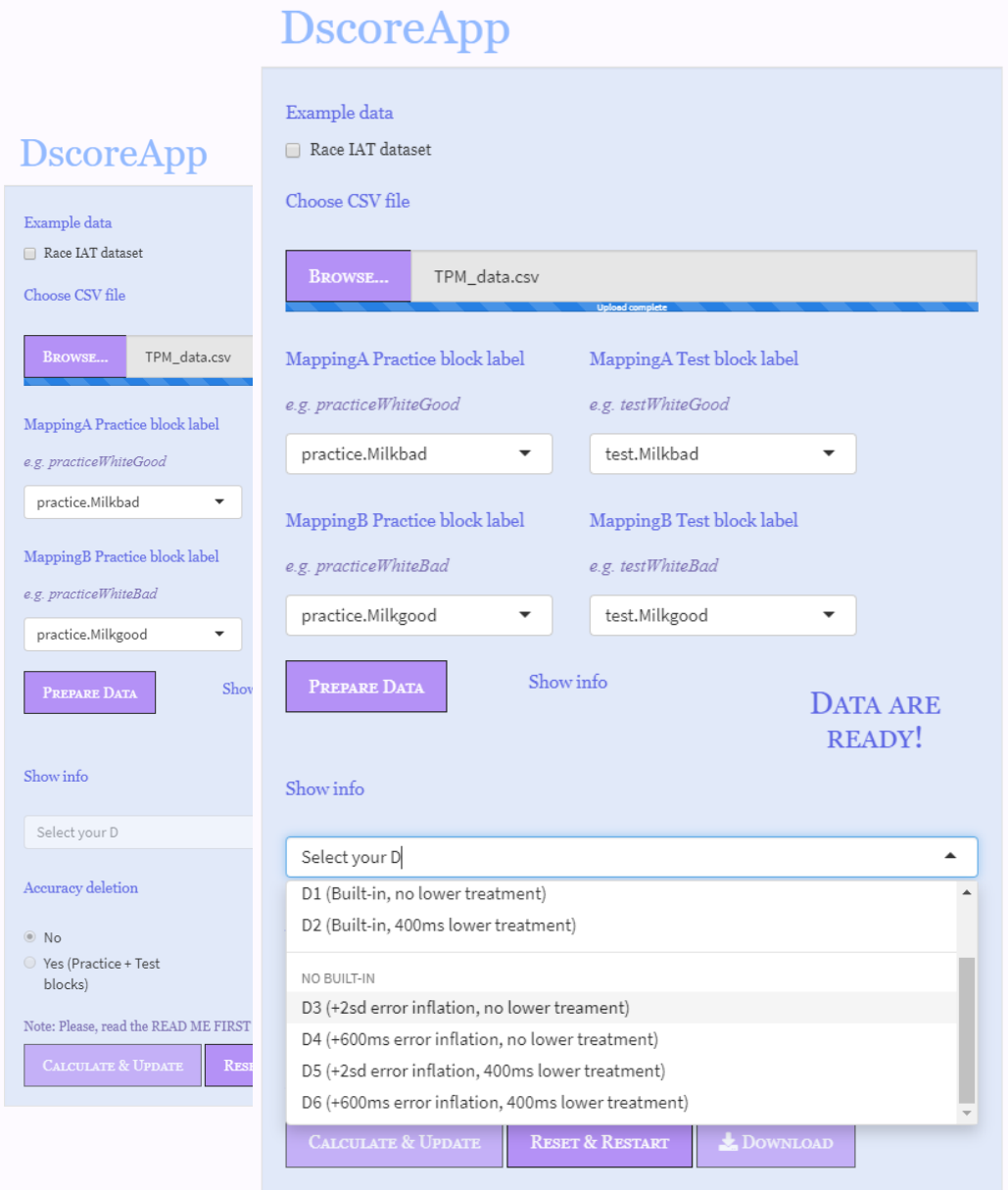
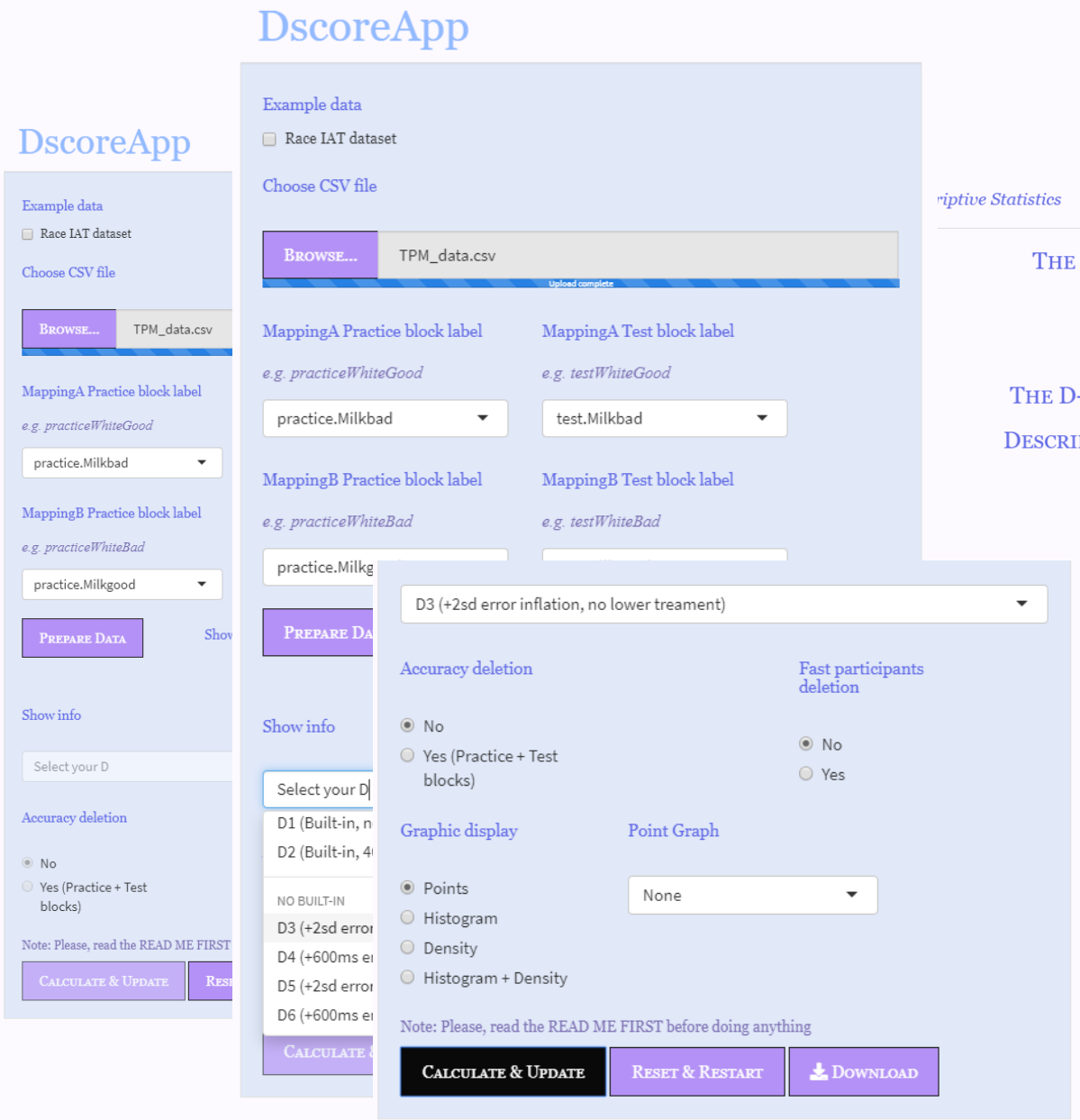


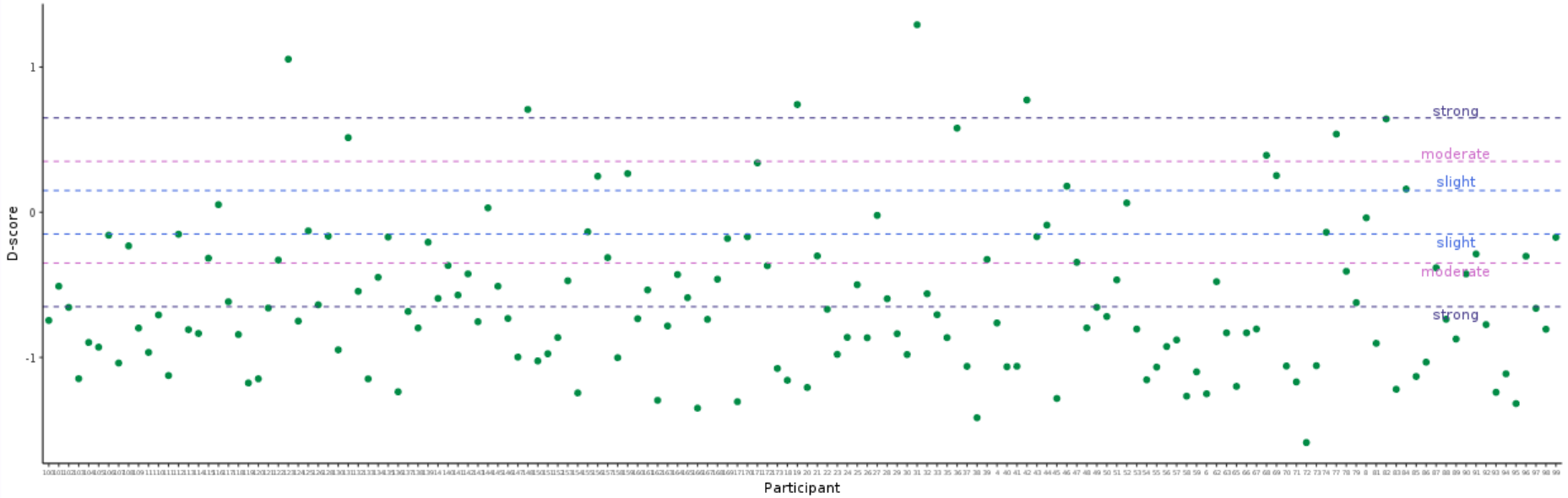
riptive Statistics



DscoreApp
Example data
Race IAT dataset
Choose CSV file
Browse...
TPM_data.csv
MappingA Practice block label
e.g. practiceWhiteGood
practice.Milkbad
MappingB Practice block label
e.g. practiceWhiteBad
practice.Milkgood
Prepare Data
Show info
Select your D
Accuracy deletion
No
Yes (Practice + Test blocks)
Note: Please, read the READ ME FIRST
Calculate & Update

riptive Statistics

Read Me First | D- Score results | Descriptive Statistics



Download Plot

Points

Click on a point

Area

Highlight graph area

Summary

d_practice	d_test	dscore
Min. :-1.5896	Min. :-1.5878	Min. :-1.5856
1st Qu.:-1.0585	1st Qu.:-0.9694	1st Qu.:-0.9842
Median :-0.6931	Median :-0.6734	Median :-0.7125
Mean :-0.6189	Mean :-0.5670	Mean :-0.5930
3rd Qu.:-0.3296	3rd Qu.:-0.2441	3rd Qu.:-0.3098
Max. : 1.2602	Max. : 1.3225	Max. : 1.2914

Trials > 10,000ms

[1] 3

Trials < 400ms

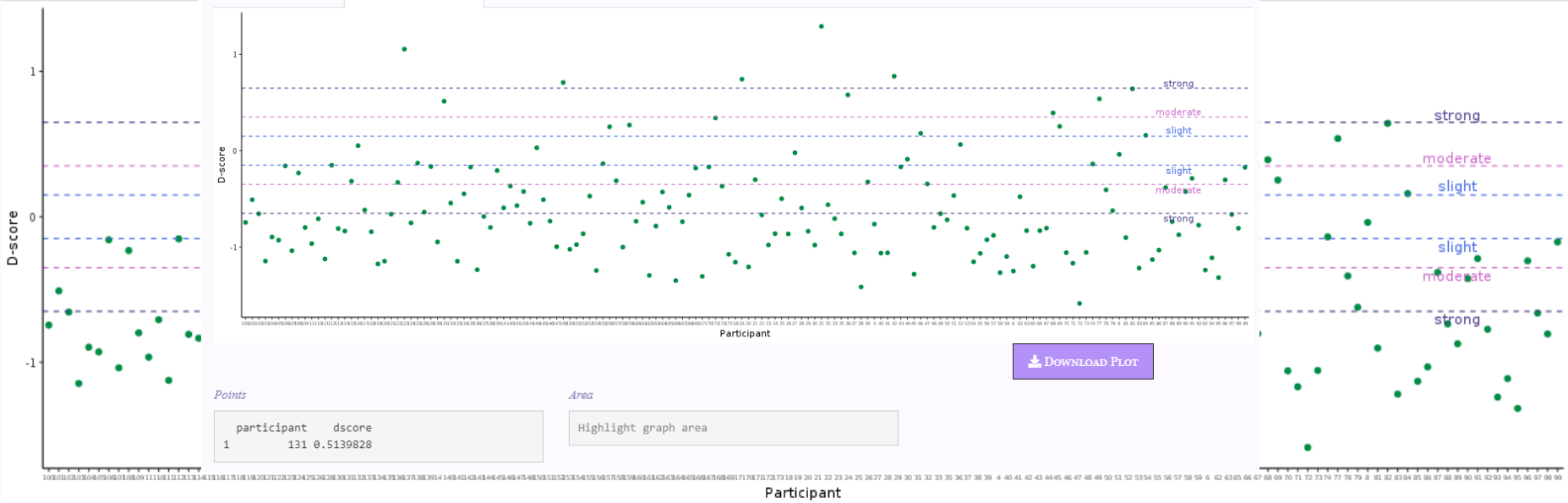
[1] "Not expected for

Practice - Test reliability

[1] 0.68

Read Me First

Read Me First | D- Score results | Descriptive Statistics



Points

```
  participant    dscore
1         131 0.5139828
```

Area

Highlight graph area

Download Plot

Points

Click on a point

Area

Highlight graph area

Summary

```
   d_practice          d_test            dscore
 Min.   :-1.5896   Min.   :-1.5878   Min.   :-1.5856
 1st Qu.:-1.0585   1st Qu.:-0.9694   1st Qu.:-0.9842
 Median :-0.6931   Median :-0.6734   Median :-0.7125
 Mean   :-0.6189   Mean   :-0.5670   Mean   :-0.5930
 3rd Qu.:-0.3296   3rd Qu.:-0.2441   3rd Qu.:-0.3098
 Max.   : 1.2602   Max.   : 1.3225   Max.   : 1.2914
```

Trials > 10,000ms

```
[1] 3
```

Trials < 400ms

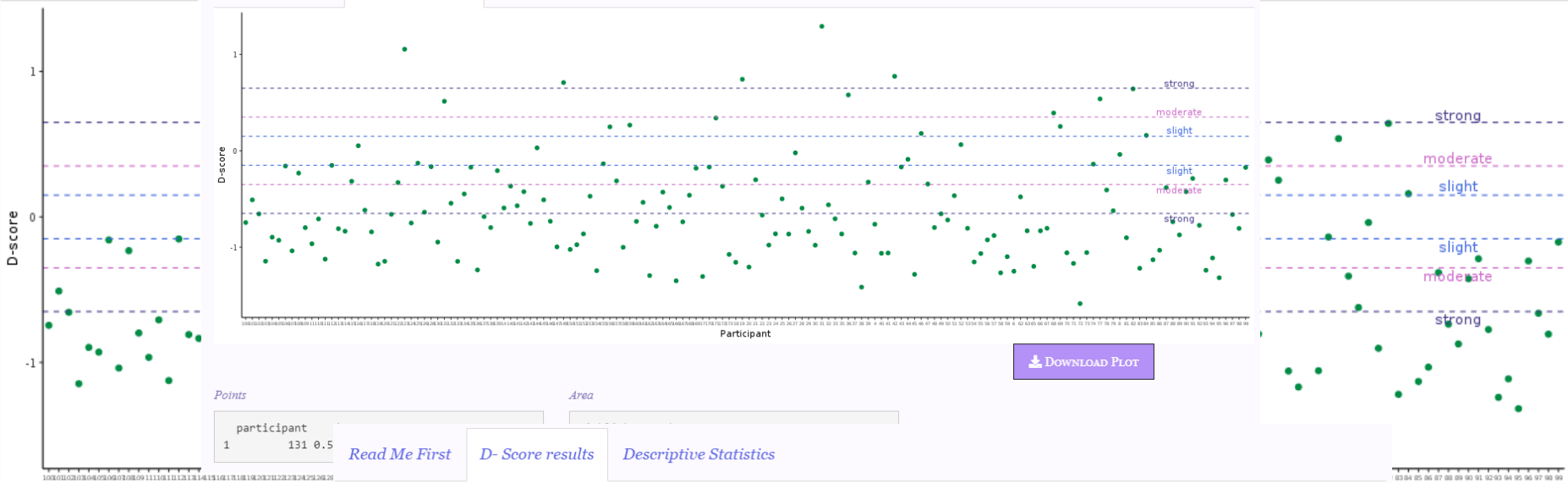
```
[1] "Not expected for
```

Practice - Test reliability

[1] 0.68

Read Me First

Read Me First | D- Score results | Descriptive Statistics



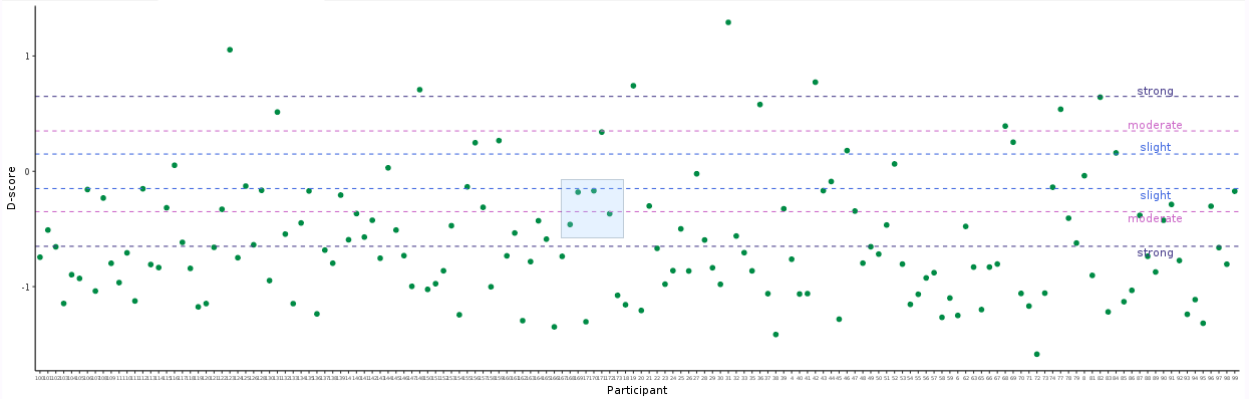
Download Plot

Points

	participant	
1	131	0.5

Area

Read Me First | D- Score results | Descriptive Statistics



Download Plot

Points

Click on a point

Summary

d_practice	d_test
Min. :-1.5896	Min. :-1.587
1st Qu.:-1.0585	1st Qu.:-0.969
Median :-0.6931	Median :-0.673
Mean :-0.6189	Mean :-0.567
3rd Qu.:-0.3296	3rd Qu.:-0.244
Max. : 1.2602	Max. : 1.322

Points

Click on a point

Area

	participant	dscore
1	168	-0.4612983
2	169	-0.1807345
3	170	-0.1684090
4	172	-0.3679122

Practice - Test reliability

[1] 0.68

Thanks!


http://fisppa.psy.unipd.it/DscoreApp/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