

# Decision-Making Profile Generation

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## Preamble

These are instructions to help you make a decision-making profile (basically an automated radar graph and individual .pdf report generator) derived from the needs of study that started in late 2021 at BrainPark (Monash University) by a PhD candidate. The R script and these instructions were developed by an RA.

These instructions assume you will be using the same variables as that study.

Feel free to edit/extract the scripts to work with your unique situation/data/variables, customise how the reports look, or whatever. Otherwise, if you're not too familiar with R, follow the below and it should be fine!

## Setup

### Files

- DMPG\_data.xlsx (study data) & DMPG\_norm.xlsx (norming data)
  - Ensure you have the 10 following variables in both:
    - \* ParticipantID
      - Don't use spaces or non-alphanumeric characters.
    - \* Age

- Currently only works for 18-64.
- \* Gender
  - “Man” and “Woman” are required, but any other inputs will generate graphs only comparing the participant with their age group.
- \* SUPPS\_Persev
  - Labelled as “Persistence”
- \* SUPPS\_Premed
  - Labelled as “Planning”
- \* SUPPS\_NU & SUPPS\_PU
  - Labelled as “Emotion Driven Impulsivity”
- \* TolUncert\_Score
  - Labelled as “Tolerance of Uncertainty”
- \* BAS\_D\_Score
  - Labelled as “Reward Driven”
- \* RiskQuestion
  - Labelled as “Risk-Taking”
- Ensure you have the following variable in your study data:
  - \* Advanced
    - Determines whether the participant gets an ‘Advanced’ profile generated (0 = regular, 1 = advanced).
    - Advanced profiles show a radar graph of the whole sample average underneath the individual participant’s radar graph.
- DMPG\_script.R
  - Main script for manipulating the data, and generating and saving the profiles (read ‘Running the Script’).
- DMPG\_template.Rmd
  - This controls what the profile and graph will look like.
- infopage.pdf
  - .pdf explaining what each of the key words of the radar graph mean.
  - Recommended width of page(s) is 21.59cm / 8.5in so it sits flush with the profile page.
- logo.png
  - Image with the Monash University and BrainPark logos.
  - Recommended to be 838 x 105 px.
- bar.png
  - Green bar used for design purposes.

## Folder Structure

- [DMPG]
  - DMPG\_data.xlsx
  - DMPG\_norm.xlsx
  - DMPG\_script.R
  - [reports]
    - \* DMPG\_template.Rmd

- \* infopage.pdf
- \* logo.png
- \* bar.png
- [combinedreports]
  - \* (This is where your final profiles will be saved.)

## Packages

Install these packages before you begin using the script. If you already have them installed and the script doesn't work, make sure these packages are updated. If it still doesn't work and it appears to be an error with L<sup>A</sup>T<sub>E</sub>X, then reinstall tinytex.

- readxl
- rmarkdown
- fmsb
- pdftools
- tinytex

## Running the Script

### Preparation

Subsetting your data to only a couple of participants (some with regular and some with advanced profiles) to test whether the script works is recommended first.

Profiles will not generate properly when there are missing values in your data. Clean beforehand or use/integrate the script after your own R script cleaning code.

The script assumes you have a variable called Advanced (read 'Files') in your study data.

### Generating

Open DMPG\_script.R and ensure you correctly import your study data into variable 'd' in line 11 and norming study data into variable 'dn' in line 12. This can be done in various ways depending on if you are using this script as a standalone thing or integrating it into an existing script.

If you are unfamiliar with R, the default script is set to import an Excel file (.xlsx), so you can make an .xlsx copy of your data files in the appropriate location (see 'Folder Structure') that are named "DMPG\_data" and "DMPG\_norm".

Then run the script. Hopefully it worked!

## Customising

These don't cover all the changes possible, but have been added to make it more friendly to people who are unfamiliar with R and want to make some common changes.

- DMPG\_template.Rmd
  - Title and title colour

- \* Line 5: Change the “My Profile” text / change the “Black” text to a colour available from dvipsnames in the xcolor package (L<sup>A</sup>T<sub>E</sub>X)
- Logo
  - \* Line 71: Delete this line or change the logo.png file to something else (recommended to retain the same dimensions)
    - Probably replace this or don’t use it if you don’t have permission to use the logos.
- Bars
  - \* Line 22/73: Delete these lines or change the bar.png file to something else.
- Dynamic disclaimer text
- DMPG\_script.R
  - File prefix
    - \* Line 15: Change ‘prefix’ variable
    - \* If you want none, change it to quotation marks with nothing inside them ("").
  - Legend labels in Advanced profile
    - \* Lines 18-19: Change ‘advlegend\_participant’ and ‘advlegend\_sample’ variables
  - Radar graph labels
    - \* Line 22: Change ‘radarlabels’ variable
    - \* Customising this using the fmsb package is quite a pain and involves a bit of trial and error (uses line breaks and spaces to get desired formatting).
  - Radar colors
    - \* Lines 30-34: Change the rgb (red, green, blue, alpha) values in for desired variables (recommended to keep alpha values as they are and make the rgb the same for each pair)
  - Center labels
    - \* Line 37: Change ‘radarcenterlabels’ variable.
    - \* similar to radar graph labels.