

# RQ1: Short-term effects of human feedback on engagement

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This file is meant to allow you to reproduce our analyses for our first research question. This includes reproducing:

- The results regarding the direct effect of human feedback,
- The results regarding the delayed effect of human feedback,
- The results regarding the delayed effect of multiple feedback messages, and
- The effort spent on activities in two previous studies without the chance of receiving human feedback and the effort spent on in-common activities in our study by people who never received feedback.

## Examine Results as Computed by Us

To examine the output of the analyses obtained by us, refer to the files:

- `direct_effect.pdf` for the direct effect of human feedback,
- `delayed_effect_single.pdf` for the delayed effect of human feedback,
- `delayed_effect_multiple.pdf` for the effect of multiple feedback messages, and
- `effort_comp_across_studies_effort_with_hdi.pdf` for the effort spent on activities in different studies.

## Reproduce Analyses Yourself

This section is to explain how you can run the analyses yourself.

### Requirements

You need to have Docker installed.

### Steps to Reproduce Analyses

The reproduction of our code is based on Docker and R Studio. Take the following steps:

1. Make sure you have Docker installed. You can check if you do by running `docker -v`.
2. Navigate to the folder this README-file is in.
3. Now you have 2 options:
  - Build the Docker image via `docker build . -t gbna4/humaninv2024_r`, or
  - Pull the Docker image from Dockerhub via `docker pull gbna4/humaninv2024_r`.
4. Run the Docker container via `docker run -d -p 8787:8787 -v <path_to_this_directory>:/home/rstudio/analysis -e PASSWORD=<some_password> gbna4/humaninv2024_r`.
5. Go to `localhost:8787`.
6. Login with username 'rstudio' and the password chosen in step 4.
7. Navigate to the "analysis"-folder in R Studio.
8. Now you can reproduce the analysis results using one of the .Rmd-files mentioned earlier.

## Knitting R Markdown

If you just want to knit an analysis file to a pdf-file, take the following steps:

1. Make sure you have Docker installed.
2. Navigate to the folder this README-file is in.
3. Now you have 2 options:
  - Build the Docker image via `docker build . -t gbna4/humaninv2024_r`.
  - Pull the Docker image from Dockerhub via `docker pull gbna4/humaninv2024_r`.
4. Run an interactive session with the Docker container via `docker run -it -v <path_to_directory_of_this_README_file>:/home/rstudio/analysis gbna4/humaninv2024_r /bin/bash`.
5. In the interactive session, type `cd /home/rstudio/analysis` to navigate to the analysis-folder.
6. Start an R session via `R`.
7. Import rmarkdown via `library('rmarkdown')`.
8. Knit an R markdown file via `render("<analysis_file>.Rmd", output_file = "<desired_output_file_name>.pdf")`.

## Explanation of Folders and Files

This directory contains the following files and folders:

- Data:
  - `data_rl_samples.csv`: Transition samples from this study.
  - `effort_for_study_comparison_onlyneverfeedback_study2`: Effort spent on activities in this study and two previous studies, using only the data on in-common activities and those people in this study who never received human feedback.
- `delayed_effect_multiple.pdf`: Analysis of the delayed effect of multiple human feedback messages.
- `delayed_effect_multiple.Rmd`: .Rmd-file to reproduce the analysis above.
- `delayed_effect_single.pdf`: Analysis of the delayed effect of human feedback.
- `delayed_effect_single.Rmd`: .Rmd-file to reproduce the analysis above.
- `direct_effect.pdf`: Analysis of the direct effect of human feedback.
- `direct_effect.Rmd`: .Rmd-file to reproduce the analysis above.
- `Dockerfile`: To build the Docker image yourself.
- `effort_comp_across_studies_effort_with_hdi.pdf`: Analysis of the effort spent in different studies.
- `effort_comp_across_studies_effort_with_hdi.Rmd`: .Rmd-file to reproduce the analysis above.
- `README.md/README.pdf`: This Readme-file.