**Data Description**

session\_data.csv (195 rows × 37 columns)

* **PID:** Participant ID
* **session\_id:** ID of a studying session, which refers to a continuous period of time when a user performs certain learning-related tasks with BM played by Moody.
* **pre\_valence, pre\_arousal**: Self-reported emotional status (valence, arousal) before each studying session (pre-survey).
* **post\_valence, post\_arousal**: Self-reported emotional status (valence, arousal) after each studying session (post-survey).
* **chg\_valence, chg\_arousal**: Change of valence/arousal, calculated by (value in post-session survey – value in pre-session survey).
* **mental\_demand:** Self-reported mental demand (i.e., the amount of mental activity required for the task: simple versus demanding) collected via the pre-survey.
* **temporal\_demand:** Self-reported temporal demand (i.e., the perceived time pressure of the task: leisurely versus hurried) collected via the pre-survey.
* **CON, AST, PLE**: Self-reported learning experience collected via the post-survey. CON = Total concentration on the task at hand, AST = Altered sense of time, PLE = Perceived learning effect (1 = Very much distracted me, 2 = Moderately distracted me, 3 = Slightly distracted me, 4 = Had no effect, 5 = Slightly enhanced my work, 6 = Moderately enhanced my work, 7 = Very much enhanced my work)
* **WMC\_RT\_verbal:** Participants’ averaged reaction time of correct responses in the N-back task.
* **WMC**: Participant subgroups in terms of working memory capacity (high vs. low).
* **MTT\_score**: The response time of correct answers (RTCA) in the dual-task block minus the averaged RTCA during the first two single-task blocks (baseline) in the multitasking test.
* **MTT**: Participant subgroups in terms of multitasking ability (high vs. low).
* **Column 29-37 (reading … unclear)**: The main task for each studying session manually coded according to the task descriptions reported by participants.
* **Column 18-28 (rmse\_std … zcr\_std):** Based on the music listening logs, we concatenated the music audio actually being listened to in each session, taking into account participants’ behaviors including looping and skipping songs. A set of fine-grained music features were extracted from the concatenated audio using [Librosa,](https://github.com/librosa/librosa) including:
  + **rmse\_std**: The standard deviation of root-mean-square energy (RMSE) across audio time frames.
  + **tempo**: Beats per minutes
  + **avg\_onset\_frequency**: Average onset frequency.
  + **rolloff\_mean, rolloff\_std**: The mean and standard deviation of the roll-off frequency across time frames.
  + **centroid\_mean, centroid\_std**: The mean and standard deviation of the spectral centroid across time frames.
  + **flatness\_mean, flatness\_std**: The mean and standard deviation of the spectral flatness across time frames.
  + **zcr\_mean, zcr\_std**: The mean and standard deviation of the zero-crossing rate across time frames.

**R Script**

rmcorr.R

* The R script for conducting repeated measures correlation (*rmcorr*) analysis.