Supplementary Material S3

SPSS Analysis Syntax

Software: IBM SPSS Statistics, version 26.

The following syntax reproduces the principal and sensitivity analyses reported in the manuscript. Analyses were conducted on the trial-level dataset containing 440 observations (22 participants × 20 experimental questions).

Variable coding used in the analysis dataset:

participant_id Numerical participant identifier
condition 0 = Baseline block; 1 = Auditory-cue block
period 1 = First experimental period; 2 = Second experimental period
sequence 0 = AB; 1 = BA
item_id Experimental question identifier (1–20)
question_number Question position within block (1–10)
knowledge_context 0 = International/general; 1 = Ecuador-related
thematic_pair Corresponding thematic pair (1–10)
correct 0 = Incorrect/response expiration; 1 = Correct
timeout 0 = Response submitted; 1 = Response expiration
response_time_s Response time in seconds for submitted responses

The technical variable "timeout" corresponds to the outcome referred to as "response expiration" throughout the manuscript.

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**********************************************************************
1. MAIN ALL-TRIAL ACCURACY MODEL
**********************************************************************.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=correct
 /TARGET_OPTIONS REFERENCE=0 DISTRIBUTION=BINOMIAL LINK=LOGIT
 /FIXED EFFECTS=condition knowledge_context period
            condition*knowledge_context
      USE_INTERCEPT=TRUE
 /RANDOM USE_INTERCEPT=TRUE
      SUBJECTS=participant_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE
      SUBJECTS=item_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS TARGET_CATEGORY_ORDER=ASCENDING
      INPUTS_CATEGORY_ORDER=ASCENDING
```

```
    MAX_ITERATIONS=100
    CONFIDENCE_LEVEL=95
    DF_METHOD=SATTERTHWAITE
    COVB=MODEL
 /EMMEANS TABLES=condition
 /EMMEANS TABLES=condition*knowledge_context
    COMPARE=condition CONTRAST=PAIRWISE
 /EMMEANS_OPTIONS SCALE=ORIGINAL PADJUST=SEQBONFERRONI.

* Odds ratios and 95% confidence intervals were obtained by exponentiating
* the corresponding marginal logit contrast and its confidence limits.


*****************************************************************
2. REDUCED ACCURACY MODEL WITHOUT THE INTERACTION
*****************************************************************.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=correct
 /TARGET_OPTIONS REFERENCE=0 DISTRIBUTION=BINOMIAL LINK=LOGIT
 /FIXED EFFECTS=condition knowledge_context period
    USE_INTERCEPT=TRUE
 /RANDOM USE_INTERCEPT=TRUE
    SUBJECTS=participant_id
    COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE
    SUBJECTS=item_id
    COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS TARGET_CATEGORY_ORDER=ASCENDING
    INPUTS_CATEGORY_ORDER=ASCENDING
    MAX_ITERATIONS=100
    CONFIDENCE_LEVEL=95
    DF_METHOD=SATTERTHWAITE
    COVB=MODEL
 /EMMEANS TABLES=condition COMPARE=condition CONTRAST=PAIRWISE
 /EMMEANS_OPTIONS SCALE=ORIGINAL PADJUST=LSD.


*****************************************************************
3. MAIN RESPONSE-EXPIRATION MODEL
*****************************************************************.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=timeout
 /TARGET_OPTIONS REFERENCE=0 DISTRIBUTION=BINOMIAL LINK=LOGIT
 /FIXED EFFECTS=condition knowledge_context period
```

```
            condition*knowledge_context
        USE_INTERCEPT=TRUE
  /RANDOM USE_INTERCEPT=TRUE
        SUBJECTS=participant_id
        COVARIANCE_TYPE=VARIANCE_COMPONENTS
  /RANDOM USE_INTERCEPT=TRUE
        SUBJECTS=item_id
        COVARIANCE_TYPE=VARIANCE_COMPONENTS
  /BUILD_OPTIONS TARGET_CATEGORY_ORDER=ASCENDING
        INPUTS_CATEGORY_ORDER=ASCENDING
        MAX_ITERATIONS=100
        CONFIDENCE_LEVEL=95
        DF_METHOD=SATTERTHWAITE
        COVB=MODEL
  /EMMEANS TABLES=condition
  /EMMEANS TABLES=condition*knowledge_context
        COMPARE=condition CONTRAST=PAIRWISE
  /EMMEANS_OPTIONS SCALE=ORIGINAL PADJUST=SEQBONFERRONI.

* Odds ratios and 95% confidence intervals were obtained by exponentiating
* the corresponding marginal logit contrast and its confidence limits.


*****************************************************************
4. PARTICIPANT-LEVEL PAIRED RESPONSE-EXPIRATION SUMMARY
*****************************************************************.

DATASET NAME TrialData.
DATASET COPY ExpirationCounts.
DATASET ACTIVATE ExpirationCounts.

AGGREGATE
  /OUTFILE=* MODE=REPLACE
  /BREAK=participant_id condition
  /exp_count=SUM(timeout).

SORT CASES BY participant_id condition.

CASESTOVARS
  /ID=participant_id
  /INDEX=condition
  /GROUPBY=VARIABLE
  /SEPARATOR="_".

* Assumes condition 0 = baseline and condition 1 = auditory-cue block.
COMPUTE expiration_difference=exp_count_0-exp_count_1.

* Positive = fewer expirations in auditory-cue block.
```

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* Zero     = equal number of expirations.
* Negative = more expirations in auditory-cue block.

COMPUTE expiration_pattern=0.
IF (expiration_difference>0) expiration_pattern=1.
IF (expiration_difference<0) expiration_pattern=-1.

VALUE LABELS expiration_pattern
 -1 'More expirations in auditory-cue block'
  0 'Equal number of expirations'
  1 'Fewer expirations in auditory-cue block'.

FREQUENCIES VARIABLES=expiration_pattern.

DESCRIPTIVES VARIABLES=exp_count_0 exp_count_1 expiration_difference
 /STATISTICS=MEAN STDDEV MIN MAX.

T-TEST PAIRS=exp_count_0 WITH exp_count_1 (PAIRED)
 /CRITERIA=CI(.95).

DATASET ACTIVATE TrialData.


*************************************************************************
5. RESPONSE-TIME TRANSFORMATION AND MAIN MODEL
*************************************************************************.

COMPUTE ln_response_time=$SYSMIS.
IF (timeout=0 AND response_time_s>0)
   ln_response_time=LN(response_time_s).
EXECUTE.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=ln_response_time
 /TARGET_OPTIONS DISTRIBUTION=NORMAL LINK=IDENTITY
 /FIXED EFFECTS=condition knowledge_context period
            condition*knowledge_context
       USE_INTERCEPT=TRUE
 /RANDOM USE_INTERCEPT=TRUE
       SUBJECTS=participant_id
       COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE
       SUBJECTS=item_id
       COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS INPUTS_CATEGORY_ORDER=ASCENDING
       MAX_ITERATIONS=100
       CONFIDENCE_LEVEL=95
```

```
      DF_METHOD=SATTERTHWAITE
      COVB=MODEL
 /EMMEANS TABLES=condition
 /EMMEANS TABLES=condition*knowledge_context
      COMPARE=condition CONTRAST=PAIRWISE
 /EMMEANS_OPTIONS SCALE=ORIGINAL PADJUST=SEQBONFERRONI.

* Only trials with submitted responses contribute to this model because
* ln_response_time is missing for response-expiration trials.
*
* Geometric means were obtained by exponentiating estimated marginal means
* from the log scale. The geometric mean ratio (GMR) and its 95% confidence
* interval were obtained by exponentiating the corresponding condition
* contrast and its confidence limits.


*****************************************************************
6. ACCURACY AMONG SUBMITTED RESPONSES
*****************************************************************.

TEMPORARY.
SELECT IF (timeout=0).

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=correct
 /TARGET_OPTIONS REFERENCE=0 DISTRIBUTION=BINOMIAL LINK=LOGIT
 /FIXED EFFECTS=condition knowledge_context period
            condition*knowledge_context
      USE_INTERCEPT=TRUE
 /RANDOM USE_INTERCEPT=TRUE
      SUBJECTS=participant_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE
      SUBJECTS=item_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS TARGET_CATEGORY_ORDER=ASCENDING
      INPUTS_CATEGORY_ORDER=ASCENDING
      MAX_ITERATIONS=100
      CONFIDENCE_LEVEL=95
      DF_METHOD=SATTERTHWAITE
      COVB=MODEL
 /EMMEANS TABLES=condition
 /EMMEANS TABLES=condition*knowledge_context
      COMPARE=condition CONTRAST=PAIRWISE
 /EMMEANS_OPTIONS SCALE=ORIGINAL PADJUST=SEQBONFERRONI.
```

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*************************************************************************
7. ORIGINAL 15-S DEADLINE SENSITIVITY OUTCOME
*************************************************************************.

COMPUTE original15_failure=0.
IF (timeout=1) original15_failure=1.
IF (timeout=0 AND response_time_s>15) original15_failure=1.
EXECUTE.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=original15_failure
 /TARGET_OPTIONS REFERENCE=0 DISTRIBUTION=BINOMIAL LINK=LOGIT
 /FIXED EFFECTS=condition knowledge_context period
            condition*knowledge_context
       USE_INTERCEPT=TRUE
 /RANDOM USE_INTERCEPT=TRUE
       SUBJECTS=participant_id
       COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE
       SUBJECTS=item_id
       COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS TARGET_CATEGORY_ORDER=ASCENDING
       INPUTS_CATEGORY_ORDER=ASCENDING
       MAX_ITERATIONS=100
       CONFIDENCE_LEVEL=95
       DF_METHOD=SATTERTHWAITE
       COVB=MODEL
 /EMMEANS TABLES=condition COMPARE=condition CONTRAST=PAIRWISE
 /EMMEANS_OPTIONS SCALE=ORIGINAL PADJUST=LSD.


*************************************************************************
8. RESPONSE TIME EXCLUDING TIMER-RESET TRIALS
*************************************************************************.

* Replace timer_reset with the exact timer-reset indicator variable name
* used in the analysis dataset if different.

TEMPORARY.
SELECT IF (timeout=0 AND timer_reset=0).

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=ln_response_time
 /TARGET_OPTIONS DISTRIBUTION=NORMAL LINK=IDENTITY
 /FIXED EFFECTS=condition knowledge_context period
            condition*knowledge_context
```

```
      USE_INTERCEPT=TRUE
 /RANDOM USE_INTERCEPT=TRUE
      SUBJECTS=participant_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE
      SUBJECTS=item_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS INPUTS_CATEGORY_ORDER=ASCENDING
      MAX_ITERATIONS=100
      CONFIDENCE_LEVEL=95
      DF_METHOD=SATTERTHWAITE
      COVB=MODEL
 /EMMEANS TABLES=condition
 /EMMEANS_OPTIONS SCALE=ORIGINAL PADJUST=LSD.


*****************************************************************
9. PRESENTATION-SEQUENCE SENSITIVITY ANALYSES
*****************************************************************.

* Accuracy.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=correct
 /TARGET_OPTIONS REFERENCE=0 DISTRIBUTION=BINOMIAL LINK=LOGIT
 /FIXED EFFECTS=condition knowledge_context period
            condition*knowledge_context sequence
      USE_INTERCEPT=TRUE
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=participant_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=item_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS CONFIDENCE_LEVEL=95
      DF_METHOD=SATTERTHWAITE COVB=MODEL.

* Response expiration.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=timeout
 /TARGET_OPTIONS REFERENCE=0 DISTRIBUTION=BINOMIAL LINK=LOGIT
 /FIXED EFFECTS=condition knowledge_context period
            condition*knowledge_context sequence
      USE_INTERCEPT=TRUE
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=participant_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=item_id
```

```
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS CONFIDENCE_LEVEL=95
      DF_METHOD=SATTERTHWAITE COVB=MODEL.

* Response time among submitted responses.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=ln_response_time
 /TARGET_OPTIONS DISTRIBUTION=NORMAL LINK=IDENTITY
 /FIXED EFFECTS=condition knowledge_context period
            condition*knowledge_context sequence
      USE_INTERCEPT=TRUE
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=participant_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=item_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS CONFIDENCE_LEVEL=95
      DF_METHOD=SATTERTHWAITE COVB=MODEL.


*****************************************************************
10. THEMATIC-PAIR SENSITIVITY MODELS
*****************************************************************.

* Accuracy.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=correct
 /TARGET_OPTIONS REFERENCE=0 DISTRIBUTION=BINOMIAL LINK=LOGIT
 /FIXED EFFECTS=condition thematic_pair period sequence
      USE_INTERCEPT=TRUE
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=participant_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=item_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS CONFIDENCE_LEVEL=95
      DF_METHOD=SATTERTHWAITE COVB=MODEL.

* Response expiration.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=timeout
 /TARGET_OPTIONS REFERENCE=0 DISTRIBUTION=BINOMIAL LINK=LOGIT
 /FIXED EFFECTS=condition thematic_pair period sequence
      USE_INTERCEPT=TRUE
```

```
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=participant_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=item_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS CONFIDENCE_LEVEL=95
      DF_METHOD=SATTERTHWAITE COVB=MODEL
 /EMMEANS TABLES=condition COMPARE=condition CONTRAST=PAIRWISE
 /EMMEANS_OPTIONS SCALE=ORIGINAL PADJUST=LSD.

* Response time.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=ln_response_time
 /TARGET_OPTIONS DISTRIBUTION=NORMAL LINK=IDENTITY
 /FIXED EFFECTS=condition thematic_pair period sequence
      USE_INTERCEPT=TRUE
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=participant_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=item_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS CONFIDENCE_LEVEL=95
      DF_METHOD=SATTERTHWAITE COVB=MODEL.


*****************************************************************
11. PARTICIPANT-LEVEL RANDOM-SLOPE ROBUSTNESS MODELS
*****************************************************************.

* Accuracy.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=correct
 /TARGET_OPTIONS REFERENCE=0 DISTRIBUTION=BINOMIAL LINK=LOGIT
 /FIXED EFFECTS=condition knowledge_context period
           condition*knowledge_context
      USE_INTERCEPT=TRUE
 /RANDOM EFFECTS=condition USE_INTERCEPT=TRUE
      SUBJECTS=participant_id
      COVARIANCE_TYPE=UNSTRUCTURED
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=item_id
      COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS CONFIDENCE_LEVEL=95
      DF_METHOD=SATTERTHWAITE COVB=MODEL.

* Response expiration.
* This specification produced the non-positive-definite random-effects
```

```
* covariance matrix and Hessian reported in the manuscript.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=timeout
 /TARGET_OPTIONS REFERENCE=0 DISTRIBUTION=BINOMIAL LINK=LOGIT
 /FIXED EFFECTS=condition knowledge_context period
            condition*knowledge_context
       USE_INTERCEPT=TRUE
 /RANDOM EFFECTS=condition USE_INTERCEPT=TRUE
       SUBJECTS=participant_id
       COVARIANCE_TYPE=UNSTRUCTURED
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=item_id
       COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS CONFIDENCE_LEVEL=95
       DF_METHOD=SATTERTHWAITE COVB=MODEL.

* Response time.

GENLINMIXED
 /DATA_STRUCTURE SUBJECTS=participant_id*item_id
 /FIELDS TARGET=ln_response_time
 /TARGET_OPTIONS DISTRIBUTION=NORMAL LINK=IDENTITY
 /FIXED EFFECTS=condition knowledge_context period
            condition*knowledge_context
       USE_INTERCEPT=TRUE
 /RANDOM EFFECTS=condition USE_INTERCEPT=TRUE
       SUBJECTS=participant_id
       COVARIANCE_TYPE=UNSTRUCTURED
 /RANDOM USE_INTERCEPT=TRUE SUBJECTS=item_id
       COVARIANCE_TYPE=VARIANCE_COMPONENTS
 /BUILD_OPTIONS CONFIDENCE_LEVEL=95
       DF_METHOD=SATTERTHWAITE COVB=MODEL.


*****************************************************************
12. EXPLORATORY HOLM CORRECTION ACROSS THE THREE MAIN OUTCOMES
*****************************************************************.

* Unadjusted overall between-block p-values:
* Response expiration = .009
* Response time       = .492
* Accuracy            = .909.
*
* Ordered Holm calculations:
* .009 × 3 = .027
* .492 × 2 = .984
* .909 × 1 = .909, constrained to be no smaller than the preceding
```

```
* adjusted value (.984).
*
* Final Holm-adjusted p-values:
* Response expiration = .027
* Response time       = .984
* Accuracy            = .984.


*************************************************************************
13. SYSTEM USABILITY SCALE
*************************************************************************.

* The following assumes the participant-level dataset contains the ten
* individual SUS items as SUS1-SUS10 and the calculated total as SUS_total.
* Replace these names if the analysis file uses different variable names.

RELIABILITY
 /VARIABLES=SUS1 SUS2 SUS3 SUS4 SUS5 SUS6 SUS7 SUS8 SUS9 SUS10
 /SCALE('System Usability Scale') ALL
 /MODEL=ALPHA.

* Spearman correlations were calculated on one record per participant
* between SUS total score and overall behavioral performance.

NONPAR CORR
 /VARIABLES=SUS_total overall_accuracy overall_response_time
 /PRINT=SPEARMAN TWOTAIL
 /MISSING=PAIRWISE.
```