Full-Text Reviewing Stages

Stage 1- Locating the Study in Zotero:

- Open Zotero and navigate to the **Double_Review_FullTexts** collection. In the excel spreadsheet, locate the paper where the **Fulltext_Review_2** column is marked as "EE" Copy the title of that paper from the **Title** column and paste it into Zotero's search bar to retrieve the corresponding paper.

Stage 2- Criteria Evaluation:

- Carefully read the study to evaluate it against the predefined inclusion criteria. Refer to the list of Exclusion Criteria for Full Text Reviewing as needed during your review.
- In your tracking sheet, mark each criterion as follows:
    - **Yes**: If the study meets the criterion, note "Yes" and continue to the next criterion
    - **No**: If the study fails to meet a criterion, note "No," and proceed to record the **Eligibility_decision_Reviewer_2** column for the eligibility decision.
    - **Pending**: If unsure whether the study meets a criterion, note "Pending." Continue assessing next criteria.

Stage 3- Decision Eligibility (Eligibility_decision_Reviewer_2 column):

- **Single "No"**: If you mark "No" for any criterion and are confident in this assessment, enter "No" in the **Eligibility_decision_Reviewer_2** column and discontinue further criteria review for this study.
- **All "Yes"**: If all criteria are marked "Yes," enter "Yes" in the **Eligibility_decision_Reviewer_2** column.
- **Pending**: If any criterion is marked "Pending" and there are no "No" decisions for any other criteria, record "Pending" in the **Eligibility_decision_Reviewer_2** column and detail your hesitations in the **Notes_eligibility_decision_reviewer_2** column.

Exclusion Criteria for Full-Text Reviewing

Below are the inclusion criteria applied during the Full-text Reviewing phase of the study.

Inclusion_criterion 2.2.
Research context: Educational context

- **Yes:** The study must be conducted within an educational setting, focusing on academic learning, mainly semantic learning.
- **No:** Studies centered on perceptual learning, non-academic training, or tasks involving only pairing-association

Inclusion_criterion 3.1.
Participants - Type: Participants must be typical (not special needs)

- **Yes**: Eligible participants should have no history of communication disorders, neurological impairments, psychological impairments, or cognitive disabilities.
    - If the study does not mention any participant disorders or disabilities, assume compliance.
- **No**: Studies that include special needs education or participants not in healthy or stable psychological conditions (e.g., ADHD, under anesthesia).

Inclusion_criterion 4.1.
Method- Manipulation: The study must compare the effects of immediate and delayed feedback

- **Yes:** The study must explicitly compare the effects of immediate and delayed feedback on outcomes.
    - If the study uses different terminology (e.g., synchronous/asynchronous) or does not specify these terms but still contrasts two timings that can logically be classified as immediate and delayed, then it meets this criterion.
- **No:** Studies that report only on one timing of feedback without a comparative analysis do not meet this criterion.

Inclusion_criterion 4.2.
Method-Study Design: The study must be experimental

- **Yes:** Studies explicitly described as experimental.
    - If the study design isn't specified but the description suggests an experimental approach (e.g., controlled manipulation of variables, random assignment), then it should also be considered compliant.
- **No:** Studies that are quasi-experimental or non-experimental.

Inclusion_criterion 4.3.
Method- Dependent Variable: Dependent variable is learning which can be in different forms

- **Yes:** The study should focus on learning outcomes as a primary measure of success.
    - Acceptable outcomes include but are not limited to: academic performance, knowledge retention, memory retention, skills development, cognitive outcomes, comprehension, application, performance accuracy, the time required for learning tasks, semantic pairing, semantic associations…
- **No:** Studies where the primary dependent variables are unrelated to learning outcomes, such as engagement, satisfaction, preferences, or anxiety.

Inclusion_criterion 4.4.

Method - environmnet: Computer based environmnet

- **Yes:** Studies that are explicitly operate within computer-assisted setting. Computer-assisted environments are described with different wordings in different papers. So search for the terms like 'computer-based environment,' 'educational technology,' 'e-learning,' 'online tutoring,' 'computer-assisted tutoring,' 'computer-assisted communication,' 'technology-driven learning,' 'EdTech,' 'learning management system (LMS),' 'digital instruction,' 'mobile learning,' 'laptop use in education,' 'multimedia resources,' 'digital learning environment,' 'digital education,' 'computer-aided learning,' 'technology-enhanced learning environment,' 'intelligent tutoring systems,' or 'use of digital screens.' If none of these terms are explicitly mentioned, the following cases will also be considered as computer-based environments:
    - The study is conducted via digital communication platforms (e.g., Skype or Zoom).
    - The experimental setup occurs in a lab using computerized tools or software.
    - The training and feedback component is delivered on a computer, regardless of whether the pre-test/post-test is digital or provided directly by an instructor.
- **No:**
    - Studies if they are conducted in non-computerized environments such as traditional classrooms without any digital integration.
    - Studies where only one condition (immediate or delayed feedback) utilizes computer assistance while the other does not, are also excluded.
    - Both the training and feedback components must be computerized for inclusion. If only one component is computerized, mark the criteria as “No” and label it as "partly computerized" in the **Notes_eligibility_decision_reviewer_2** section.

Inclusion_criterion 4.5.

Controlled Design: The study must ensure that the only variable differing between groups is the timing of the feedback.

- **Yes:** Studies where participants are randomly or pseudorandomly assigned to conditions, and all conditions are identical except for the timing of the feedback. There should be no obvious confounding factors affecting the comparison.
- **No:** Studies in which the assignment to conditions is not random/pseudorandom, if conditions vary in aspects other than the timing of feedback, or if there are clear confounding factors that could affect outcomes.

Inclusion_criteria 4.6:

Method- Feedback level: The feedback in the study should be provided individually.

- **Yes:** Studies where feedback is delivered individually to each participant, focusing on their specific responses or performance.

- **No:** Studies where feedback is given at the group level, such as evaluations of group assignments or collective feedback sessions.

Inclusion_criteria 4.7:
Method- feedback traget: Feedback must specifically address the participants' answers

- **Yes:** Studies provide feedback directly related to the correctness of answers, errors made, or correct responses to specific tasks. The feedback should be specifically about the participant's responses.
- **No:** Studies where feedback is based on participant ratings, behaviors not directly related to task answers, or other non-answer-related aspects, or e studies where feedback is provided only in the form of summaries (e.g., the number of correct responses) rather than being directly linked to specific answers.

Inclusion_criterion 5.1.
Feedback Definition: The study must clearly define immediate and delayed feedback in terms of timing and quantity.

- **Yes:** Studies that provide a clear definition of how feedback timings are categorized as immediate or delayed. It is not necessary for the definition to detail exact times or numbers of items, but the description should indicate whether the feedback is delayed based on items (item-based) or time intervals (time-based) and give a general idea of the delay (e.g., 1 week, 10 questions, post-test).
- **No:** Studies that do not offer any specific descriptions of feedback timing distinctions and only state that they compared immediate and delayed feedback without further clarification.

Inclusion_criterion 6.1.
Statistics: Must report sufficient statistics to either obtain the effect size directly or calculate it from relevant statistics (e.g., mean, standard deviation, t-value, F-value, etc.)

- **Yes: Studies include any of the following adequately reported statistical measures:**
  - **Effect Sizes:** Direct reports such as Cohen's d, Hedges' g, η^2, ω^2, etc.
  - **Descriptive Statistics:** Means, Standard Deviations (SD), and sample sizes for each group.
  - **t-Statistics**: Complete t-statistics along with degrees of freedom for independent or paired samples t-tests.
  - **F-Statistics:** F-statistics with degrees of freedom for Analysis of Variance (ANOVA) or similar models.
  - **Correlation Coefficients:** Pearson's r, Spearman's rho, or similar measures.
  - **Regression Coefficients:** Both standardized (β-values) and unstandardized (b-values) regression coefficients, with standard deviations for the predictor and outcome variables if reporting unstandardized coefficients.

- **No:** Studies reporting only p-values without accompanying descriptive statistics, or if they provide qualitative descriptions of results without quantitative backing (e.g., stating "Group A outperformed Group B significantly" without numerical data).