

## Experiment -2

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Design a UI where users recall visual elements (e.g., icons or text chunks). Evaluate the effect of chunking on user memory.

FRAME 1:

INSTRUCTION PAGE:

### Chunking Analysis of the Instruction Page

Chunking is a cognitive strategy that breaks down information into smaller, manageable units, making it easier to process and retain. The **Memory Recall Task** instruction page effectively utilizes chunking in the following ways:

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#### FRAME 1: INSTRUCTION PAGE

**1. Purpose & Cognitive Goal** The primary goal of this frame is to prepare the user for the "Encoding" phase. By presenting rules in a structured format, it reduces proactive interference, ensuring the user understands the specific parameters of the task before the stimulus is shown.

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#### 2. Visual Elements & Asset Purpose

- **Topic on Top:** "MIND MATCH!" — Large, multi-colored letters used to establish a playful and non-threatening atmosphere, reducing "test anxiety."
- **Instruction Card:** A white rounded card containing six numbered steps.
  - **Purpose:** Information Chunking. By breaking rules into small, sequential bits, the user can process the mechanics of the game without cognitive overload.
- **Mascot (Professor Hamster):** A hamster with a graduation cap and pointer.
  - **Purpose:** Acts as a Directional Cue. It guides the user's attention toward the text, making the learning process feel mentored and guided.
- **Support Mascots (Bottom Row):** Icons of a magnifying glass, pig, and hamster.
  - **Purpose:** These serve as Priming. They mentally prepare the user for the type of visual assets they will be asked to memorize in the next frame.
- **"START" Button:** A blue button with a squirrel mascot.

- Purpose: A clear Call to Action (CTA). The high-contrast color ensures the user knows exactly how to initiate the time-sensitive task.
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## FRAME 2: CHUNKING PHASE (ENCODING) ☒

1. Purpose & Cognitive Goal This is the Encoding Phase. The objective is to force the user to use chunking strategies to beat the strict 5-second limit. Since the human brain generally stores only  $7\pm2$  items in short-term memory, the user must group these 20 icons into "chunks" to succeed.

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### 2. Visual Elements & Asset Purpose

- Timing Asset (Alarm Clock): A classic red and white alarm clock icon labeled with "5 Seconds."
  - Purpose: Time Constraint Reinforcement. Placing a literal clock asset next to the time limit anchors the user's focus, signaling that the encoding must happen rapidly.
- Progress Bar: A horizontal rounded bar that depletes from purple to light blue.

- Purpose: Visual Pacing. It provides a continuous real-time representation of the decaying memory window, creating the "optimal stress" required to trigger fast mental categorization.
- Memory Grid (5x4 Matrix): 20 animal icons (Seals 🐧, Bears 🐻, Jellyfish 🐠, etc.) on colorful tiles.
  - Purpose: Pattern Recognition. The distinct background colors of the tiles allow the user to chunk information not just by the animal "label," but by color "spatial mapping."
- Background Change: A starry night sky with clouds.
  - Purpose: Contextual Shifting. The darker background increases the contrast of the colorful tiles, helping the icons "pop" for more efficient visual encoding.



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### FRAME 3: RECALL PHASE (RETRIEVAL)

**1. Purpose & Cognitive Goal** This frame tests Retrieval Accuracy. The cognitive challenge here is to distinguish between "Target" items and "Distractor" items within a 10-second window. This measures the strength and stability of the chunks formed in the previous phase.

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### 2. Visual Elements & Asset Purpose

- **Timing Asset (Clock Icon):** The alarm clock asset reappears, now labeled with "10 Seconds."
    - **Purpose:** Cognitive Load Adjustment. By increasing the time from 5 to 10 seconds, the UI acknowledges that retrieval and selection require more processing time than initial observation.
  - **Recall Grid:** A grid featuring mixed icons, including distractors like the Red Panda and Raccoon.
    - **Purpose:** Recognition over Recall. It is easier for the brain to recognize an image than to recall it from a blank slate. This grid tests the precision of the user's mental "snapshots."
  - **Radio Buttons (Hollow Diamonds ◊):** Small selection circles under each icon.
    - **Purpose:** Affordance. They provide a clear interaction point. Because these are instances, they provide immediate feedback when clicked, allowing the user to track selections without losing focus.
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#### FRAME 4: RESULT PAGE

**1. Purpose & Cognitive Goal** The goal is to provide Instant Feedback and allow for a Hard Reset of the cognitive task. Feedback is essential in memory games to help users evaluate which chunking strategies worked best for them.

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#### 2. Visual Elements & Asset Purpose

- **Score Display:** "You got!!!! 7 / 7" text on a central purple card.
  - **Purpose:** Knowledge of Results. Providing a clear fraction helps the user quantify their memory capacity immediately.
- **"RESTART" & "EXIT" Buttons:** Purple rounded buttons with squirrel mascots.
  - **Purpose:** User Control & Agency. \* Restart: Triggers the "Reset Component State" logic, allowing for repeated trials to test improved chunking.
    - Exit: Provides a clear "off-ramp," preventing user frustration or fatigue.
- **Happy Squirrel Mascot:** Placed next to the score.

- Purpose: Positive Reinforcement. It uses emotional design to reward the user's effort, encouraging them to try the task again.
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PROTOTYPE LINK [🔗](#)

<https://www.figma.com/proto/wZbzPytf6w87eIrY8BPBE/Mind-Match?node-id=31-2&t=bz6uxg5UcVN gjqaF-1>

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