Week Two: Evaluating the Effect of Chunking on User Memory Through UI Design

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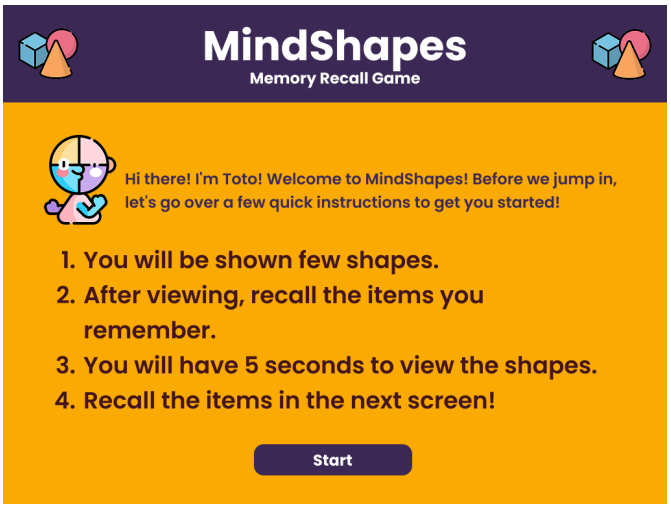
Introduction

The MindShapes Memory Recall Game is designed to test and enhance short-term memory by presenting players with a set of shapes for a limited duration and then prompting them to recall what they saw. The game follows a structured sequence of instruction, exposure, recall, and feedback to create a systematic memory training experience. This experiment integrates cognitive psychology principles such as chunking, cognitive load management, perceptual grouping, and serial position effect, which influence how information is processed and retained. By controlling the number of items displayed and structuring the recall phase, the game creates an optimal balance between challenge and accessibility.

Breakdown of Screens & Applied Concepts

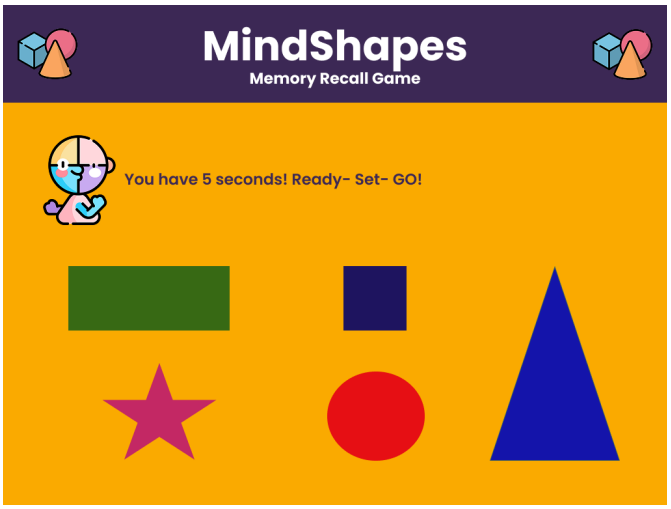
1️⃣ Instruction Screen (First Slide)

- Concept Applied: **Chunking & Cognitive Load Reduction**
- The rules are structured in a simple numbered list to avoid overwhelming the user.
- Instead of displaying all information in a block of text, it is segmented into digestible steps.
- The limited number of rules (4 key steps) makes it easier to process.



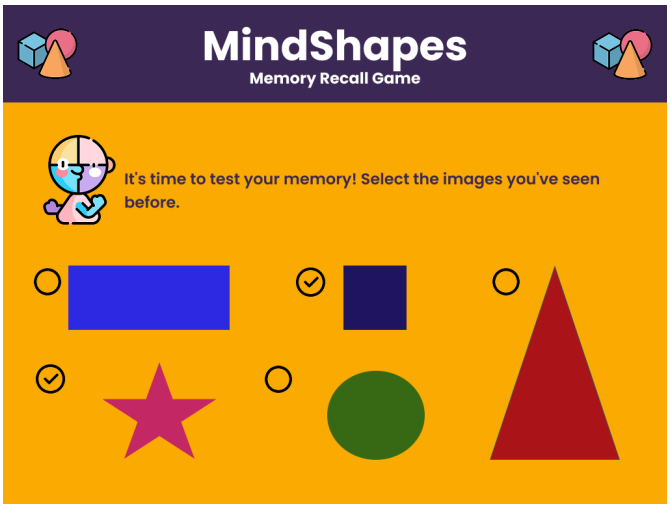
2️⃣ Image Viewing Screen (Second Slide)

- Concept Applied: **Chunking & Perceptual Grouping**
- The game presents only five shapes, ensuring that players can chunk them into groups (e.g., "round shapes" vs. "pointed shapes" or by colours).
- Time-limited exposure (5 seconds) prevents overthinking, encouraging quick, natural chunking strategies.



3️⃣ Recall Screen (Third Slide)

- Concept Applied: **Recognition Over Recall & Serial Position Effect**
- Instead of asking players to recall items from scratch, they are given multiple options, making use of recognition-based recall, which is generally easier than free recall.
- The layout encourages players to scan for familiar items rather than remembering exact details.
- The serial position effect plays a role, as players are likely to remember the first and last items more easily.



4️⃣ Feedback & Score Screen (Fourth Slide)

- Concept Applied: **Positive Reinforcement & Learning Feedback Loop**
- Immediate feedback on the player's recall strengthens memory for future attempts.
- The success message ("Big Congrats!") leverages positive reinforcement, motivating players to engage again.
- The "Play Again" button ensures a feedback loop, allowing users to test and refine their memory strategies.