



# ***Exploring Psychology: Through Games***

# **RESEARCH PAPER**

- NATIONAL INSTITUTE OF MENTAL HEALTH:
- <https://www.nimh.nih.gov/news/science-news/2024/using-games-to-explore-the-mind>
- GIVEN BELOW ARE THE THINGS THAT WIL BE DETERMINED:

# PATIENCE

- **How Games Test It:** Patience can be measured through games where players are faced with the choice to either receive an **immediate small reward or wait for a larger, delayed reward**. These types of "delayed gratification" games are commonly used in psychological studies, such as the **Marshmallow Test**.
- **What It Reveals:** A person's ability to delay gratification is a strong indicator of their **patience level**. Those who choose to wait for the larger reward demonstrate a greater ability to control impulses and are generally seen as more patient. Conversely, individuals who opt for the smaller, immediate reward may display lower levels of patience, possibly correlating to higher impulsivity or a preference for **short-term gains**.
- **THIS IS TESTED IN THE GAME: NOW OR LATER!**

# CONCENTRATION

- **How Games Test It:** Games that involve tasks requiring **sustained attention**, such as multi-tasking or reaction-based tasks, are used to measure a **decrease in attention span**. The player's ability to maintain focus over extended periods or when faced with distractions can reveal how quickly their attention starts to fade or become fragmented. A decrease in attention span is often indicated by difficulties in staying focused, making errors, or **becoming distracted during these tasks**.
- **What It Reveals:** A strong ability to concentrate can be linked to better cognitive control, problem-solving skills, and goal-oriented behavior. Poor concentration, on the other hand, may suggest distractibility or difficulties with focus, which can be relevant in diagnosing conditions like ADHD (Attention-Deficit/Hyperactivity Disorder).
- **USED IN THE GAME LEFT OR RIGHT?**

# REACTION TIME

- **How Games Test It:** Games that measure reaction time often require players to **respond quickly** to **visual** or auditory stimuli, such as pressing a button when a light appears or when a sound is heard. These types of tests assess how fast a person can react to changes in their environment.
- **What It Reveals:** Faster reaction times are typically associated with **higher levels of cognitive processing speed, alertness, and the ability to make quick decisions**. Slow reaction times may indicate cognitive or neurological impairments, fatigue, or simply a less responsive brain. In clinical settings, reaction time is often used as a measure of overall brain health or to diagnose conditions like **anxiety or depression, where reaction times can slow due to mental fatigue**.
- **USED IN THE GAME: CITY OR MOUNTAIN**

# EMOTIONAL INTELLIGENCE

- **How Games Test It:** Emotional intelligence (EI) involves the ability to recognize, understand, and manage one's own emotions, as well as the ability to recognize and influence the emotions of others. Games that simulate social interactions or emotional scenarios can assess emotional intelligence by measuring a participant's ability to navigate complex emotional situations, manage stress, and demonstrate empathy.
- **What It Reveals:** High emotional intelligence is often demonstrated by individuals who can accurately identify emotions in themselves and others, remain calm under stress, and respond appropriately in social situations. Games assessing emotional regulation might ask players to make decisions under emotional pressure, track changes in mood, or react to social cues. People with high EI tend to be more successful in social interactions, show resilience in stressful situations, and have better conflict-resolution skills. On the other hand, individuals with low emotional intelligence may struggle with empathy, emotional regulation, or understanding social dynamics.
- **USED IN THE GAME:** GUESS THE EMOTION.

# Exploring Games Through Psychology: A Research-Based Approach to Mental Health

- Recent research has shed light on the potential of video games to explore the mind and mental health, offering new opportunities for understanding human behavior. A notable example is a 2024 study published by the **National Institute of Mental Health (NIMH)**, titled *Using Games to Explore the Mind*. This research investigates how digital games can be utilized as tools for psychological assessment and intervention. The study explores various cognitive and emotional aspects of mental health, including concentration, reaction times, and emotional intelligence.
- One **key takeaway** from the research was that individuals often face difficulties with concentration, patience, slow reaction times, and emotional intelligence. These challenges were identified as **crucial areas** that could be addressed through interactive and engaging game design. The analysis pointed out that traditional methods of psychological testing might not engage users as effectively as games could, **making games an ideal medium for these types of assessments.**

# Ideating Game Concepts

- Building on the insights from the research, we set out to create games that could address these psychological issues in a fun and engaging way. The games we designed were meant to test and improve concentration, patience, emotional intelligence, and reaction times. After much brainstorming and ideation, we came up with the following concepts:
- **Left or Right:** This game tests **reaction times** and the ability to focus. Players must quickly choose the correct direction (left or right) based on rapid visual cues. It trains concentration and reaction speed, helping improve mental agility.
- **City or Mountain:** Designed to test **patience and decision-making**, this game asks players to choose between two options – city or mountain – and provides feedback based on their choices. It aims to increase cognitive flexibility and patience, challenging players to make decisions without rushing.
- **Guess the Emotion:** This game **targets emotional intelligence** by presenting various facial expressions or scenarios, where players must identify the emotions being displayed. It encourages emotional awareness and helps players improve empathy and social skills.
- **Now or Later:** Focused on impulse control, this game presents players with the option to take a reward now or wait for a larger reward later. It aims to **enhance patience and self-control, addressing impulsivity and delayed gratification.**



## **BUILD:**

- Once the game concepts were solidified, we began the development process. We started by writing the **basic game logic in C++**, which allowed us to test the underlying mechanics and structure of each game. After refining the core functionality, we converted the code into **web-friendly formats** using **HTML, CSS, and JavaScript**. These languages made it easier to create visually engaging interfaces and interactive elements for the user.
- The development process was iterative, and we made constant improvements based on testing. After ensuring the games functioned well in a browser environment, we packaged all the files into **zip** files. We used **TiinyHost** to convert these files into a functional website, making it accessible through any modern browser.
- To make the games more versatile, we wanted **to create a mobile version**. To do this, we used a **web-to-app converter**, which allowed us to transform our website into a mobile app. This way, users could play the games on their phones, further expanding access and usability.

# Testing and Debugging

- Once the website and app were ready, we began the testing phase. We shared the games with friends and family, who played them on both desktop and mobile platforms. Their feedback helped identify bugs and usability issues. We fine-tuned the games, fixing any errors that arose during testing to ensure smooth gameplay.

# Final Implementation

- After the games were tested and refined, we implemented the final versions and deployed them both as a website and a mobile app. The games are now accessible to anyone looking to explore and improve their cognitive and emotional skills through interactive gameplay. The ability to test concentration, patience, reaction time, and emotional intelligence in a game format offers a new avenue for psychological exploration and intervention.
- Through this process, we learned the power of combining psychological research with game design. The insights drawn from the NIMH study were instrumental in guiding our ideation and development phases, and the end result is a set of games that can contribute to a better understanding of the mind while providing entertainment and mental training.

***THIS IS THE HOME PAGE:***

## CHOOSE A GAME



GUESS THE EMOTION



CITY OR MOUNTAIN



LEFT OR RIGHT



NOW OR LATER

Play Fun Games!

## Guess the Emotion

Choose the emotion that matches the expression!



Happy

Sad

Angry

Surprised

**Correct!**

Restart Game

***GUESS THE EMOTION***

## City or Mountain Game

Click the city image!



Your response time: 390 ms

Restart Game

***CITY OR MOUNTAIN***

## Left or Right Game

Guess the middle arrow direction!



Correct! The middle arrow is ←.

Restart Game

**LEFT OR RIGHT?**



## Now or Later?

Offer increased to ₹10000! You can wait longer or take it now.  
There is a 19% chance you lose all money!

**Current Offer: ₹10000**

Take Money Now

Wait for Later

You took ₹10000 now!

Play Again

***NOW OR LATER***



# A FUN LITTLE TWIST:

## CHOOSE A GAME



GUESS THE WORD



TIC TAC TOE



SCRATCH GAME



GUESS THE NUMBER

# ***PRESENTED BY:***

- B24CE1047:- ANURAG PATIL
- B24CE1048:- ROHAN H MALI
- B24CE1049:- ISHA S PATIL
- B24CE1050:- PARTH CHAUDHARI

***THANK YOU!!!***