TRAINING YOUNG CHILDREN TO IMPROVE THEIR EMOTIONAL INTELLIGENCE

comp-263 human-computer interaction

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[Year]

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# Introduction

The objective of our project is to help young children train their Emotional Intelligence (EI). Emotional Intelligence (EI) is linked to success in academic performance and private life, as it enhances skills like communication and Self-Regulation. Children are subject to an incredibly wide variety of emotional stimuli without always having the means to make sense of or deal with them. Via an interactive game, we aim to provide real opportunities for children, with the support from their parents to bond and develop important skills.

Our product is an application/game made with Visual Programming, aimed at developing key EI components like Self-Awareness, Self-Regulation, Motivation, Empathy and Social Skills. Young children, along with the help of their parents can choose from a variety of games specifically created to target the key factors mentioned previously.

# Literature Review

Emotional intelligence (EI) plays a critical role in children’s development, especially during early childhood when foundational emotional and social skills are formed (Denham et al., 2011).

High EI is linked to improved relationships, academic success, and emotional well-being. It also acts as a protective factor against behavioural problems, including aggression (Gao et al., 2023).

Fiori and Vesely-Maillefer (2020) emphasize that EI consists of measurable mental abilities, such as identifying, understanding, and managing emotions. These are skills that can be strengthened through intentional learning experiences. Research supports using technology as a scalable and engaging method for delivering EI-related content, especially when it includes elements like emotional modelling, feedback, and storytelling (Pons et al., 2015; Karabekiroğlu et al., 2024).

Crucially, parent-child relationships provide a foundation for emotional growth. Children learn best when they engage in co-regulated emotional experiences with a caregiver (Zhou et al., 2020). Therefore, digital tools that embed joint activities or encourage emotional reflection between parent and child hold particular promise.

Cultural and developmental considerations must also inform the design of any digital intervention. Emotional expression and parental practices differ across cultures, and age-appropriateness ensures children can meaningfully interact with and benefit from emotional content (Yıldız, 2015; Zhang et al., 2022).

It is important that any game or app designed to support EI be tailored to the developmental level of the child and account for cultural contexts that shape emotional expression and regulation. Research from diverse populations, such as studies conducted in China and Turkey, supports the generalizability of EI-based interventions across cultures but also points to the need for customization (Zhang et al., 2022; Yıldız, 2015).

Gao et al. (2023) investigated the relationship between emotional intelligence and aggressive behavior in children. Their study confirmed that higher emotional intelligence is associated with lower levels of aggression, mediated through both positive and negative effects. Children who can understand and regulate their emotional experiences are less likely to exhibit reactive or proactive aggression. The authors highlight that EI enhances resilience, helping children manage negative emotions in constructive ways. This underscores the potential of emotionally focused interventions—including games and digital apps—as preventive tools for emotional and behavioral issues.

A screenshot of a game

AI-generated content may be incorrect.

Figure 1: Example of existing games for EI training.

# 

# Phase 1 – Identify User Needs and Establish Requirements

## 1.1 Identify User Needs

**Typical Users**:

* Primary users: Children aged 5–8 years old
* Secondary users: Parents, Teachers (as supervisors)

**Data Gathering Activities**:  
We created a short questionnaire for parents to understand the emotional challenges children face. Key questions included:

* How does your child express emotions?
* In what situations does your child struggle to regulate emotions?
* How often do you use digital tools with your child?

We created a short questionnaire for teachers to understand the emotional challenges children face. Key questions included:

* Where you teached about Emotional Intelligence during your studies?
* Do you implement Emotional Intelligence activities in the classroom?

**Other Techniques**:  
We also used observation of children’s play habits and consulted early childhood education professionals.

**Comparison to Existing Systems**:  
Compared to existing EI games like those from *MentalUP*, our app emphasizes:

* Parent-child interaction
* Personalization (avatars, names)
* Scenario-based learning

**Advantages**:

* Encourages reflective learning
* Encourages bonding between parent and child

**Disadvantages**:

* Requires parental involvement (which may not always be available)
* Limited content at the prototype stage

**Personas and Scenarios**:

**Persona 1**:

* Name: Andreas
* Age: 6
* Likes: Cartoons, games, animals
* EI Challenge: Gets easily frustrated when plans change

**Scenario**:  
Andreas plays the game with his dad. He reads a prompt: “I feel \_\_\_ because my best friend didn’t come to school.” Andreas selects "sad", and his dad helps him relate the feeling to a past experience, strengthening emotional vocabulary.

## 1.2 Extract Users’ Requirements

**Functional Requirements**:

**FR1.** User login/sign-up for parent

**FR2.** Account creation for children

**FR3.** Select and play emotional recognition games

**FR4.** Track score

**FR5.** Display emotional vocabulary prompts

**FR6.** Leaderboard or score tracking

**FR7.** Avatar selection and customization

**Non-Functional Requirements**:

* Simple, child-friendly UI
* Security & Privacy: Compliance with COPPA, GDPR for child data protection
* System should be available 99% of the time
* Fast response time (under 2s per interaction)
* Support for parental controls and guidance

## 1.3 Decide on the basics of the design

* Interface type: WIMP (Windows, Icons, Menus, Pointers), with touch compatibility
* Input devices: Touchscreen or mouse/keyboard
* Output devices: Screen (monitor, laptop)
* Technical Restrictions: Must run on low-spec hardware
* Platform: Devices running Windows OS

# Phase 2 – Define Usability Goals and Design The System

## 2.1 Define usability goals

* Efficiency: Game should be completed within 10 minutes.
* **L**earnability: Children should understand how to play within 1–2 interactions
* Memorability: The design should be memorable for repeat usage
* Error Tolerance: The game should guide the user gently when incorrect responses are chosen
* Satisfaction: Ensure bright visuals and fun characters to keep children engaged

## 2.2 Define user experience goals

* Engaging: Visuals and sounds that keep attention
* Empathetic: Prompts that encourage emotional connection
* Empowering: Reinforce correct answers with positive feedback
* Social: Encourage shared play between child and parent
* Safe: Ensure emotionally sensitive design and protect children's data

## 2.3 Produce a system design/prototype

# Phase 3 – Evaluate the System Design

## 3.1 Select and justify the evaluation method(s) you will use

To evaluate your prototype design you may select between usability testing, field studies, and analytical evaluation, the approach(es) you consider most appropriate for your system’s evaluation. Justify your decision.

## 3.1 Plan and perform evaluation

You should perform the necessary evaluation planning, select your evaluation team and submit the final evaluation report.

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* Figure 1: https://www.mentalup.co/blog/what-is-emotional-intelligence