AI – Based Therapy Application Where Doodles Share Their Feeling

Avinash Jadhav[1], Rinal Achkarpohre[2], Divyani Bhoyar[3,] Nidhi Burde[4], Pritam Behare[5], Prof. Rahul Kadam[5]
[1,2,3,4,5] *Nagpur Institute of Technology, Nagpur, India, Department of Information Technology*

***Abstract*—Hearts Where Doodles Share Their Feeling is an Artificial intelligence based android application that contributes to children growth between ages 2–5 . Nowadays especially in nuclear family's where parents are both working kids hardly get any opportunity to communicate their feelings. Which creates a barrier between parent and kid resulting into selective mute, delay in speech, anxiety or other emotional disorders. We built an app which lets kids create their feelings by doodling.**

***Index Terms*—AI-based Emotion Recognition, Art Therapy, Early Childhood Development, Emotional Intelligence, Creative Expression, Story Generation.**

I. INTRODUCTION

A. Brief History of Childhood Emotional Development

From ages two through five years old, children learn their most important foundations for social/emotional development. Children create their EI, Emotional Intelligence, which is defined by a set of psychological components that allow us to recognize, understand, and manage our own emotions and the emotions of those around us. An individual's EQ can determine their success later on in life and is linked to social competence, academic success, and psychological health. Selective Mutism: Refusal to talk in specific social situations that demand speaking (e.g., in school) despite talking in other situations (e.g. At home)

Speech Delay: A general delay in developing and using language skills that is limiting for expression of complicated feelings.

Anxiety and emotional detachment: Some evidence of the developmental lack of other coping mechanisms. The child may withdraw, or display distress beyond usual limits.

MAIN PURPOSE OF PROJECT: The purpose of this project is to investigate the therapeutic benefits of doodle hearts and to gain a better understanding of how this form of art therapy can benefit children in relation to their emotional well-being, to discover areas in which there are shortcomings in the application and to create recommendations for their improvement.

B. Concept & Technological Methodology

Conceptually, the Doodle Heart program is an emotionally intelligent digital companion, The core idea is that the program's intelligence is centered around its capability to process nuanced, amorphous, non-verbal data, i.e., the doodle, and translate that information into structured, verbally expressed and emotionally sensitive feedback, i.e. The story. Mechanistically, the process will rely on a fusion of three key technologies:

Image recognition technology powered by Artificial Intelligence (AI) (Computer Vision): Convolutional neural networks (CNNs) trained on datasets of children's drawings would process the information to assess several features within a doodle, namely; the predominance of deep, dark or bright, pastel color hues; the texture of the lines; is the child using many sharp, jagged lines, or gentle, flowing lines; the pattern and shape within the drawing, such as contained, repeated patterns, or discombobulated arrangements. These factors would enable an objective categorization of the predominant emotion as, say, happiness, sadness, confusion or anxiety. Natural Language Generation (NLG): An NLG module would receive an emotional classification and accompanying input data to autonomously produce an age-appropriate story that is reflective of the emotions it perceives.

However, art therapy also has limitations that need to be discussed.

C. Limitation of Conventional Art Therapy; although effective, traditional art therapy has its limitations in terms of resources.

The expensive and time-consuming nature: A typical art therapy sessions usually take place offline under the supervision of expert art therapist, counselors, or educator, which involve human interaction and consequently take a large amount of time, money and cannot be afforded by the majority of low- and middle-income families.

It cannot be practiced easily for working parents: As working parents, their working hours and the times they can use to recognize child's emotions and engage in therapy session are narrow, so they usually miss chances.

The subjectiveness of interpretation: Doodle interpretations could be varied and sometimes a client's feelings are misinterpreted.

Lack of standardized assessment; culturally sensitive; emotional risks; accessible and supported; limitations in group vs solo context; less scientific studies/validity.

II. RESEARCH METHODOLOGY

A. Overview

The research methodology of Doodle Hearts - Where Doodles Express Feelings follows the methodology of Design Science Research (DSR). DSR is based on the systematic development of an innovative and relevant Information Technology (IT) artefact- in our case the AI-powered mobile application along with its back-end intelligence- to solve a significant problem in real life- helping young children to communicate their emotions.

1. Research Objective

State clearly what is the overall objective or problem statement your project intends to answer. Example: To determine the efficacy of Doodle hearts as a conventional art therapy modality. The findings of this research can be useful for professionals in the mental health field, therapists, as well as individuals that look for an alternative to emotional healing techniques. It is possible to conclude this research can offer an additional method in helping to establish clear guidelines to the practice of doodling art therapy in communities and clinical settings.

B. Methodology flow for the project

[Research objective]
[Literature review]
[Data collection]
[Materials and tools]
[Procedure]
[Data analysis]
[Validation and reliability]
[Ethical issues]
[Conclusion]

C. Enhancements to the project

There are several improvements that can be made to the project. Here are some examples:

1. Introduction of digital technologies
2. Personalization and adaptability of the application
3. Introduction of multimodal therapy methods
4. Quantification and qualitative data analysis
5. Scalability and access to more people
6. Empirical basis of therapy methods
7. Live biofeedback input
8. Modules of teaching and training

III. LITERATURE REVIEW

A. Introduction

Art therapy is broadly identified as a means to support mental health and emotional well-being by fostering the process of creation.

B. Art Therapy's Tradition and Doodling

The methods commonly employed in traditional art therapy incorporate facilitated work in modalities such as sculpting or drawing.

C. Benefits and difficulties

Research findings suggest that doodling can be a beneficial technique to support improved emotional expression, mood regulation and an accessible avenue to emotion.

D. Technological Integration in Art Therapy

Recent progress has involved investigation into using technology as a means to enhance art therapy accessibility and also use artificial intelligence in data analysis [7].

E. Areas for Future Research

More robust, empirical studies need to be conducted in order to establish reliable protocols, procedures and measurement scales.

REFERENCES

[1] Mental Health Benefits of Doodling and Drawing. Available: https://www.healthline.com/health/mental-health-benefits-doodling

[2] Art Therapy for Psychosocial Problems in Children. Available: https://pmc.ncbi.nlm.nih.gov/articles/PMC7578380/

[3] Benefits of Creative Arts Therapy for Children with ADHD and Autism. Available: https://xceptionallearning.com

[4] Why Doodling is Magic - Benefits for Kids. Available: https://www.thepositiveplanners.com

[5] How Doodle Art Can Support Social Emotional Learning. Available: https://ashimaart.com

[6] Art Therapy Benefits on Children's Mental Health. Available: https://www.euroschoolindia.com

[7] Digital Art Therapy Case Study Using Digital Media. Available: https://pmc.ncbi.nlm.nih.gov/articles/PMC10187545/