Interacting with Your Childhood-Self: A Web-Based Platform for Self-Attachment Technique (SAT)

MEng Project Presentation

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Problem definition

1 in 6 people have mental health problems

Up to **162 days** of waiting time

Shortage of professionals and funding

What is SAT

Self-Attachment Therapy:

- **Explores** how early relationships with caregivers shape an individual's emotional and psychological development
- **Focuses** on fostering a sense of self-love, self-compassion, and emotional regulation
- **Improves** feeling of self-worth and reduces symptoms of anxiety and depression

Image: https://www.todayonline.com/singapore/healing-childhood-trauma-what-child-needs-feel-safe-again-after-abuse-adverse-experiences-2407466

SAT Protocol Techniques

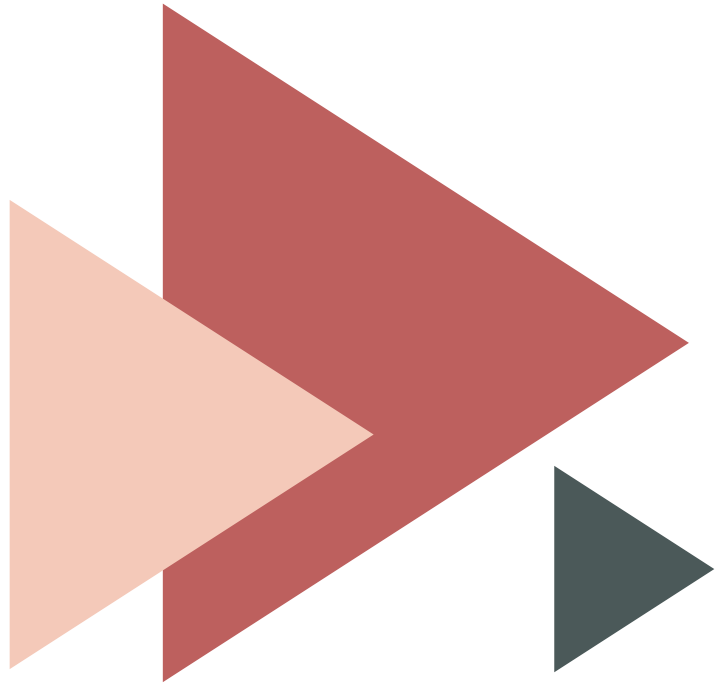
- **Visualisation**: Imagining oneself as a child and providing comfort, guidance, and love to that inner child.
- **Affirmations**: Using positive affirmations to reinforce self-worth and self-acceptance.
- **Journaling**: Writing about one's feelings, experiences, and progress to gain insights and track emotional growth.
- **Therapeutic Dialogue**: Engaging in internal dialogues where the adult self interacts with the inner child, offering reassurance and support.

Image: https://www.counselling-directory.org.uk/memberarticles/nurturing-the-inner-child

Objectives: SatProtocol.online

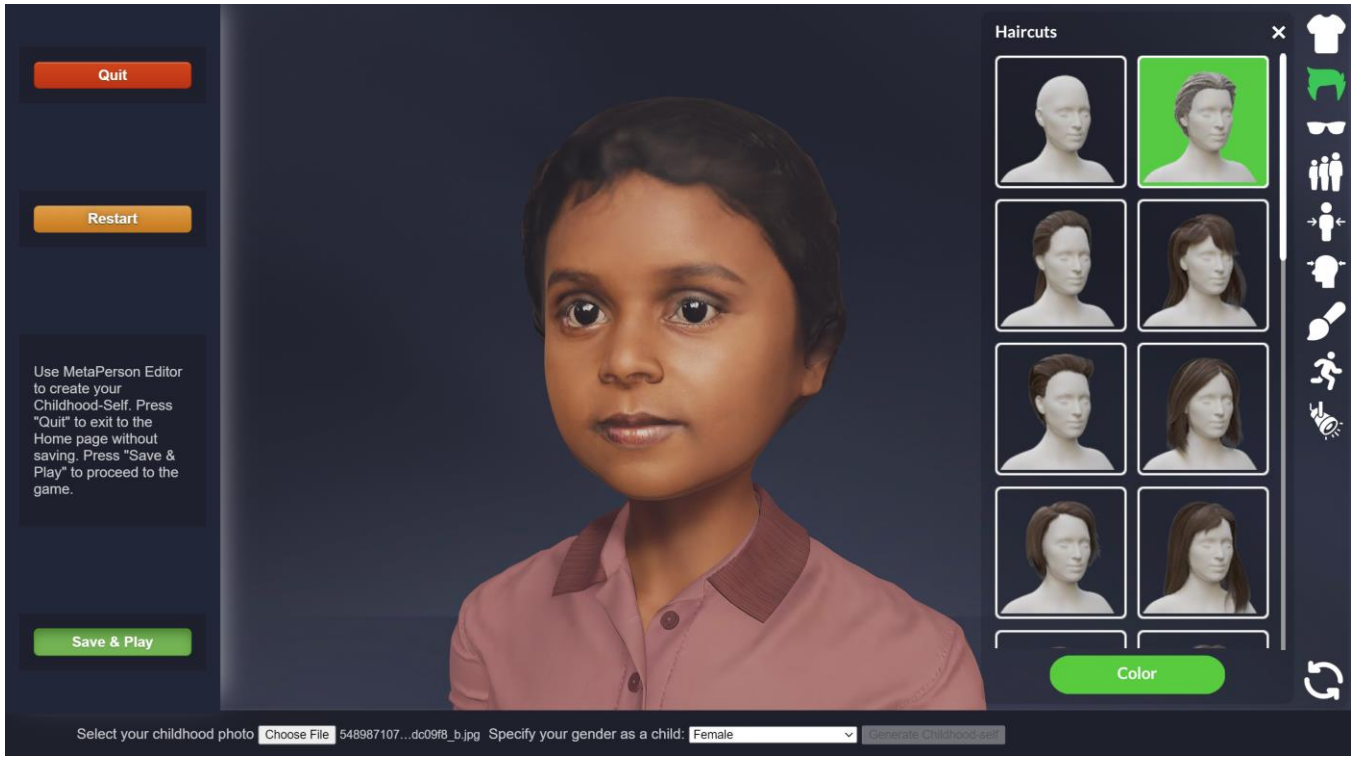
WebGL Viability Investigation for SAT (week 1-2 of the protocol)	• Platform Independence (OS + Web Browser) • Web App Human Trials
Interactive App with Realistic Child Avatars	• Avatar Customizations • Graceful Animations
Scalable and Robust Design	• Performance and Download Speed • Flexibility of Content Supplementation

SatProtocol.online – DEMO (video)



- `SatProtocol.online` is indeed *online*
- Can be played at http://satprotocol.online/

Childhood-Self Editor



- Generates human avatars from picture
- Customized Integration of Metaperson Creator
- Extensive Personalisation
  - Clothes & Accessories
  - Body + Facial Features
  - Hairstyles and Colours

Powered by AVATAR SDK

Interactive SAT Exercises Playground

- **Emotion Visualisations for SAT**

  Portraying emotions w/ body animations and non-verbal signals

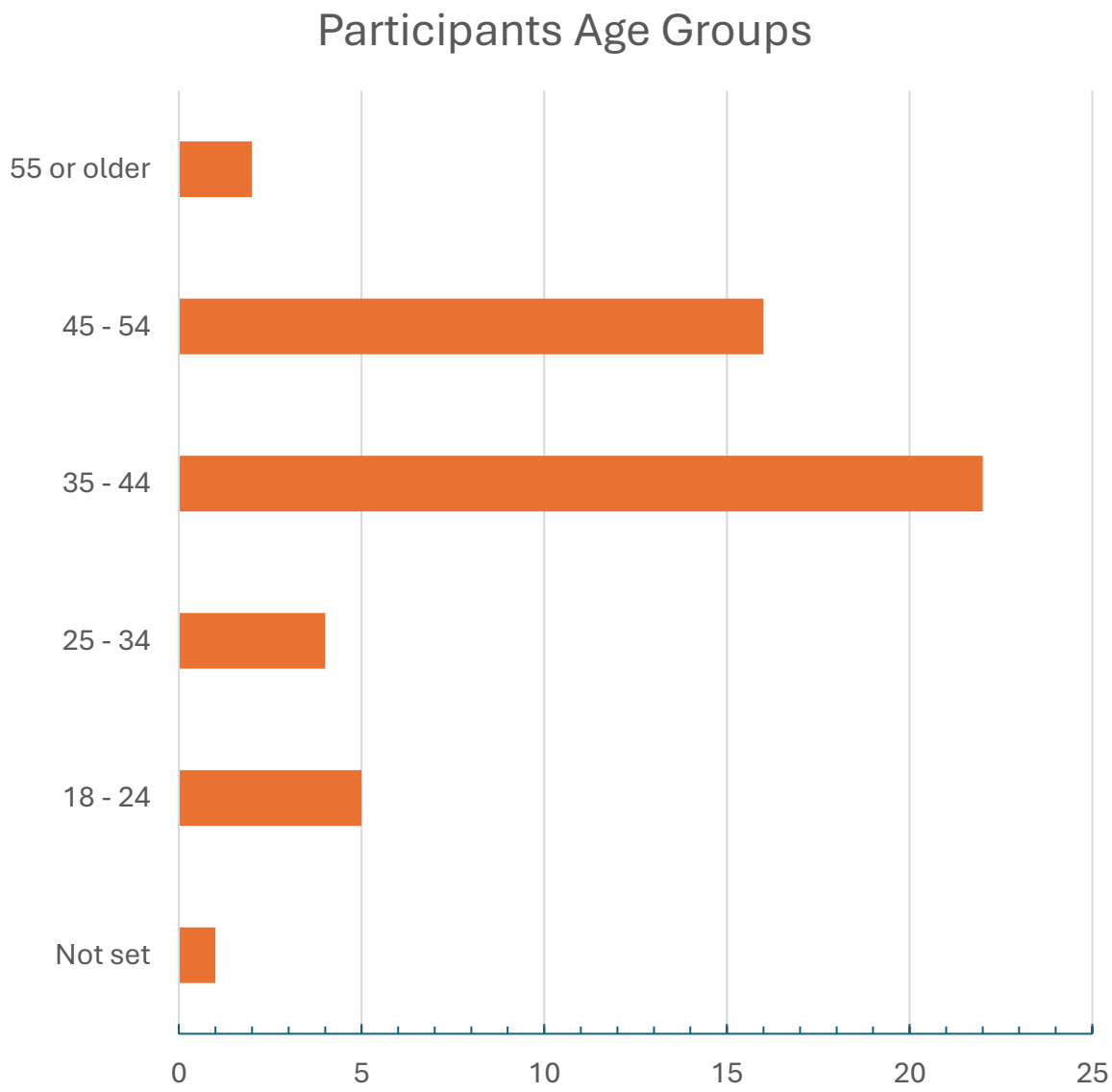
- **Flexible Behaviour Interface**

  Unified and extensible child behaviour programs powered by Unity coroutines

- **Lifelike Animation Flow**
  - Smooth transition between animation clips played by the child
  - Animation resource management w/ Unity Scriptable Objects
  - Caching animation clip collections

Non-Clinical Human Trials

- **N = 50** respondents* performed the usability testing of the application.
- Survey Design Features:
  - **Quantity**: Likert 0-100 scale slider
  - **Quality**: Binary w/ Open End option
  - **Ethics**: Informed Consent + Anonymity
- Validity Threats:
  - **Assistance**: guided vs independent tests
  - **Sampling Bias**: older age skewness
  - **External**: participants awareness of SAT



* The number displayed is a more recent update including late attendants. The population of N=49 have been reported on 17/06/2024 in the thesis document.

Survey Results

Females made up **56%** of population and tend to:

- Rate loading speed and frame rate *as* ***areas to improve***
- Find the UI more **intuitive**
- **Enjoy** the Child Avatar Editor

Males, the **44%** of respondents, were more often ***satisfied*** with gameplay and performance than females.

Most ***critical*** demographic was middle age group: the ***45-54 y.o.*** who made up **32%** of population.

The **overall** 0-100 scale rating:

- *Child-self* ***Editor:*** **71.60**
- *Avatar* ***Realism:*** **60.74**
- *Quality* ***Animations:*** **73.08**
- ***Graphics:*** **66.41**
- ***Controls:*** **70.24**

25% reported **issues** of varying severity. Many **solved** by refreshing the page. Some implied by WebGL **limitations.**

Platform Independence and Compatibility

Operating System choice

is up to user, but it must be ***desktop***.

Windows 8-11 , MacOS, and Linux are supported

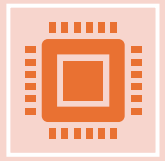
(tested on Ubuntu 20.04)

Web Browsers *matter*:

Google Chrome *is the most recommended*

Firefox *supports WebGL, but differently which requires careful unification. Same applies to* ***Microsoft Edge****, Chromium and Vivaldi.*

Safari *is not supported. MacOS users must install another option.*



Hardware: WebGL uses GPU in web and benefits from good specs.

Intel Core i5 + 8GB RAM is a safe lower bound.

Many old machines can handle the game. Claimed by participants, but not verified.

Making the survey more friendly for non-techie users was a ***higher priority****. Asking specs could reduce retention.*

Project Summary:

Project Highlights:

- WebGL tested and shown viable in a form of production-deployed game
- High attendance on non-clinical Human Trials. Live app can be seamlessly shared
- Open-Source contributions to the AvatarSDK projects

Image: https://www.freepik.com/premium-vector/person-looking-forward-future-challenges-through-spyglass-strategy-vision-concept-woman-searching-new-ideas-opportunities-flat-vector-illustration-isolated-white-background_34027367.htm

Project Summary:

Limitations and Challenges:

- *Implementation distinctions among browsers affect renders and behaviour*
- *Reliance on external AvatarSDK and its API create tight dependency to be discussed*
- *Current version is not sufficient to perform all week 1-2 SAT exercises*

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Project Summary:

Future Work:

- Fixing everything revealed in trials, as well as unfinished SAT features.
- Housekeeping, employing Unity VC, automated pipelines, documentation for AHD successor
- Porting related AHD projects to WebGL, in particular Sean Ng's app

Image: https://www.freepik.com/premium-vector/person-looking-forward-future-challenges-through-spyglass-strategy-vision-concept-woman-searching-new-ideas-opportunities-flat-vector-illustration-isolated-white-background_34027367.htm


Thank you for watching

References:

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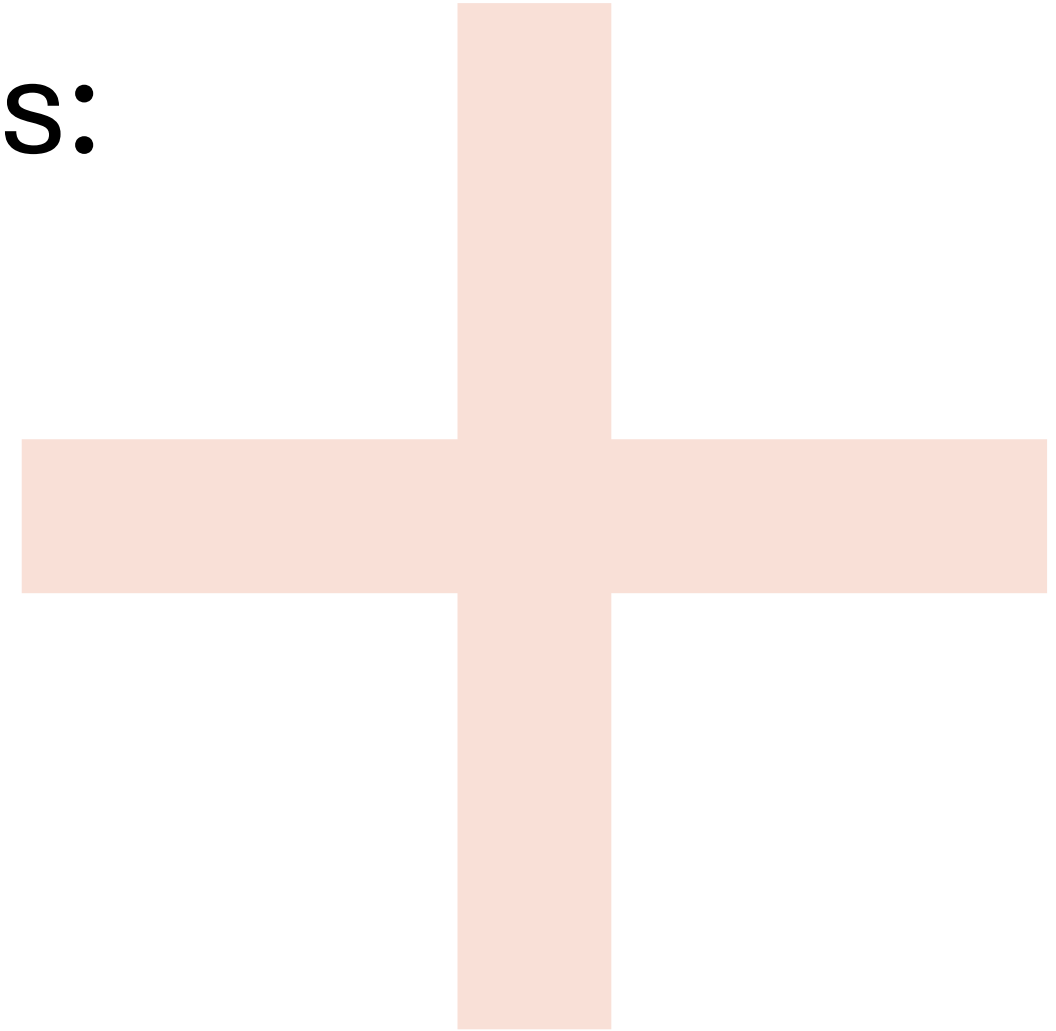
Appendix Slides:



Threats to Validity: AvatarSDK's iframe

Unexpected content update that added Saudi clothes

- ***From survey:***

  Q4) The avatar editor did not contain any elements inappropriate for children (e.g., unacceptable clothing)

  ~~1) Yes~~ **2) No (please give details)**

> *"Not sure, that boys can wear Thaub at this young age"*

Image: https://www.istockphoto.com/photos/saudi-thobe