Research Portfolio

Tanushree

Mix-Method Researcher | UX Reseacher
Research Associate, IIIT Hyderabad

About me

I am Tanushree. I have completed my **MSc in Cognitive Sciences** with a specialisation in Affective Neuroscience from the Centre of Behavioural and Cognitive Sciences, Allahabad. I have also completed **BSc in Mathematical and Computer Sciences** from Deen Dayal Upadhyaya College, University of Delhi.

I am passionate about behavioural research. I am grateful and excited in equal measure to be part of impactful research studies every single day. **Currently** I am working as a Research Associate in Cognitive Science Lab, IIIT Hyderabad where I am managing three projects on memory and context. I am also working as a UX intern at Spatial Guide, where I am responsible for making and analysing surveys, researching AR onboarding experiences, conducting usability testing and more.

My research interest is to understand how the interaction between emotional experiences and cognitive processes influence our behaviour and decision-making process. I hope to use my prior training in enhancing experiences and being part of research which will impact lives.

Research Study 1:

Game-Based intervention training
for Obesity in Young Adults
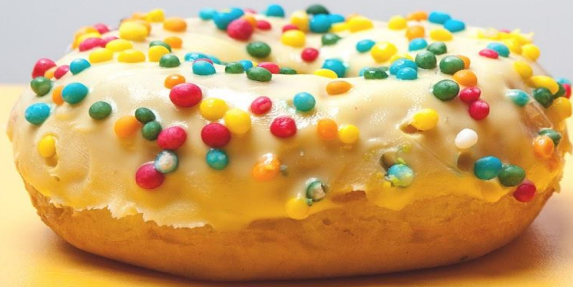
Tanushree (PI)
Prof Bhoomika Rastogi (Co-PI)
20/08/2021

About the Study

[Several studies](#) have shown that childhood self-control results in better grades, self-esteem and the likelihood of having better health in future. It protects against chronic illness, criminal behaviour, addiction, obesity etc.

This study aims to develop an inhibitory control training intervention for young adults with food-related cues to improve their executive functions i.e. expected to increase the activity in their prefrontal lobe, altering their reward network in the brain.

Quantitative Methods

Picture Rating Survey	Questionnaire Assessment	Usability Testing	Behavioural Experiments

Research Details

Research Questions

1. Which paradigm is measuring self-control?

2. Are obese participants making more errors in the intervention than non-obese participants?

3. Are obese participants making more food-cues errors than neutral cue errors?

Phase 1: Picture Rating Task

186 images were rated by 30 participants on the following parameters for standardisation:

- Category
- Familiarity
- Valence
- Arousal
- Complexity

Duration: 50 mins to 1hr

Remote Mode

Phase 2: Experimentation (along with questionnaire)

Questionnaires

1. BIS/BAS scale
2. Rosenberg Self-esteem scale
3. Barratt Impulsivity scale

Participants were recruited online for the following tasks:

2a. Between two paradigms (n=40)

2b. Obese and control groups (n=32)

Duration: 40 mins

Inhibitory Control Go-No/Go Paradigm

Go-No/Go (GNG)paradigm: Measures inhibitory control (or self-control) by presenting two different varieties of stimuli in a 70:30 ratio in rapid progression. Participants are instructed to click on one type of stimuli while skipping the other.
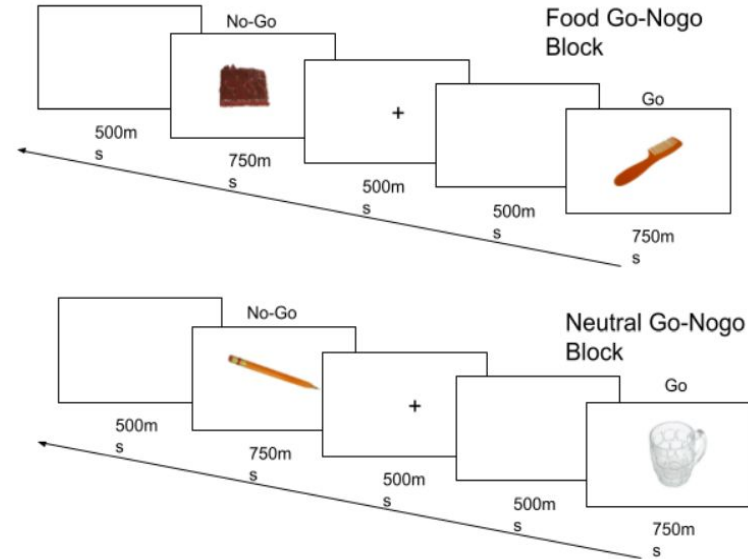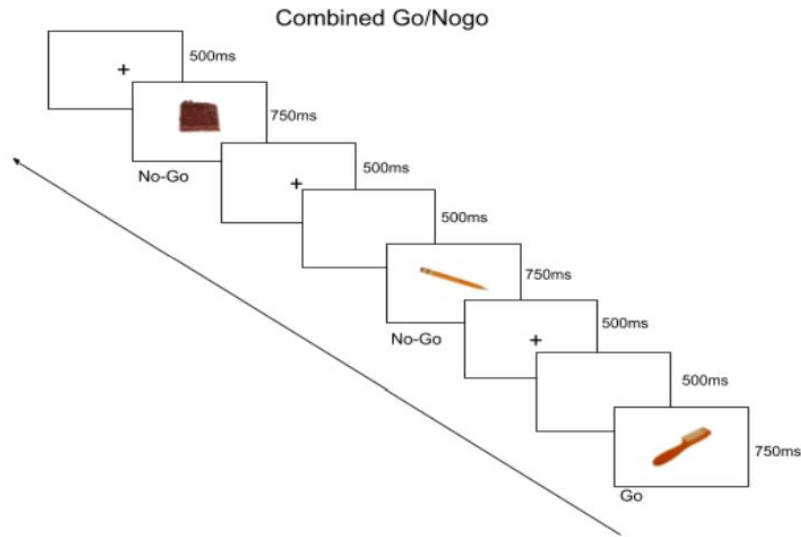
2a. Two variations of this paradigm were tested (n=40) and SeparateGNG (right) showed better results.

2b. 12 obese and 20 non-obese participants completed the SeparateGNG task along with questionnaires.

Research Insights

Phase 1: Picture Rating Task

1. Display progress bar.
2. Three 10 mins breaks should be replaced with six 5 mins breaks.

Phase 2a: Paradigm Selection

1. SeparateGNG design closely resembles the traditional GNG design, hence a better choice for intervention.

2. High errors in neutral stimuli.

Phase 2b: Obese vs Non-Obese

1. Errors made by the obese participants are higher than non-obese. However, no significant difference between the two groups in food related errors.

2. Obese participants: Significantly higher reward sensitivity and lower self-esteem than non-obese participants.

Limitations

1. BMI has several flaws. Waist-to-Height ratio or Body fat percentage should be used instead.
2. Low sample size in Experiment 2b.
3. Low grade obese participants have been included.

Recommendations

1. Stationery objects share high similarity with household objects, hence another category should be used (recommendation after testing: transportation).
2. Timing the meal duration before experiment.

Research Study 2

Behavioural Changes due to shift from Physical Courts to Virtual Courts

Tanushree, Project Lead
Niti Mantan
20/02/2021

About the Study

During the pandemic, legal hearings were forced to go virtual without proper infrastructure and digital literacy. On one hand, several lawyers were unprepared due to inequitable access to technology and resources, on the other hand, some lawyers saved time, could argue in several courts at once and got time to spend time with family. It compromised the behavioural and social abilities of some lawyers, but helped other lawyers stay more productive.

This study aims to understand the attitude of lawyers about their cognitive and behavioural changes. This explored their ability to pay attention, stay focused in home environment, their ability to empathise with victims, struggles of arguing without body language, technological challenges, social constraints to name a few.
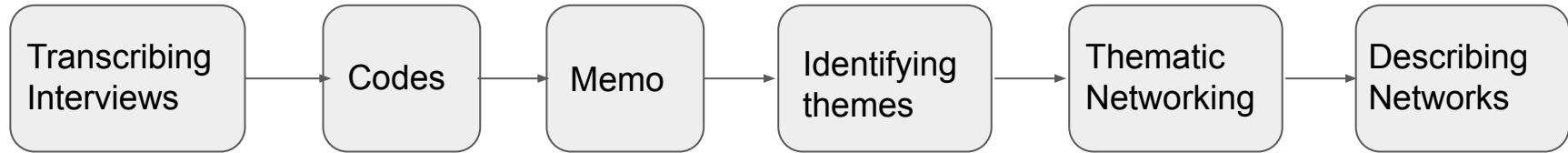
Qualitative Methods

Personas	Questionnaire Preparation	Semi-structured Interview	Thematic Analysis	Affinity Mapping

Methodology Process

- 11 supreme court and high court lawyers were interviewed on phone. (Duration: 20 mins)

Transcribing Interviews → Codes → Memo → Identifying themes → Thematic Networking → Describing Networks

Interview questions explored following topics:

1. Background of researcher: Experience, technical training, digital comfort.
2. Personal and work-life balance: attention, productivity, lethargy, boredom at home due to comfort or presence of family members, infrastructure at home, extended work hours etc
3. Technological Challenges: Internet issues, difficulty managing files etc
4. Suggestions

My Contribution: Training interns, preparing interview questionnaire with supervisor, interviewing lawyers, data analysis, writing methodology and result section of the report.

Insights

Personal life and work-life balance:

1. Extended working hours.
2. Financially weak lawyers share room with family; causes disturbance.
3. Disturbance when someone forgets to mute.
4. Lack of social interactions and feedback from seniors.

Advantages

1. Increase attention level and productivity.
2. Less stressful due to no traffic and travelling.

Technological Aspect:

1. Most lawyers didn't receive any training.
2. Missed meetings due internet breakdown
3. Audio-Video Fluctuations
4. Electricity Breakdown
5. Unorganized waiting queues in video calling conference calls.

Advantages

1. Easy to carry, upload and download documents.
2. Young lawyers find it mostly convenient.

Major Suggestions

1. Required training for all lawyers.

2. Common video calling platform for all courts and tribunals.

3. Option to hide self-tiles during video calls.

4. Installation of large screens to assess body language.

5. Good for disposal of trivial cases but not for serious cases due to multiple witnesses and cross-examinations.

Limitations

1. Due to telephonic interviews, some lawyers may not feel comfortable sharing everything.

2. 20-30 mins maybe too long for some.

3. A few sentences were blurred out due to network issues.

4. Since only lawyers were interviewed, the opinions of judges and the presiding officers remain overlooked.

Thank you

Contact me at tanu.s@cbcs.ac.in for more information regarding the projects