Thesis Title

by

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Declaration of Authorship

I hereby certify that the work presented here is, to the best of my knowledge and belief, original and the result of my own investigations, except as acknowledged, and has not been submitted, either in part or whole, for a degree at this or any other university.

City, Date

Signature

Eidesstattliche Erklärung

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Datum

Unterschrift

Abstract

Acknowledgements

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1. Introduction

- what is space and its representation in the brain
- what is spatial navigation
- role and place of distance in navigation
- hypothesis
- why studying this hypothesis
- we are looking at role of distance in the accuracy and RTs in the pointing task
- what can be done further on this topic

2. Methodology

2.1. Experimental Design

- are there any questionnaires used in the study?

2.1.1. City

This study is conducted in a virtual reality (VR) city with the area of about 1 km^2. The city is consisted of # of buildings buildings, from which 4 are landmarks. 56 of the buildings are used in the experimental task of this study. 28 are shops `(context meaningful)` and 28 are normal buildings `(not context meaningful)` are these numbers correct? the landmarks are also in task, right?. These 56 buildings are distinguishable by the avatars [or agents?] in front of them and an artwork on one of their walls. Avatars belonging to shops take the pose of an act according to the functionality of that store `(meaningful)`, e.g., has a book in the hand in front of a bookstore, or are just standing in front of the building `(standing avatar)`. The artworks on the shops are also depicting the kind of the shop.

- FIG: include a map

2.1.2. Application and Technology

- option of English or German
- participant id
- unity version
- blender version
- htc vive headset
- SRanipal version
- index valve controller

2.2. Exploration

- 5 exploration sessions
- each session 30 minutes
- free walking and exploring
- sitting on a chair
- walking via joystick, rotation via body

2.3. Experimental procedure

- 1 experimental session [mean duration?]
- tutorial
- blocks
- randomization
- number of the whole trials [336?]
- calibrate, validate eye tracker [how many times?]
- [when is the pause?]
- trial's procedure details
- 30s max length of trial
- add the time of countdown appearance - laser beam
- horizontal movement is locked. Only rotation on the chair they are sitting on is allowed
- photos from buildings with and without avatars (target to point to)
- ability to center the photo
- cancellation and confirmation of the selected direction
- avatars are present in the city during the task
- 28 starting locations that are spread throughout the city are used for the tasks
- using fade when transporting participants to another location to avoid inducing motion sickness and leaking environmental information
- eye tracking data is gathered
- behavioral data is gathered
- include photo

2.4. Participants

- total number of participants
- gender
- average + standard deviation of age
- [were all of them uni students?]
- written consent
- compensation
- whether anyone was excluded (if yes, why?)
- due to Covid-19 pandemic sessions are conducted according to the laboratory hygiene regulations and with a mask [under 2G rule?]

2.5. Analysis method

- preprocessing - trial removal criteria
- check the assumptions for analysis?
- linear mixed models (anova parameters: depvar='absolute_180_angles', subject='subject_id', within=['starting_loc_id'])
- maybe the analysis can be done also with RT as dependent variable?
- maybe other analysis methods

3. Results

- reporting the results of the analysis
- add figures

4. Conclusion

- in case there are differences found between starting locations discuss the reasons
- if there are previous studies, compare the results
- discuss limitations and suggest improvements if needed
- summarize conclusion

5. References

Appendix

Appendix A.

Collected Variables

list of variables gathered + explanation

Appendix B.

Plots

plots that are not used but could be informative

Appendix C.

Shops

list of shops with their functionalities

Appendix D.

Experimental protocol

the complete experimental protocol