GeoViSense

“Improving spatial knowledge acquisition from geographic information displays: EEG and virtual reality experiments”

**Information Sheet & Consent Form**

Dear participant,

You are invited to participate in an experiment entitled “Improving spatial knowledge acquisition from geographic information displays: EEG and virtual reality experiments” conducted by **Bingjie Cheng, PhD student (044 63 55154, bingjie.cheng@geo.uzh.ch)**, Dr. Ian Ruginski (044 63 55255, iantanner.ruginski@geo.uzh.ch), Prof. Dr. Sara Irina Fabrikant (044 63 55150, sara@geo.uzh.ch), and in the Geography Department at the University of Zurich in Switzerland.

**Aim of the study**

The purpose of this study is to investigate how people understand mobile map displays while making navigation decisions.

**General information**

The test session will take place in the Department of Geography, University of Zurich, Zurich, at the Geovis Lab (Y25-J84), and will require approximately **90 minutes** of your time.

**Study financing**

This study is funded by the European Research Council (ERC) Executive Agency (ERCEA).

**Test procedure**

See the separate procedure sheet.

**Voluntary participation**

Your participation in this study is entirely voluntary. You may withdraw your consent to participate in this study at any time without providing notice or reason. In event of cancellation, the data collected up to the time of cancellation may be still used. You can ask any questions you have about the study at any time. Please address your questions directly to the local experimenters or to the persons listed above.

**Inclusion and exclusion criteria**

Any healthy adult may participate in this experiment. An age-limit is imposed only to ensure that the volunteers can easily comply with the experimental methods required for the aim of the study. Furthermore, the exclusion criteria listed below ensure that our statements are derived from a population who can comfortably complete the experiment.

**- Inclusion criteria**

* Healthy adult
* 18-35 years old

**- Exclusion criteria**

* You don’t feel well and have one of the following symptoms: cough, fever, headache, difficulty breathing or shortness of breath, loss of taste or smell etc. (COVID-19)
* You belong to a risk group of COVID-19: cancer, cardiovascular disease, chronic respiratory diseases, diabetes etc.
* History of neurological disorders such as epilepsy or migraines
* History of psychiatric disorders such as depression or schizophrenia
* History of head or brain surgery.
* You are currently pregnant or believe you may be pregnant.
* Under any medication or drug that may influence the nervous system, such as anti-depressants, aspirin, painkillers, or Ritalin

**Obligations of the participant**

* You will be expected to carefully pay attention to the experimenters’ instructions.
* You must immediately express any uncomfortable experience during the experiments.
* You must inform the experimenters in case of any changes in health status that may affect your inclusion in the study.

**Information of safety related to COVID-19**

* Participants have to wash their hands with soap before the experiment.
* Participants have to wear masks during the experiment.
* The experimenters have to wear masks during the experiment.
* The devices used in the study are disinfected after testing each participant.
* You must wash your hands with soap before starting the experiment.
* You must wear a mask throughout the study. The mask will be made available to you if you do not have the appropriate material. Hand disinfectant is also provided.
* The experimenters wear masks during the study.
* The devices used in the study are disinfected before and after the study.
* You must immediately report any unpleasant experiences during the experiments.
* You must inform the investigators of any changes in your state of health that may affect your enrolment in the study.

**Benefits to the participant**

This study offers no direct benefit to the participant.

**Risks to the participant**

Prolonged stereoscopic viewing of large-screen projections may result in dizziness, akin to sea sickness. We will provide you with frequent breaks and a glass of water to lower the chances of this so-called motion sickness.

Epilepsy patients or people who are known to have cases of epilepsy in the family are excluded from the study. In people who are not known to have epilepsy, the light patterns of the projection can also cause sudden symptoms. If one of the following symptoms occurs while viewing stereoscopic 3D images, do not hesitate and inform the investigator who will abort the trial:

* twitching of eyes or muscles, muscle spasms
* severe dizziness, nausea

**Changes to information provided**

Any changes in the study that may affect the safety of your participation or your privacy shall be informed to you in writing.

**Data confidentiality**

This study involves recording your personal information. All data are coded by replacing the names with a code and are made anonymous. Furthermore, your name will never be used in any of our reports and publications. All collected data will be kept encrypted and stored on secure media protected by a password only known to researchers listed above.

The personal information provided here is stored for a period of 10 years due to a legal obligation. A local ethics committee may examine the information during this period. All of the information is stored in a locked laboratory space and on a highly secure server at the Department of Geography in the University of Zurich.

**Costs**

The entire study will not incur any direct costs to the volunteer.

**Compensation**

You will be compensated at the rate of **10 CHF per every 30 minutes** and **a bonus up to 10 CHF** depending on your task performance.

**Termination of participation**

Your participation will be cancelled,

* if you are unable to understand or adhere to the instructions of the experimenters.
* if changes in self-reported health status do appear that fit the exclusion criteria.
* if you choose to withdraw from our study. Should you wish to withdraw from the study, your records will be deleted.

**Damages**

This is a low risk study, and we are not insured for any damage that may occur to you during the experiment. However, if you wish to attribute any form of physical or mental annoyance to the study, please contact us immediately. We shall assist you the best we can and provide you with a clinical consultation if necessary.

**Contact persons**

If anything is unclear or worrisome, or in case of emergencies that may occur during or after the study, you may contact one of the following persons:

* **Bingjie Cheng, PhD student (044 63 55154, bingjie.cheng@geo.uzh.ch)**
* Dr. Ian Ruginski (044 63 55255, iantanner.ruginski@geo.uzh.ch)
* Prof. Dr. Sara Irina Fabrikant (044 63 55150, sara@geo.uzh.ch)

**INFORMED CONSENT**

1. I have been given enough time to read the information sheet on the experiment, and all my questions regarding this experiment have been satisfactorily addressed.
2. In a case where I am unable to read this document or give written consent, I confirm to have received this information orally.
3. I understood the requirements of the experiment and agree to participate in this study.
4. In case of a professional group member:

Administrators and supervisors from my organization will neither be present during the study  
 nor have access to raw data or transcripts. This precaution will prevent my individual   
 responses from having any potentially negative repercussion.

1. My participation is voluntary and I have not been forced to participate in any way.
2. I understand that I can withdraw my consent to participate at any time during the study.
3. I understand that my data in their anonymized form will be used towards research only and may be publicly reported.

8) In the event that an abnormal activity is identified from electrodermal brain activity data that indicates a possible health hazard, I would like the experimenters (please choose one option):

□ do not inform me of the danger

□ inform me directly: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

□ Inform a third party whose contact details can be found on the following website: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. I understand that a local ethics committee may examine my personal details to check the activities of this research study.
2. I understand that under all circumstances my personal information shall be treated confidentially.
3. I understand that the study leaders in the interest of the study may cancel my participation at any time.
4. I understand that I must adhere to the instructions of the experimenter and fulfil the requirements outlined in the information sheet.

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| --- | --- |
| Place (city), Date | Signature of the **participant** |
|  |  | |

🞎 The participant has received the information contained on this form orally, upon request.

**Declaration of the experimenter:** I certify that I have explained the nature of the study and how the data will be used from this experiment to the volunteer. I have also encouraged the volunteer to seek clarification about the experiment and his/her rights. If there are any changes through the course of the experiment that affect the volunteer, I shall inform him/her immediately and seek approval. I certify that this study adheres to all legal obligations and is compliant with the national rules and international guidelines on human experimentation.

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| --- | --- |
| Place (city), Date | Signature of the **experimenter** |
|  |  |