



93405R



Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Scholarship 2025 Psychology

RESOURCE BOOKLET

Refer to this booklet to answer the questions for Scholarship Psychology.

Check that this booklet has pages 2–8 in the correct order and that none of these pages is blank.

YOU MAY KEEP THIS BOOKLET AT THE END OF THE EXAMINATION.

RESOURCE A**Can language restructure cognition?**

Frames of reference are coordinate systems used to specify the location of objects with respect to other objects. Recent work by Majid and Levinson (2004) shows that the use of such frames in language, cognition, and gesture varies cross-culturally. This suggests we need to rethink the relationship between the neurocognitive underpinnings of spatial thinking and language.

The photo below can be used to describe relative and absolute frames of reference (FoR). In the Relative FoR, the viewer's perspective is used, giving rise to descriptions such as 'the fork is to the left of the spoon'. Notice that if you go around to the other side of the table, the fork is now properly described as 'to the right of the spoon'. In an Absolute FoR, an external framework is applied instead. This can be composed of cardinal directions such as north–south–east–west, as used by speakers of Arrernte (Australia), or an uphill–downhill axis like the one used by speakers of Tzeltal (Mexico). So, as a speaker of Arrernte you would say 'the fork is to the north of the spoon', and as a Tzeltal speaker 'the fork is uphill of the spoon'; unlike in the Relative FoR, the same description is applied to the scene from whichever side it is viewed.



Relative: The fork is to the left of the spoon
Absolute: The fork is to the north of the spoon

RESOURCE B

Ash's planned research study

Hypothesis

Based on the study by Majid and Levinson (2004), we hypothesise that spatial memory and navigation skills will differ between bilingual and monolingual groups. Additionally, we hypothesise that the use of absolute spatial language (cardinal directions) enhances spatial memory and navigation skills compared to the use of relative spatial language (left, right).

Method

Participants

- Sample size: 200 participants, divided into two groups of 100 each.
Group 1: Bilingual migrants to New Zealand
Group 2: Monolingual English speakers
- Sampling method: Stratified random sampling to ensure diversity in age and gender within each group.
- Inclusion criteria: Participants must be fluent in English and have no known cognitive impairments.

Materials

- Virtual maze: A computer-based maze where participants navigate in first-person perspective, following the instructions spoken to them by the researcher, who will be seated behind them. For absolute spatial language testing, a compass will be displayed on the screen, and the required direction of movement is given as North / South / East / West. For relative spatial language testing, the required direction of movement is given as left / right / forward / turn around.
- Recall test: Participants will be asked to recall the path they took in the maze.

Procedure

1. Randomly assign participants within each group to one of two conditions:
Condition A: Receives instructions using absolute spatial language.
Condition B: Receives instructions using relative spatial language.
2. Training session: Provide a brief training session on the respective spatial language terms and the use of the maze.
3. Navigation task: Participants navigate the virtual maze using the provided instructions.
4. Recall test: Immediately after the navigation task, participants complete a recall test to describe the path they took.

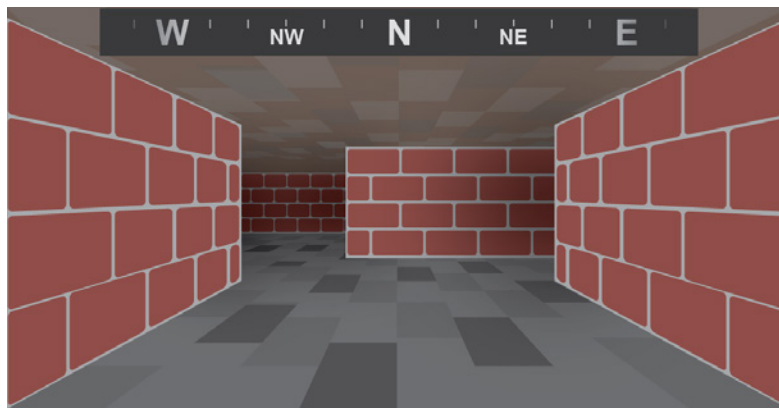
Data Collection and Analysis

- Data collection: Record the time taken to complete the navigation task and the accuracy of the recall test.
- Analysis: Compare the performance of the two groups across the two conditions.

Reliability and Validity

- Reliability: Ensure consistency by using standardised instructions and tasks. Conduct a pilot study to refine the procedure.
- Validity: Use validated tests for spatial memory and navigation skills. Ensure the virtual maze is designed to minimise external variables.

By including two distinct groups of participants, this method allows for an examination of how spatial language impacts memory and navigation skills across different cultural and linguistic backgrounds.



RESOURCE C**ADHD – memory training**

Working memory training is unlikely to be an effective treatment for children suffering from disorders

or improve their cognitive skills.

“The success of working memory training programs is often based on the idea that you can train your brain to perform better,

within these tests.”

Researchers from the University of Oslo and University College London

such as verbal skills, attention, reading, or arithmetic.

In recent years,

and scholastic attainment.”

RESOURCE D**Mobile phones – learning and memory**

The following is a summary of Tanil and Yong (2020), which investigated the effect of the presence of smartphones on learning and memory.



Mean memory accuracy between low phone salience (LS) and high phone salience (HS) groups (n=199) $p < 0.05$



RESOURCE E**Eyewitness testimony**

Facing difficult, frightening, and emotional events can trigger a subjective and physiological stress response from an eyewitness (Bornstein & Robicheaux, 2009).



an excerpt from the results is shown below.



Fig 1: Experiencing stress while trying to remember something (i.e. at retrieval) impairs memory retrieval



Fig 2: Stress experienced during an event (i.e. at encoding) enhances memory for central details of the event, but not for peripheral details



Fig 3: The memory of trained professionals, such as police officers, will be less affected by stress than the memory of normal eyewitnesses

Acknowledgements

Material from the following sources has been adapted for use in this assessment:

Resource A

Language and cognition – [https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613\(04\)00020-8?cc=y%3Fcc%3Dy](https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(04)00020-8?cc=y%3Fcc%3Dy)

Resource C

ADHD – <https://www.apa.org/news/press/releases/2012/05/memory-training>

Resource D

Mobile phones – <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0219233>

Resource E

Eyewitness testimony – <https://link.springer.com/article/10.3758/s13421-020-01115-4>