CALL FOR PARTICIPATION

UKICER 2021

RIPPA: Spatial Skills and Computer Science (1/2)

September 2 - 3, 2021, Glasgow, UK

http://www.ukicer.com

OVERVIEW

This RIPPA aims to find out whether a) first-year students with better spatial skills have better programming skills (regardless of teaching environment or method) and b) whether improving first-year students' spatial skills improves their programming skills (regardless of teaching environment or method)

SPATIAL SKILLS AND COMPUTER SCIENCE

Research into spatial skills and computing science (CS) has flourished in recent years, with several recent studies exploring the relationship. Spatial skills have been associated with success in computing courses and specific domains of computing (like source code navigation and expression evaluation) and training spatial skills has been demonstrated to improve CS outcomes for early-stage students. Low spatial ability also appears to be related to demographic groups with historically lower participation and outcomes in CS programmes: those from lower socio-economic status backgrounds and women. Hence spatial skills research can potentially be of high value for our discipline.

To date these studies have involved only a handful of individual institutions. We have an opportunity to deliver some relevant and topical research in this area by conducting a large-scale, multi-institutional investigation into the nature of spatial skills in relation to our introductory computing courses. This work will strengthen our knowledge of spatial skills' relationship with CS and help to determine if, when and how directed spatial skills training should be conducted.

The goal of this project is to understand more about the role of spatial skills across a one-year period for entry-level CS students across multiple institutions. In particular, we would like to discover whether correlations between spatial ability and success in CS hold when examined across multiple, varied institutions, whether spatial ability changes over a period of CS instruction and how spatial ability exhibits in different demographic groups.

OVERVIEW OF ACTIVITY

Participation in this project requires that you can:

- Conduct three spatial skills tests (each lasting about half an hour) across the academic year with students in introductory computing.
- Collect naturally occurring student data, including final course grades, course choices and demographic information.
- Apply for ethical approval if your institution requires it (the University of Glasgow is working towards blanket approval, but and will support institutions with specific requirements).
- Contribute to analysis and

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OVERVIEW OF ACTIVITY

Participation in this project requires that you can:

- ***Conduct three spatial skills tests*** (each lasting about half an hour) across the academic year with students in introductory computing.
- ***Collect naturally occurring student data***, including final course grades, course choices and demographic information.
- ***Apply for ethical approval if your institution requires it*** (the University of Glasgow is working towards blanket approval, but and will support institutions with specific requirements).
- ***Contribute to analysis and dissemination activities*** (as other commitments allow).

The input from students required for this study is limited: testing their spatial skills and collecting grades and demographics. Thus, the work for each participant required is low, but the potential contribution of the collective work is high.

IMPORTANT DATES

There will be a drop-in information session on Mon 9th August at 15:00 BST, with the first project meeting will take place a week later. If you can't attend, contact the project lead (Jack Parkinson) for a discussion. Subsequent meetings will be at UKICER, then in December and May 2022.

August 9, 2021:
Drop-in information sessions
August 16, 2021:
Start-up workshop
September 2, 2021
Interim Workshop
December, 2021:
Interim Workshop
May, 2022:
Capstone Workshop

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