Seeing, using and experiencing greenspace

Tony Craig[1], Anna Conniff[1], Sander van Der Jagt[2] and Megan Watson[3]
[1]The James Hutton Institute, Craigiebuckler, Aberdeen, AB15 8QH
[2]Department of Psychology, University of Aberdeen, Aberdeen, AB24 3FX
[3]Department of Public Health and Nutrition, University of Aberdeen, Aberdeen, AB24 3FX
Email: tony.craig@hutton.ac.uk

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Introduction

The importance of greenspace to our health and wellbeing is recognised. This research seeks to understand some of the underlying mechanisms, using a variety of different methodologies e.g. reaction time studies, physiological responses, eyetracking and accelerometry.

A key theory for our research is Attention Restoration Theory (Kaplan and Kaplan, 1989), which posits that natural scenes are more restorative than built scenes because less directed attention is required to process them. However, there is relatively little direct evidence to support this claim, nor has the multimodal (sights, sounds, smells etc.) nature of greenspace experience been the focus of much previous research.

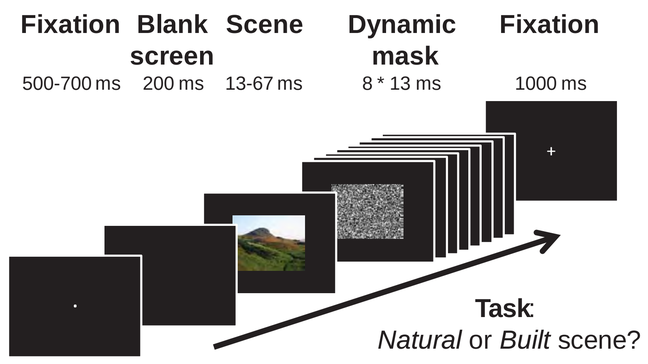
To address these issues, we are undertaking three complementary strands of research in this programme:

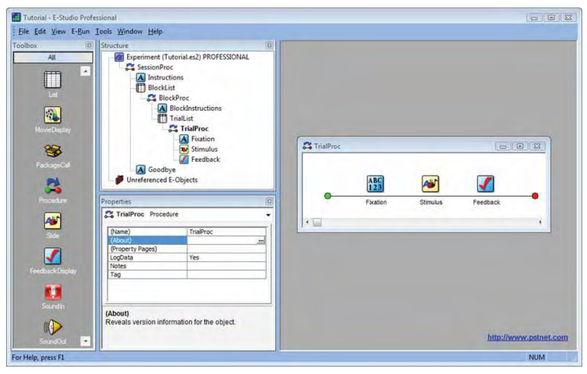
- Laboratory-based controlled experiments measuring factors such as reaction time and accuracy in response to attention demanding stimuli.
- Exploratory laboratory and in situ studies gathering eye gaze and physiological responses.
- Field-based data gathering exercises using methods such as GPS, pro-diaries and accelerometry.

Acknowledgements:
Special thanks go to volunteers and participants in our studies.

Methods

Lab-based studies are run using e-prime software for precisely timed presentation of stimuli and recording of responses.



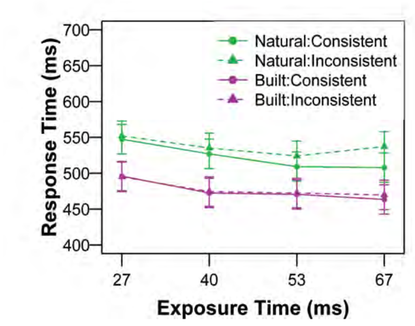


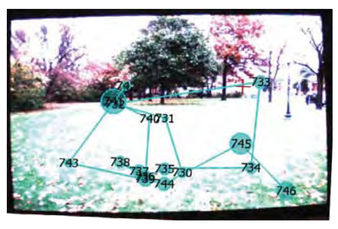
Eye gaze and pupil diameter information is recorded using a portable head-mounted SMI iViewX eyetracker.

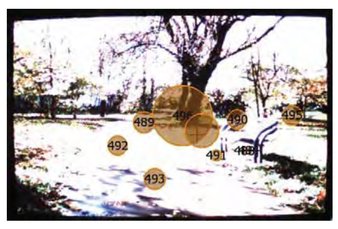
Accelerometry and GPS data are recorded by small portable devices worn by participants. Physiological responses (skin conductance, heart rate, respiration rate) are recorded via static and portable devices.

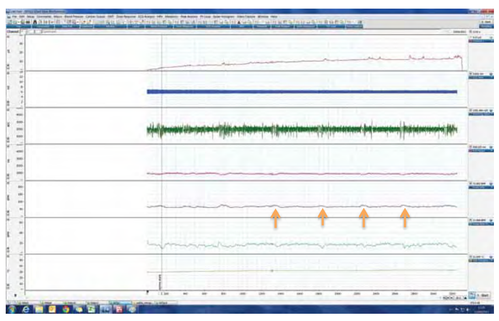
Results

Built scenes are detected significantly faster than natural scenes, supporting Attention Restoration Theory.

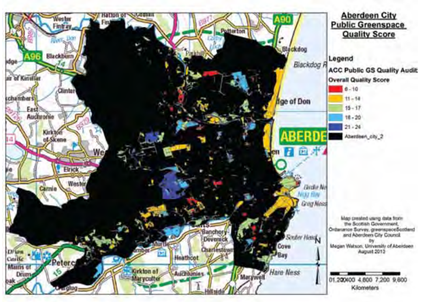


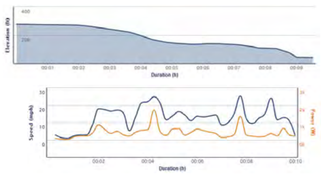


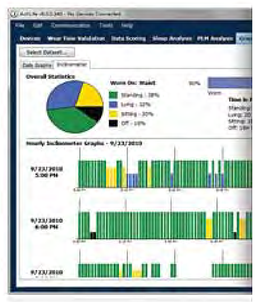




No main effect of sound on an attentionally demanding task (backwards digit span) but a main effect of image type, suggesting that restorative effects are affected by the type and quality of greenspace.







GIS analysis has explored greenspace availability by level of deprivation, and found that deprived areas have more access to greenspace, but that it tends to be of significantly lower quality than in affluent areas.

Conclusions

- There is value in using a broad range of methodological approaches in exploring the complexities of person-greenspace interactions.
- However, the volume and variety of data collected makes integrative analysis a challenge.
- Next steps include:
  - Pilot eyetracking methodology in situ.
  - Integrate GPS, accelerometer and pro-diary data.
  - Develop the methodological portfolio to include the subjective and emotional experiences of participants.