

# Insights *for* Impact

The annual report  
of the Policy Research Group  
in the Department of Psychology

2017

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Downing Street  
Cambridge  
CB2 3EB

[reception@psychol.cam.ac.uk](mailto:reception@psychol.cam.ac.uk)  
[www.psychol.cam.ac.uk/pol-res-group](http://www.psychol.cam.ac.uk/pol-res-group)

Edited by Kai Ruggeri

#### Contributors

Thomas Lind Andersen, Amel Benzerga, Jana Berkessel, Lana Bojanić, Hamish Evans, Adrian Garrido Zurita, Adriana González Pizzio, Renata Hlavová, Johanna Immonen, Hannes Jarke, Lenka Knapová, Kamilla Knutsen Steinnes, Marvin Kunz, Silvana Mareva, Olatz Ojinaga Alfageme, Alessandro Paul, Nejc Plohl, Gerhard Prinz, Andrijana Radukić, Annalisa Robbiani, Julia Stuhlreyer, Felicia Sundström, Carlos Verdejo

Insights for impact (Print)  
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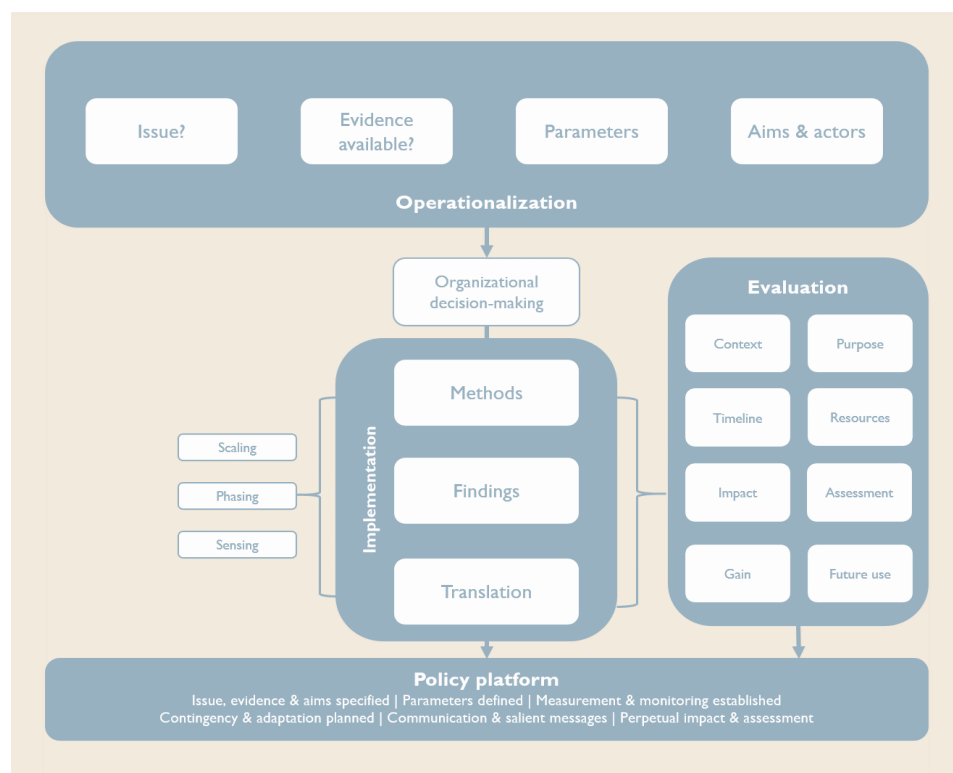
This report is the second in a planned long-term series. Any comments made are solely for the purpose of presenting findings already disseminated through standard scientific channels. Their presentation or representation should not be considered as original research property of those involved in the report, the policy research group, the department of psychology, the school of biological sciences, or the university. They are strictly for engaging audiences and do not constitute an endorsement of quality, validity, or value.

# Introduction

Thank you for your interest in the 2017 Insights for Impact report from the Policy Research Group in the Department of Psychology at the University of Cambridge. As with our 2016 report, we have built this over several months with primary effort carried out by the early career professionals of the Junior Researcher Programme. For 2017, we were also thrilled to have contributors from one of the JRP partner institutions, the University of Francisco de Vitoria in Madrid, Spain.

Since our last report, there has only been continued interest in the role of psychological science in major policy interventions. Unlike in 2016, where we had a universal focus on the field, the 2017 report highlights findings from work carried out by academics and affiliates from the behavioural, cognitive, social, and brain sciences in Cambridge, primarily within the Department of Psychology. The following pages highlight the diversity of those insights, with a shift in presentation from public engagement to fundamental scientific value. The report includes the highly-recognised work on major social dilemmas such as climate change and proenvironmental behaviour, as well as our traditional areas of impact in cognitive assessments for populations.


Over 50 studies were submitted from over 20 research groups across the Department. The pages that follow present a brief glimpse at some of the most compelling findings selected to highlight for policy and other applications. We hope you find it an insightful and informative volume, and we look forward to launching further iterations of this report in the years to come.



# Health and healthcare

**PREVENTION**  
of Traumatic Memories

Administering Tetris shortly after a traumatic event competes for mental imagery resources and disrupts the development of intrusive memories.




**10 minutes of Tetris** was associated with nearly a

**50%**

decrease in intrusive memories

Playing Tetris up to six hours after a traumatic childbirth was associated with a 48% reduction in the number of intrusive memories the subsequent week. A similar approach could potentially be used on intrusive memories from long **past events**.

**ASSESSMENT**  
of Alzheimer's Disease

**850,000** People diagnosed with dementia in the UK

Total cost of care for people with dementia in the UK **£26.3B**

**70%** People in care homes suffer from dementia or severe memory problems




**CANTAB-test battery** has been found to distinguish between AD patients and healthy individuals up to **3 years** before a diagnosis

Early detection of AD is associated with benefits in terms of both economic and patient outcomes.



**CAREGIVERS**  
Support

Being a family caregiver in palliative home care is both physically and emotionally straining. Without guidance, caregivers suffer from psychological distress and an increased mortality rate.




The **Carer Support Needs Assessment Tool** can help identify support needs to find suitable solutions

Assessing and addressing caregivers' direct emotional and informational needs has the potential to improve both the **well-being** of the caregivers and the **care of the patients**.

## Intrusive memories

Intrusive memories in the form of reoccurring mental images are central to clinical posttraumatic stress. Administering computerised puzzles shortly after the traumatic event competes for mental imagery resources and disrupts the development of intrusive memories<sup>1,2</sup>. In such way, engagement with a computerised puzzle reduces the recurrence of traumatic memories and can thereby prevent posttraumatic stress. Promising experimental results suggest that the same approach may also work for old memories, if they are recalled in a controlled way<sup>2</sup>.

Early detection of Alzheimer's disease (AD) is crucial for effective treatment. Difficulties in visual and spatial processing are used as indicators of the early stages of AD. Using the CANTAB-test battery, we can predict and distinguish between future AD patients and healthy individuals up to three years before the diagnosis of AD<sup>3,4,5</sup>. Identifying AD patients at an early stage is associated with substantial benefits in terms of both patient and economic outcomes<sup>6,7</sup>.

## Screening for Alzeheimers

## Caregiver

Being a family caregiver in palliative home care is both physically and emotionally straining. Without proper guidance and support, caregivers suffer from psychological distress and increased mortality-rate<sup>8</sup>. Screening using caregivers' direct emotional and informational needs helps improve the well-being of the caregivers and the care of the Carer Support Needs Assessment Tool helps both the clinician and the carer to identify key areas of support needed. Assessing and addressing end-of-life home-patients<sup>9</sup>.

# Development

## **SCHOOL READINESS** encompasses 4 domains:

Language and cognition



Behavioural adjustment



Family support

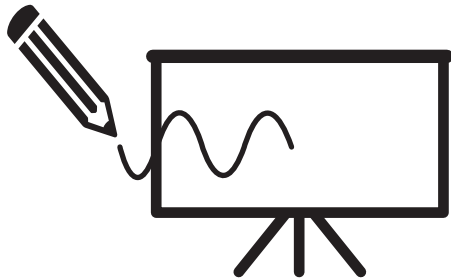
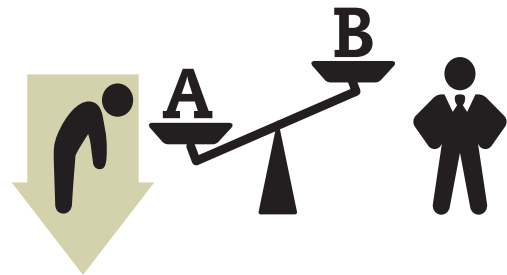


Daily living skills



## **PERSONAL RELATIVE SENSE OF DEPRIVATION**

Originates from a sense of resentment stemming from social comparison. Physical and mental health outcomes, such as general health and depression, have been found to be better predicted by people's personal sense of deprivation than by objective or subjective socioeconomic status (SES).



## **SUSPICIOUS CHILDREN**

Compared with their peers, suspicious children have indicated elevated rates of anxiety, low self-esteem, aggression, and antisocial traits. Given the link between paranoia and social problems in adults, developing measures of mistrust could help identify and support children at risk of long-term negative outcomes.

# Insights

## School readiness

Recent work has highlighted the value of considering non-academic factors such as family environment when assessing school readiness, thereby suggesting a need for a broader perspective of the concept. Brief Early Skills and Support Index is an easy to administer school readiness tool that encompasses children's personal characteristics, such as behaviour, language skills and daily living skills, as well as the family background. BESSI can help identify children at risk of falling behind in school, including those with poor family support<sup>10,11</sup>.

Physical and mental health outcomes, such as general health and depression, are better explained by people's personal sense of deprivation than by objective or subjective socioeconomic status (SES)<sup>12,13,14</sup>. Interventions aimed at improving physical and mental health need to address not only income inequality, but also people's subjective feelings of injustice.

## Deprivation

## Suspiciousness

Compared with their peers, mistrustful children report elevated rates of anxiety, low self-esteem, and aggressive behaviours. Mistrustful children are more likely to display high levels of mistrust in school than at home<sup>15</sup>. Addressing this issue is of extreme importance since suspiciousness or mistrust may signal vulnerability for future psychosis and inadequate behaviours, such as partner abuse<sup>15,16</sup>.

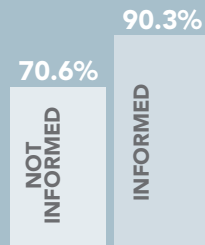
# Society and social challenges



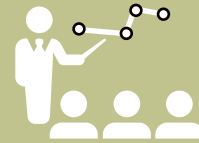
## CLIMATE CHANGE

There seems to be general agreement that human-caused climate change is a reality, but the general public has become polarised due to the influence of misinformation.

## RECEPTIVENESS TO MISINFORMATION



Warning people about the existence of vested interest groups that try to spread fake news has been found to make people less receptive to misinformation.



## SCIENCE COMMUNICATION

The communication of scientific findings to the wider public is believed to be influenced by social judgments made on the basis of the scientist's facial appearance.

If the scientist appears competent, moral, and...



**attractive**

There tends to be more **public interest** in the research.



**unattractive**

The research tends to be perceived as more **high quality**.

The effects of facial appearance on the public's perceptions might introduce a potential source of bias in the public's understanding of science.

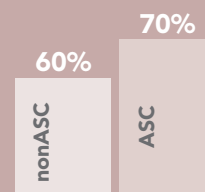


## DECISION MAKING

People's choices about two similarly attractive alternatives are often influenced by the context in which they are presented. When faced with such choices, individuals with autistic spectrum conditions (ASC) have been found to experience reduced sensitivity to the context.

Individuals with ASC have been found to make more consistent decisions and to be less likely to be biased by contextual information. This could have various implications for their functioning within society.

## CONSISTENT DECISIONS





## Climate change

The scientific community has reached a near-unanimous consensus on the reality of human-caused climate change, but the general public has become increasingly polarised on the issue, in part, due to the influence of fake news and disinformation campaigns. Preventatively warning people about the existence of vested interest groups that try to cast doubt on the public consciousness about climate science reduces polarisation, increases science acceptance, and makes people across the ideological spectrum less receptive to misinformation<sup>17</sup>.

The communication of scientific findings to the wider public is affected by social judgments made on the basis of the scientist's facial appearance. Scientists who appear competent, moral, and attractive create a stronger public interest in their work, whilst those who appear competent and moral but relatively unattractive and unsociable may create a stronger impression of doing high-quality research. These effects of facial appearance on the public's perceptions introduce a potential source of bias in the public's understanding of science<sup>18</sup>.

## Science communication

## Decision making

People's choices about two similarly attractive alternatives are often influenced by the context in which they are presented. When faced with such choices, individuals with autistic spectrum conditions (ASC) experience reduced sensitivity to the context. This effect leads to more consistent decision-making at the price of failing to incorporate the potentially useful contextual information. This could likely have implications for the economic, social, and legal functioning of people with ASC<sup>19</sup>.

# Comparative neuroscience

A series of studies indicates that ravens and monkeys might have comparable mental capabilities in:

- **Causal Reasoning**
- **Flexibility**
- **Imagination**
- **Prospection**



Monkeys' brains have been found to weigh three times more than ravens' brains but...

**3x**



...ravens' brains have been found to have more neurons than monkeys' brains.

Using a touch-screen platform to study the cognition of mice has been found to:

- **Ensure simple testing**
- **Require less experimenter contact**
- **Facilitate the comparison of results**
- **Enable multiple rodents to be tested simultaneously**

The tasks used are similar to those employed to test human cognition.



## RAVENS VS. MONKEYS



## TOUCH-SCREEN PLATFORM

A line of experiments on the complex mental capabilities of corvids (i.e. birds within the crow family) indicates that their cognition closely resembles—and may even rival—primate cognition.

Consequently, corvids represent a novel arena for animal research on executive functions, which could foster a better understanding of human brain and cognition <sup>23, 24, 25</sup>.

Computerised tasks are increasingly used in human studies of cognition and have now been customised for rodents. This platform has the potential to improve studies of rodent models of psychiatric diseases, as well as help advance the characterisation of their brains. Ultimately, this platform may facilitate the translation of animal studies to human clinical settings <sup>20, 21, 22</sup>.

The use of animal models can help us understand cognitive mechanisms. To translate the results to human models, the cognitive tasks and administration protocols would ideally be similar.

**Comparative studies such as these have important implications in furthering our understanding of higher cognitive functions and for translation to human studies.**

# References

- <sup>1</sup>James, E. L., Bonsall, M. B., Hoppitt, L., Tunbridge, E. M., Geddes, J. R., Milton, A. L., & Holmes, E. A. (2015). Computer game play reduces intrusive memories of experimental trauma via reconsolidation-update mechanisms. *Psychological Science, 26*, 1201-1215. doi:10.1177/0956797615583071
- <sup>2</sup>Horsch, A., Vial, Y., Favrod, C., Harari, M. M., Blackwell, S. E., Watson, P., Iyadurai, L., Bonsall, M. B., & Holmes, E. A. (2017). Reducing intrusive traumatic memories after emergency caesarean section: a proof-of-principle randomized controlled study. *Behaviour Research and Therapy, 94*, 36-47. doi:10.1016/j.brat.2017.03.018
- <sup>3</sup>Blackwell, A. D., Sahakian, B. J., Vesey, R., Semple, J. M., Robbins, T. W., & Hodges, J. R. (2004). Detecting dementia: novel neuropsychological markers of preclinical Alzheimer's disease. *Dementia and Geriatric Cognitive Disorders, 17*, 42-48. doi:10.1159/000074081
- <sup>4</sup>Nestor, P. J., Scheltens, P., & Hodges, J. R. (2004). Advances in the early detection of Alzheimer's disease. *Nature Reviews Neuroscience, 5*, S34-S41. doi:10.1038/nrn1433
- <sup>5</sup>Didic, M., Felician, O., Barbeau, E. J., Mancini, J., Latger-Florence, C., Tramoni, E., & Ceccaldi, M. (2013). Impaired visual recognition memory predicts Alzheimer's disease in amnesic mild cognitive impairment. *Dementia and Geriatric Cognitive Disorders, 35*, 291-299. doi:10.1159/000347203
- <sup>6</sup>Getsios, D., Blume, S., Ishak, K. J., Maclaine, G., & Hernández, L. (2012). An economic evaluation of early assessment for Alzheimer's disease in the United Kingdom. *Alzheimer's & Dementia, 8*, 22-30. doi:10.1016/j.jalz.2010.07.001
- <sup>7</sup>Prince, M., Knapp, M., Guerchet, M., McCrone, P., Prina, M., Comas-Herrera, A., Wittenberg, R., Adelaja, B., Hu, B., King, D., Rehill, A., & Salimkumar, D. (2014). *Dementia UK: Update* (2nd Edition). Alzheimer's Society. Retrieved from [https://www.alzheimers.org.uk/download/downloads/id/2323/dementia\\_uk\\_update.pdf](https://www.alzheimers.org.uk/download/downloads/id/2323/dementia_uk_update.pdf)
- <sup>8</sup>Ewing, G., & Grande, G. (2012). Development of a Carer Support Needs Assessment Tool (CSNAT) for end-of-life care practice at home: A qualitative study. *Palliative Medicine, 27*, 244-256. doi:10.1177/0269216312440607
- <sup>9</sup>Austin, L., Ewing, G., & Grande, G. (2017). Factors influencing practitioner adoption of carer-led assessment in palliative homecare: A qualitative study of the use of the Carer Support Needs Assessment Tool (CSNAT). *PloS ONE, 12*, e0179287. doi:10.1371/journal.pone.0179287
- <sup>10</sup>Hughes, C., Daly, I., Foley, S., White, N., & Devine, R. T. (2015). Measuring the foundations of school readiness: Introducing a new questionnaire for teachers—The Brief Early Skills and Support Index (BESSI). *British Journal of Educational Psychology, 85*, 332-356. doi:10.1111/bjep.12076
- <sup>11</sup>Son, S. C., & Peterson, M. F. (2017). Marital status, home environments, and family strain: Complex effects on preschool children's school readiness skills. *Infant and Child Development, 26*, e1967. doi:10.1002/icd.1967
- <sup>12</sup>Callan, M. J., Kim, H., & Matthews, W. J. (2015). Predicting self-rated mental and physical health: the contributions of subjective socioeconomic status and personal relative deprivation. *Frontiers in Psychology, 6*, 1415. doi:10.3389/fpsyg.2015.01415
- <sup>13</sup>Beshai, S., Mishra, S., Meadows, T. J. S., Parmar, P., & Huang, V. (2017). Minding the gap: Subjective relative deprivation and depressive symptoms. *Social Science & Medicine, 173*, 18-25. doi:10.1016/j.socscimed.2016.11.021
- <sup>14</sup>Mishra, S., & Carleton, R. N. (2015). Subjective relative deprivation is associated with poorer physical and mental health. *Social Science & Medicine, 147*, 144-149. doi:10.1016/j.socscimed.2015.10.030
- <sup>15</sup>Wong, K. K., Freeman, D., & Hughes, C. (2014). Suspicious young minds: paranoia and mistrust in 8- to 14-year olds in the UK and Hong Kong. *British Journal of Psychiatry, 205*, 221-229. doi:10.1192/bjp.bp.113.135467
- <sup>16</sup>Rodriguez, L. M., Dibello, A. M., Øverup, C. S., & Neighbors, C. (2015). The price of distrust: Trust, anxious attachment, jealousy, and partner abuse. *Partner Abuse, 6*, 298-319. doi:10.1891/1946-6560.6.3.298
- <sup>17</sup>Van der Linden, S., Leiserowitz, A., Rosenthal, S., & Maibach, E. (2017). Inoculating the public against misinformation about climate change. *Global Challenges, 1*, 1600008. doi:10.1002/gch2.201600008
- <sup>18</sup>Gheorghiu, A. I., Callan, M. J., & Skylark, W. J. (2017). Facial appearance affects science communication. *Proceedings of the National Academy of Sciences, 114*, 5970-5975. doi:10.1073/pnas.1620542114
- <sup>19</sup>Farmer, G. D., Baron-Cohen, S., & Skylark, W. J. (2017). People with autism spectrum conditions make more consistent decisions. *Psychological Science, 28*, 1067-1076. doi:10.1177/0956797617694867

# References

- <sup>20</sup>Mar, A. C., Horner, A. E., Nilsson, S. R. O., Alsiö, J., Kent, B. A., Kim, C. H., Holmes, A., Saksida, L. M., & Bussey, T. J. (2013). The touchscreen operant platform for assessing executive function in rats and mice. *Nature Protocols*, 8, 1985–2005. doi:10.1038/nprot.2013.123
- <sup>21</sup>Oomen, C. A., Hvoslef-Eide, M., Heath, C. J., Mar, A. C., Horner, A. E., Bussey, T. J., & Saksida, L. M. (2013). The touchscreen operant platform for testing working memory and pattern separation in rats and mice. *Nature protocols*, 8, 2006–2021. doi:10.1038/nprot.2013.124
- <sup>22</sup>Horner, A. E., Heath, C. J., Hvoslef-Eide, M., Kent, B. A., Kim, C. H., Nilsson, S. R., Alsiö, J., Oomen, C. A., Holmes, A., Saksida, L. M., & Bussey, T. J. (2013). The touchscreen operant platform for testing learning and memory in rats and mice. *Nature protocols*, 8, 1961-1984. doi:10.1038/nprot.2013.122
- <sup>23</sup>Olkowicz, S., Kocourek, M., Lucan, R. K., Porteš, M., Fitch, W. T., Herculano-Houzel, S., & Nemeč, P. (2016). Birds have primate-like numbers of neurons in the forebrain. *Proceedings of the National Academy of Sciences*, 113, 7255-7260. doi:10.1073/pnas.1517131113
- <sup>24</sup>Emery, N. J., & Clayton, N. S. (2004). The mentality of crows. Convergent evolution of intelligence in corvids and apes. *Science*, 306, 1903- 1907. doi:10.1126/science.1098410
- <sup>25</sup>Clayton, N. S., & Emery, N. J. (2015). Avian models of human cognitive neuroscience: A proposal. *Neuron*, 86, 1330-1342. doi:10.1016/j.neuron.2015.04.024

