University of Birmingham

Dr Jackie Chappell DPhil

Senior Lecturer in Animal Behaviour

School of Biosciences (/schools/biosciences/index.aspx)

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About

Dr Chappell is an expert in the field of animal cognition, and is involved in interdisciplinary research and teaching between the fields of biology, psychology and computer science.

Qualifications

- BSc 1991, University of Bristol, Biology
- DPhil 1996, University of Oxford, Navigation in homing pigeons

Biography

After completing a DPhil on the mechanisms of homing pigeon navigation at the University of Oxford in 1996, I started my post-doctoral career by investigating interval timing in birds and then tool use and manufacture by New Caledonian crows, also at the University of Oxford. Following a temporary lectureship in Behavioural Ecology at Oxford between 2001 and 2003, I started my current post as Lecturer in Animal Behaviour at the University of Birmingham in 2004.

Teaching

I teach on second and third year courses dealing with learning and cognition (BIO266), humans as a social species (BIO263), human evolution (BIO380) and living in groups (BIO397). I lead a skills-based second year module, BIO240. I also run a final year, field-based project module at Trentham Monkey Forest in collaboration with Dr. Susannah Thorpe every other year. I am keen to help students build independent learning skills, and lead a final year module, Advanced Topics in Animal Behaviour (BIO392), which is designed around the principles of Inquiry-based learning.

Postgraduate supervision

For a list of possible PhD projects offered by Dr Chappell **www.findaphd.com/search/customlink.asp?inst=birm-Biol&supersurname=Chappell (http://www.findaphd.com/search/customlink.asp?inst=birm-Biol&supersurname=Chappell)**

Research

Research Theme within School of Biosciences: Organisms and Environment

Lab website address: jackiechappell.com/ (http://jackiechappell.com/)

Physical cognition and tool use: how do animals and humans understand and manipulate their physical environment?

I completed my DPhil at the University of Oxford, where I subsequently spent several years studying various aspects of animal cognition. My work at Oxford focused on the cognition of tool manufacturing behaviour in New Caledonian crows. These birds manufacture and use at least three distinct types of tool: hook tools made out of twigs, stepped and tapered tools made from Pandanus leaves, and straight sticks. This behaviour is unique among free-living non-humans because of the use of hooks, the degree of standardisation of the tools, and the use of different tool types. One interesting question is whether tool manufacture is rare because of the scarcity of selection pressure on species to use tools, or whether tool use and manufacture requires advanced cognitive capabilities that most species do not possess.

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Since moving to the University of Birmingham in 2004, my interests have broadened to encompass investigating the cognitive architecture involved in the perception of affordances (the ways in which objects can be manipulated and used) causality and planning, and the way in which this develops ontogenetically and phylogenetically. For example, how do animals integrate information about affordances and relationships discovered during exploration with their pre-existing knowledge? Do animals plan a complex sequence of actions when solving multi-step physical problems? My current research as head of the Cognitive Adaptations Research Group focuses on various species of parrots and non-human primates, but I am also interested in human cognition and the design of **behaviourally flexible, interactive robots (http://www.cs.bham.ac.uk/research/groupings/robotics_and_cognitive_architectures/)**, able to explore and learn about their environment.

Though I am a member of the School of Biosciences, I have also been collaborating closely with several people in the School of Computer Science, particularly **Professor Aaron Sloman (http://www.cs.bham.ac.uk/~axs/)** (with whom I have written several papers), **Dr Jeremy Wyatt (http://www.cs.bham.ac.uk/~jlw/)**, Dr Nick Hawes and other members of the **IRLAB (http://www.cs.bham.ac.uk/research/groupings/robotics_and_cognitive_architectures/)** team. I also collaborate with **Dr Susannah Thorpe (/staff/profiles/biosciences/thorpe-susannah.aspx)** on the cognition of orangutan locomotion, and work with Dr Sarah Beck and **Dr Ian Apperly (/staff/profiles/psychology/apperly-ian.aspx)** in the School of Psychology on tool innovation in human children.

Listen to my podcast 'Clever crows rely on a unique bird's eye view (MP3 - 5.35MB)' (/Audio/news/dr-jackie-chappell-podflash.mp3) or read the **podcast transcript (/accessibility/transcripts/dr-jackie-chappell-new-caledonian-crows.aspx)** .

Listen to my podcast 'Intelligence' (MP3 - 17.3MB) (/Audio/news/jackie-chappell-intelligence.mp3) .

Other activities

When not working, I enjoy cycling, walking, crochet and tinkering with computers.

Publications

Chappell, J., Cutting, N., Apperly, I. A. and Beck, S. R. (2013). The development of tool manufacture in humans: what helps young children make innovative tools? *Philos Trans R Soc Lond B Biol Sci* **368**, 20120409. Available at: **http://dx.doi.org/10.1098/rstb.2012.0409 (http://dx.doi.org/10.1098/rstb.2012.0409)**

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