

GUEST EDITORS' NOTE

This special issue of Psychological Topics is dedicated to showcasing the breadth and depth of modern comparative psychology.

Comparative psychology is now part of a wider interdisciplinary field that studies animal behaviour and cognition, including a range of disciplines ranging from behavioural ecology to philosophy and AI. Within this field, comparative psychology has a unique and specific role in considering the psychological processes that govern animal behaviour. Thus, its role surpasses non-human animal research because it also involves the comparison between human and non-human psychological processes and contributes to theory development in psychology.

The special issue starts with two theoretical papers that are firmly positioned in specific research topics. In their review paper, **Grabner and colleagues** summarise research on vocal isochrony in different animal species to inform hypotheses about its adaptive function. The authors discuss how comparative work on vocal isochrony – which refers to sounds that are repeated at regular intervals - can contribute to our knowledge on how rhythms in human language and music may have evolved. Next, **Lane and Clayton** introduce the reader to studying cognition in so-called 'soft-bodied' cephalopods, namely cuttlefish, squid, and octopus. The authors present the 'camocognitive hypothesis', which posits a co-evolution of camouflage and cognition. At the same time, the authors also critically discuss to what extent camouflage behaviour can be used to investigate cephalopods' cognitive processes.

The next two papers bring up critical issues for current research on psychological processes through studying behaviour, one in terms of methods and the other in terms of theoretical assumptions. **Neadle and colleagues** emphasise that before behaviour can be used to infer cognitive processes, quality control of coding behaviours must be ensured. The authors argue that the current state of behavioural research is characterised by 'questionable coder practices', which refer to excessive flexibility in how interrater reliability is implemented. To combat the issues, the authors develop and test through simulations a new quality control tool – the BRAVO (Balanced Reliability Assessment of Video Observations) workflow. **Cheng** reviews research that indicates that interruptions to navigation behaviour such as changes in the direction of movement of bacteria and archaea, as well as the scanning bouts of ants returning home, appear to resemble random-rate processes – the timing of which cannot be predicted. This paper also illustrates how similar patterns may be observed in the timings of human behaviour and calls on researchers to better investigate the timing and organisation of behaviour – one part of which could potentially be achieved through secondary data analysis of timings in open behavioural data sets.

The final four papers report original empirical work. **Beran and Friedlein** emphasise that after 25 years of studying animal metacognition, a current focus of attention should be on the internal cues used by animals' monitoring processes. To do so, the authors tested how stimulus fluency and delay of judgement influence

metamemory judgements, i.e., confidence wagers, in capuchin and rhesus monkeys. **DeBoer and colleagues** challenge the widely held assumption that ratio-dependence, as required by Weber's Law, predicts quantity judgements across species by highlighting that in most studies ratio of two quantities is confounded by the difference between them. In their pre-registered study, where both factors were systematically varied, domestic dogs' choice of the larger of two presented quantities was primarily predicted by the difference between quantities. Critically, the authors provide further support for their results through a re-analysis of previous quantity assessment studies with domestic dogs. Building on fieldwork investigating alarm-calls of great apes in the wild, **Lurz and colleagues** report the result of an experiment investigating bonobo's sensitivity to others' knowledge. Their study tested whether bonobos would alter the number of anxiety-linked behaviours when a conspecific's vocalisation indicated they were aware that they faced an imminent threat than when the vocalisation indicated they were unaware of the threat. The authors' approach illustrates how modern comparative psychology can merge methods from disciplines it has developed from (i.e., experimental psychology and ethology) to exert experimental control while taking a species' socioecology into consideration. Finally, **Harrover and Carpenter** showcase how comparative psychology can overcome limitations on species availability. Using a citizen science approach, the authors were able to study problem solving in a variety of reptile species. Here, members of the public were sent matching equipment and then tested their pet reptiles. This study showcases how citizen science can be implemented in comparative psychology and what challenges researchers may face when doing so.

Throughout this special issue, the reader may be able to identify the different ways in which researchers in comparative psychology foster and utilise Open Science: from pre-registrations, through providing open data and/or R scripts, conducting secondary data analyses on open data sets or advocating for sharing data, to implementing citizen science approaches. We also know that many of the authors contributed to this special issue because of their deep care about ethical publishing.

We would like to thank all authors for contributing to this special issue and helping us highlight varied aspects of comparative psychology. We thank all reviewers for the time and work dedicated to help the authors with their submissions. Finally, we thank the Editor-in-Chief and the Editorial Board for their assistance and support during the entire process.

Piero Amodio

Edward W. Legg

Ljerka Ostojić