

Chapter 9 opens the final section on Culture. Caldwell describes experimental studies into primate culture. Culture is described as “behaviour specific to a group which is transmitted via some form of social learning”. Caldwell describes how the ‘intellectual atmosphere’ has led to innovative and informative experimental approaches leading to a growing body of literature on culture in non-humans, exposing gaps in our knowledge of human culture. A number of experimental techniques are described in detail.

In chapter 10, McGrew illustrates some lessons learned from cultural primatology. McGrew promotes the fundamental assumption that humans and non-humans share attributes until shown otherwise, rather than operating under the more anthropocentric alternative. A previous publication written by the author provides 20 lessons learned from more than three decades studying wild chimpanzees. This chapter follows on, adding an additional 10 lessons based on further contemplation and new data.

Jamieson briefly discusses human resistance to viewing Great Apes as equals in chapter 11. The community of equals is the moral community within which certain basic moral principles govern our relationships with each other. Jamieson discusses five sources of resistance to recognising the moral equality of Great Apes, including the expression of deep-seated anxieties about our own place in nature and our relationships with those who are different. In chapter 12, Kettner responds to Jamieson by suggesting that “his analysis presupposes that there are compelling reasons for thinking the Great Apes really are our equals”. Kettner describes human dignity as belonging to beings that normally develop a ‘moral stance’. He argues that “there is no reason to extend the community of equals to other Great Apes because as far as we know, they don’t normally develop a moral stance”.

In the postscript, Röska-Hardy draws all the elements of the volume together, indicating that regardless of whether arguments support the continuity or discontinuity argument, all seem to be agreed that human capacities are the result of diverse evolutionary processes. The comparative perspective is described as “aiming to place species-specific capacities in an evolutionary context”, enabling the clarification of the “origins, selective pressures and evolutionary trajectories of specifically human traits”.

As the title of the book suggests, this volume questions the idea that we have much to learn about human language, cognitive and cultural capacities from animals. In discussing whether we can indeed learn about human uniqueness from comparative studies of other species, the answer is a resounding yes. These capacities are demonstrated to varying degrees in a number of non-human animals, including some less closely related to us than the Great Apes. Many contributors to the volume conclude by providing more questions and more testable hypotheses, indicating the depth of work still to be done in this field. As such, the volume implies that with further study, more will be uncovered about the capacity for language, culture and cognition in other species and therefore the welfare implica-

tions of such a volume are that we should afford them greater consideration in terms of improved welfare. However, the debate between animal rights and animal welfare blurs the argument as all sentient animals require a high standard of welfare, whereas the argument for similarities in culture and cognition would support a more rights-based viewpoint as exemplified in Jamieson’s chapter (11) where he suggests the Great Apes being added to the community of equals.

In summary, this is a comprehensive introduction to the field for newcomers, and a helpful tool for exemplifying where collaboration between traditionally separate methodological approaches would provide a benefit.

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Strategies and Tactics of Behavioral Research, Third Edition

JM Johnston and HS Pennypacker (2009). Published by Routledge, 27 Church Road, Hove, East Sussex BN3 2FA, UK. 400 pp Hardback (ISBN 978-0-8058-5882-2). Price £37.50.

Strategies and Tactics of Behavioral Research is a new edition of a methodological text aimed primarily at postgraduate students interested in the experimental study of individual behaviour. The authors’ stated objective is “to summarise what many researchers have learned about methods of studying behaviour”. On the face of it, the chapter titles suggest a thorough treatment of some of the most important issues involved in behavioural research. Topics covered include: asking experimental questions, selecting and defining response classes, observing and recording, assessing measurement, behavioural variability, creating experimental designs, analysing behavioural data, and interpreting experiments. For those familiar with the previous edition of this book, the core content remains unchanged, but the authors have made an effort to improve the accessibility of the material by removing extraneous detail, and adding a number of learning aids including, definitions of key terms, boxed discussion of selected topics, chapter summaries and study guides. What may not be immediately apparent to the uninitiated reader is that the authors come from a background in Skinnerian applied behaviour analysis, which is the field that uses experimentally-derived principles of conditioning to alter socially significant behaviour. As a consequence, the approach to research advocated and described in the book is strongly influenced by the authors’ behaviourist tradition and applied focus. This has a number of implications for the relevance of the book to researchers interested in using behavioural techniques to answer questions or solve problems in animal welfare.

Although the first author, Jim Johnston, has worked on non-human animals (eg Williams & Johnston 2002), the book is primarily aimed at researchers working on human behaviour, and the examples cited come primarily from studies on humans. Following from this, the book has almost nothing to say about the practicalities of doing

behavioural research on non-human animals. It includes a brief box on ethical considerations in behavioural research in which the authors make some general remarks about the importance of complying with regulations regarding the use of human or non-human species, and of obtaining necessary approvals from relevant regulatory bodies. However, the fact that the book is focused around research on humans should not put off those interested in animal behaviour. Much of the advice given is generic, and equally applicable to studies of both humans and other animals.

The emphasis of the authors' approach is very much on within-subjects designs. They advocate the benefits of obtaining very detailed data on the behaviour of a few individuals, as opposed to few data on many. As a consequence of this emphasis, the book contains particularly good discussions of the pros and cons of different types of within-subjects designs that are often lacking in more general texts on experimental design. It also contains a whole chapter tackling the importance of behavioural stability and how to determine whether you have measured your subjects for long enough, which are problems faced by all those involved in training animals.

Some of the advice provided may appear quirky to those coming from other branches of the behavioural sciences. For example, the authors are somewhat unconventional in actively discouraging the use of inferential statistics in data analysis. Instead, they favour a descriptive, graphical approach based on examining the behaviour of individual subjects. They argue that because changes in behaviour occur within individuals, orderly relationships between environmental variables and behaviour can only be seen by looking at the behaviour of individuals. Whatever your views on the value of inferential statistics, there is no doubt that many students of animal behaviour would benefit from being trained to look more carefully at individual data. The authors provide a very clear explanation of why summarising the data from several subjects using a single statistic, such as an average, can, in some circumstances, provide an extremely misleading picture of what individuals are doing.

So which readers of *Animal Welfare* do I think would benefit from reading this book? The book has clear relevance to practitioners using behaviour analysis methods in behavioural therapy. The strategies and tactics discussed are directly applicable to those using a scientific approach to understand the environmental factors involved in the performance of abnormal or antisocial behaviours and in devising appropriate strategies for altering problematic behaviour. The other group for whom the book appears relevant are researchers, like myself, who use the theories and methods of operant psychology as a tool for asking animals questions about their welfare. For example, the widespread application of consumer demand theory for asking animals what they want (Dawkins 1983), and the recent use of 'cognitive bias' as a novel measure of affective state in animals (Harding *et al* 2004; Matheson *et al* 2008), both make use of operant techniques. Researchers in these fields can differ in their use of operant terminology, and

could benefit from the clear definitions provided in this book. For example, in her recent attempt to provide a scientific definition of animal suffering Dawkins (2008) defines suffering as the emotional state caused by negative reinforcers. From what she writes, it is quite clear that she equates negative reinforcers with punishers, and is therefore arguing that suffering occurs when animals are exposed to stimuli that they will work to avoid. However, strictly speaking, as we learn from this book, negative reinforcers are, "A class of stimuli that are terminated immediately following responding, resulting in an increase in some aspect of the response class over baseline levels", and, therefore, like positive reinforcers, something that we would expect animals to work to obtain. Whilst I doubt that Dawkins' misuse of a term will detract from the point that she is trying to make, it would be a shame if the next generation of animal welfare researchers was not exposed to the rigorous language and techniques developed in the behaviour analysis literature.

In summary therefore, I believe that anyone engaged in analysing of the behaviour of individual animals could gain something from reading this book. As well as containing much sound generic advice, and some thought-provoking essays on specific issues, this book also provides a clear introduction to the terminology and approach of modern behaviour analysis.

References

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Why Dissection? Animal Use in Education

LA Hart, MW Wood and BL Hart (2008). Published by Greenwood Press, 88 Post Road West, Westport, CT 06881, USA. 240 pp Hardback (ISBN 978-0-31332-390-4). Price £27.95.

At the very beginning of this book the reader is asked to recollect school animal dissection from our own pasts. I still feel queasy at the memory of the sacrifice of a female rat to the greater understanding of reproduction by 13-year old boys in the late 1970s. The heavy-jowled, harrumphing biology master demonstrating the mammalian method of coition on a formaldehyde-reeking carcass, with the aid of a blunt needle. Did this help our understanding? Maybe there was some util-