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Video playback techniques in behavioural research

Video playback (by which we mean the presentation of video-taped images and also animations) is a powerful tool for experimental investigations of the visual communication systems of animals. Problems have been identified with several of the techniques used to investigate visual communication systems. For example, directly modifying the appearance of animals can often have adverse ethical implications and may fail to achieve the desired modification (e.g. feather dyes may affect the UV reflectance of plumage as well as changing the colours humans see). There are, however, a number of methodological concerns associated with video playback and it is important for the development of the field that these are widely appreciated and discussed. It is also important for researchers to understand the technological basis (hardware and software) of the technique.

With these ideas in mind a workshop on “video playback techniques in behavioural research” was held in Lisbon before the ASAB (Association for the Study of Animal Behaviour) Summer Meeting 1999, which had communication as a conference theme. The major aim of the workshop was to bring together expertise in different fields relevant to the realistic use of the technique, namely in the design and execution of visual playbacks, and in the physiological mechanisms underlying the perception of video.

Many of the methodological issues surrounding video playback relate to animals’ perception of images dis-

played on screens designed for the human visual system (e.g. colour perception and flicker fusion rates). There are no widely accepted ways of dealing with these issues, but one of the goals was to discuss them extensively and attempt to reach a consensus of suitable solutions.

The history of acoustic playback provides an excellent example of how a lack of informal contact and discussion between researchers can have potentially disastrous consequences for the field. Although playback had been the major experimental tool for studying acoustic communication for some decades, a series of papers in the late 1980s almost destroyed it via the issue of pseudoreplication – even though this problem applies to every field of scientific research and even though it can be avoided with appropriate experimental design and interpretation. A workshop funded by NATO brought together the protagonists and a consensus was reached (McGregor et al. 1992), demonstrating that the workshop format is considerably more efficient in helping scientific progress than an acrimonious adversarial debate in the literature. Thus, another goal of the video-playback workshop was to some extent to preempt any similar methods-based disputes.

The workshop intended to help to extend the network of researchers working with video playbacks and the physiological mechanisms underlying their perception. By publishing the proceedings as a thematic issue of the journal *Acta Ethologica*, the symposium participants aim to disseminate its outcome to a wider audience. The following review articles thus correspond to the key-note talks presented at the workshop by invited scientists. These articles are followed by a consensus paper that was signed by all the participants and that critically evaluates the utility and potential flaws of the use of video playbacks as stimuli in behavioural research.

The authors are the organizers of the workshop or “video playback techniques in behavioural research” held at ISPA, Lisbon, 12–13 July, 1999

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