

Cognitive sciences to relate ear postures to emotions in sheep

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Abstract

Emotions are now largely recognised as a core element in animal welfare issues. However, convenient indicators to reliably infer emotions are still needed. As such, the availability of behavioural postures analogous to facial expressions in humans would be extremely valuable for animal studies of emotions. The purpose of this paper is to find out stable expressive postures in sheep and to relate these expressive postures with specific emotional contexts. In an initial experiment, we identified discrete ear postures from a comprehensive approach which integrates all theoretically distinguishable ear postures. Four main ear postures were identified: horizontal ears (P posture); ears risen up (R posture); ears pointed backward (B posture); and asymmetric posture (A posture). In a second experiment, we studied how these ear postures were affected by specific emotional states elicited by exposing sheep to experimental situations in which elementary characteristics (ie suddenness and unfamiliarity, negative contrast and controllability) were manipulated. We found that: i) the horizontal P posture corresponds to a neutral state; ii) sheep point their ears backward (B posture) when they face unfamiliar and unpleasant uncontrollable situations, hence likely to elicit fear; iii) they point their ears up (R posture) when facing similar negative situations but controllable, hence likely to elicit anger; and iv) they expressed the asymmetric A posture in very sudden situations, likely to elicit surprise. By cross-fostering psychological and ethological approaches, we are able to propose an interpretation of ear postures in sheep relative to their emotions.

Keywords: animal welfare, behaviour, cognition, ear postures, emotions, sheep