Automatic imitation is not only a human trait, research finds

July 30 2008

(PhysOrg.com) -- Scientists have shed new light on a process known as 'automatic imitation' — and discovered that we have more in common with the humble budgerigar than previously thought.

Humans often engage in automatic imitation without even realising it, when the sight of a friend, relative or a colleague moving in a particular way elicits the same movement in the observer.

This effect can be so strong that it may even interfere with an ongoing task. For example, previous studies have shown if a person is instructed to open their hand as fast as possible whenever they see a hand movement displayed on a screen, responses are slower when the hand on the screen closes than when it opens.

Now research by scientists at The University of Nottingham, Cardiff University, and University College London has demonstrated for the first time, and under particularly stringent conditions, that this effect is also present in the budgerigar.

Their findings, published in *Proceedings of the Royal Society B*, help to explain a variety of ingrained learning behaviours in both humans and animals.

In the experiment, budgerigars had to peck or step upon a small button for food reward whilst watching video recordings of another budgerigar either pecking or stepping on the same button. The scientists split the

birds into two groups — one in which they were rewarded for imitation, the other in which they were rewarded for counter-imitation.

Budgerigars in the first group were rewarded for pecking the button whilst watching the pecking video, and rewarded for stepping on the button whilst watching the stepping video.

Budgerigars in the second group, had to do the opposite: they were rewarded for pecking the button whilst watching the stepping video, and rewarded for stepping on the button whilst watching the pecking video.

Budgerigars in the second group had much greater difficulty learning their task than the budgerigars in the first group. Thus, the sight of another budgerigar performing a particular movement interfered with the observer's ongoing task of learning which response to make in order to gain reward. A result analogous to automatic imitation in people.

Dr Mark Haselgrove, of The University of Nottingham's School of Psychology, suggests that these results imply that the psychological processes responsible for imitation may be similar for humans and budgerigars.

He said: “The results of the study provide the first evidence of automatic imitation in birds. This helps us towards a better understanding of learning processes that have broad implications in both a human and an animal context.”

The occurrence of automatic imitation in everyday life is thought to have developed to promote affiliation and co-operation among social groups.

The authors of the paper argue that their results are best understood in terms of the principles of associative learning, which are more usually applied to behaviour such as conditioned responding. The current

research demonstrates how powerful these principles can be for explaining a variety of behaviour in both humans and animals.

Provided by University of Nottingham