



THE UNIVERSITY *of* EDINBURGH

News Release

Issued: 14 April 2016

Copycat techniques help pianists keep in time, study shows

Mentally mimicking other performers improves musicians' technique more than them focusing solely on their own part, research suggests.

Tests that investigated musicians' brain activity while playing piano duets have revealed that timing and accuracy improve when a pianist can follow a co-performer's lead by mentally copying his or her technique.

When pianists had not practiced playing their co-performers' part, and hence could not mimic their playing, their own performance suffered, researchers found.

Experienced pianists were monitored as they took turns to play a piece of music with a videoed duet-partner.

Different regions of the musicians' brains were stimulated to try and find which parts of the brain are most active when they had practiced only their own part, or when they had also practiced their partner's part.

When pianists had previously practiced their partner's part, watching their co-performer play activated a part of the brain that controls automatic simulation of hand movements. Researchers found that this trigger helped pianists hit the right notes at the right time.

The findings suggest that musicians who watch other players performing a familiar piece imagine themselves playing the part, boosting their own performance timing. The process known as automatic simulation could be used by all musicians when performing known pieces with others.

Researchers at the Universities of Edinburgh and Western Sydney reached their conclusion by identifying that the part of the brain linked to action execution and perception – the dorsal premotor cortex – was involved in accurate turn-taking between pianists.

Lauren Hadley, of the University of Edinburgh's School of Philosophy, Psychology and Language Sciences, said: "The findings suggest that musicians put themselves in their partner's shoes to better predict their actions. Next it would be interesting to look at whether people do this in other turn-taking contexts, such as during conversation."

Ranked among the top universities in the world

The study, published in *The Journal of Neuroscience*, was funded by the Experimental Psychology Society and the Economic and Social Research Council.

Researchers tested sixteen pianists, each of which had more than eight years' experience.

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