

RESEARCH DIRECTIONS

How Smart Is Your Unconscious Mind?

Professor Christopher Davis from MARCS Auditory Laboratories and Dr Sid Kouider from Centre National de la Recherche Scientifique and École Normale Supérieure in France are researching what factors contribute to unconscious processing and how a persons' learning can affect it. This research has been funded through an Australian Research Council Discovery Grant.

'We are familiar with the idea of a reflex; how for example, we can make a catch in cricket, hit a return in tennis or avoid something on the road when driving without seeming to think about it' explains Professor Davis. 'What this project will investigate are *cognitive reflexes*: where abstract information is processed without effort or awareness. What we want to determine is the extent to which unconscious stimuli can be processed, and how quickly such processing can be changed. Essentially, we want to know how smart is unconscious processing.'

The experiments will involve presenting information to a person without them being aware of it - via a word or picture that is hidden or "masked" by other stimuli being presented. Unconscious processing is measured by the effect that this masked information has on cognitive and neural processes that follow. This masking technique will be used in seven sets of behavioural and imaging experiments. In some experiments, the masked information will agree or conflict with instructions given to the participants - testing the role of the explicit task instructions on their unconscious processing. Other experiments will examine whether newly learned information, such as associations or rules, can have an unconscious effect on information processing.



Researching how a person's use of their unconscious knowledge develops and how flexible it is will contribute to our understanding of the development of cognitive skills (such as reading) and second language acquisition. And understanding more about unconscious information processing will provide a new way of looking at how cognition changes as we get older and may offer insights into why some elderly people lose the skill of processing information rapidly.

Project Title: Unconscious processing: to what extent, how flexible and how smart?

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