

Psychologists reveal how emotion can shut down high-level mental processes without our knowledge

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Psychologists at Bangor University believe that they have glimpsed for the first time, a process that takes place deep within our unconscious brain, where primal reactions interact with higher mental processes. Writing in the *Journal of Neuroscience*, they identify a reaction to negative language inputs which shuts down unconscious processing.

For the last quarter of a century, [psychologists](#) have been aware of, and fascinated by the fact that our brain can process high-level information such as meaning outside consciousness. What the psychologists at Bangor University have discovered is the reverse- that our brain can unconsciously 'decide' to withhold information by preventing access to certain forms of knowledge.

The psychologists extrapolate this from their most recent findings working with bilingual people. Building on their previous discovery that bilinguals subconsciously access their first language when reading in their [second language](#); the psychologists at the School of Psychology and Centre for Research on Bilingualism have now made the surprising discovery that our brain shuts down that same unconscious access to the [native language](#) when faced with a negative word such as war, discomfort, inconvenience, and unfortunate.

They believe that this provides the first proven insight to a hither-to unproven process in which our [unconscious mind](#) blocks information from our [conscious mind](#) or higher [mental processes](#).

This finding breaks new ground in our understanding of the interaction between emotion and thought in the brain. Previous work on emotion and cognition has already shown that emotion affects basic brain functions such as attention, memory, vision and motor control, but never at such a high processing level as language and

understanding.

Key to this is the understanding that people have a greater reaction to emotional words and phrases in their first language- which is why people speak to their infants and children in their first language despite living in a country which speaks another language and despite fluency in the second. It has been recognised for some time that anger, swearing or discussing intimate feelings has more power in a speaker's native language. In other words, emotional information lacks the same power in a second language as in a native language.

Dr Yan Jing Wu of the University's School of Psychology said: "We devised this experiment to unravel the unconscious interactions between the processing of emotional content and access to the native language system. We think we've identified, for the first time, the mechanism by which emotion controls fundamental thought processes outside consciousness.

"Perhaps this is a process that resembles the mental repression mechanism that people have theorised about but never previously located."

So why would the brain block access to the native language at an unconscious level?

Professor Guillaume Thierry explains: "We think this is a protective mechanism. We know that in trauma for example, people behave very differently. Surface conscious processes are modulated by a deeper emotional system in the brain. Perhaps this brain mechanism spontaneously minimises negative impact of disturbing emotional content on our thinking, to prevent causing anxiety or mental discomfort."

He continues: "We were extremely surprised by our

finding. We were expecting to find modulation between the different words- and perhaps a heightened reaction to the emotional word - but what we found was the exact opposite to what we expected- a cancellation of the response to the negative words."

The psychologists made this discovery by asking English-speaking Chinese people whether word pairs were related in meaning. Some of the word pairs were related in their Chinese translations. Although not consciously acknowledging a relation, measurements of electrical activity in the [brain](#) revealed that the bilingual participants were unconsciously translating the words. However, uncannily, this activity was not observed when the English words had a negative meaning.

More information: *Journal of Neuroscience* (May 9, 2012; 32(19):6485 - 6489, 6485)

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