**New Research Points to the Benefits of Being all Fingers and Thumbs**

Posted on Thursday 3rd February 2011

Gesturing with our hands helps us to solve spatial visualisation problems, a skill that is necessary in many professions and in our daily lives, according to research by University of Birmingham psychologists published this week in the Journal of Experimental Psychology: General by Dr Mingyuan Chu and Dr Sotaro Kita.

Spatial visualisation is the visual technique that a medical doctor would use to look at an x-ray and imagine a patient’s bone structure from different angles or an architect uses to imagine how a building might look from a plan.

It is the tool that we use, for example, when we are deciding how to re-arrange our living room without actually moving the furniture.

In the study the researchers asked groups of students to perform tasks in which objects presented on a computer screen had to be mentally rotated.

Firstly 132 students were asked to solve the mental rotation task while the researchers observed spontaneous hand gestures using a hidden camera.

They found that the number of hand gestures increased as the problems became harder.

Secondly 66 students were divided into three groups.

One group was encouraged to use hand gestures, the second was given no instructions, and the third group was asked to complete the task while sitting on their hands.

The gesture-encouraged group were more successful in completing the task than the other two groups.

In the third experiment 32 students were asked to solve mental rotation problems.

Half of them were encouraged to gesture and the other half were told to sit on their hand while solving the problems

Then both groups were asked to solve different spatial visualisation problems while sitting on their hands.

The gesture-encouraged group were more successful than the gesture-prohibited group not only in solving the first mental rotation problems but also in the second different visualisation problems when they did not gesture.

Gesture therefore has a lasting beneficial effect and the benefit spreads to a subsequent different visualisation task performed without gestures.

Dr Sotaro Kita, from the University’s School of Psychology, said, ‘We found that when people were encouraged to spontaneously produce ‘co-thought gestures’ with their hands while trying to complete a spatial visualisation task they found the problem easier to solve.

And the gestural benefit lingers on and applies to a subsequent different visualisation task even if you don't gesture in the new task."

He continued: ‘We are endowed with a wonderful cognitive tool - hand gesture - that helps us to visualise objects from different angles.

Our research shows that we are more competent at solving a problem when we are able to move our hands while thinking through a solution.

‘Computers can also help us with visualisation problems, but gestures are more convenient because they are readily available wherever you are as long as your hands are free.

‘Spatial visualisation is important in many scientific fields, including mathematics, physics and engineering, but it also helps in any occupation that requires the use of images or diagrams.

The research could have practical implications for education.’

***Notes to Editors***

The Nature of Gestures: Beneficial Role in Spatial Problem Solving.  Journal of Experimental Psychology: General. Vol X, No. X.

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