6   Learning with the index finger

Maria Montessori (1870 – 1952) already propagated "learning with the finger" at the beginning of the 20th century. She used letters made from sandpaper for learning the alphabet. The children listen to the letters spoken by the teacher, look at their appearance at the same time and trace them with their index finger.

The finger technique offers even more advantages. A few years ago, Australian scientists showed in several studies that tracing figures with the index finger can help to solve mathematical problems. The researchers assume that pointing or tracing with the finger increases attention and therefore this information is given processing priority in the brain. Tracing with the finger might also reduce the strain on the working memory and improve the ability to retain more complex information better, as other regions of the brain are activated in addition to visual perception.

International neuroscientific studies also prove that writing by hand is fundamental to cognitive development. For example, American psychologists have been able to show that handwritten notes make it easier to memorize the subject matter. These findings speak in favor of handwritten documentation of observations and results when working with sketchometry teaching modules, supplemented by freehand sketches if necessary.

A research team from the Max Planck Institute for Human Cognitive and Brain Sciences in Leipzig has discovered that learning foreign languages is made easier when the motor system of the body is included alongside traditional learning techniques such as reading, writing, listening and repeating.

The results from Australia and the Max Planck Institute in Leipzig indicate that positive learning effects through linking with motor brain areas also apply to the subject of mathematics when students work with sketchometry. This is because they use their index finger to create their constructions and when applying the intuitive sketchometry gestures. Furthermore, the dynamic possibilities of the software are used when the created configurations are modified by dragging with the index finger to discover certain properties or relationships.