Medical Xpress

Textured images help tactile recognition for the blind

October 2 2013

Stimuli presented by researchers to blind children. From top to bottom: lines in relief, thermoforming and textures. Credit: © Les doigts qui rêvent. / CNRS

The use of different materials with varied textures improves the recognition of tactile images by young blind people, researchers from the Laboratoire de psychologie et neurocognition (LPNC) (CNRS/Université Pierre Mendès France/ Savoie University) have shown. This result, which was recently published in the *Journal of Experimental Psychology Applied* was achieved in collaboration with Geneva University's Faculté de psychologie et des sciences de l'éducation and Les Doigts Qui Rêvent (Dreaming Fingers) in Talant (Côte-d'Or, France). Among other factors, the researchers emphasise that early, regular use of tactile material by blind children is necessary to improve recognition through touch.

From birth, sighted children live in a world in which images, particularly in children's books, are universally present in their family and/or school

surroundings. For blind or partially sighted children, the situation seems very different. Not only are they deprived of natural visual stimuli that other children receive daily, but young blind children are also deprived of all the visual images in books, due to lack of suitable material.

Researchers from the LPNC (CNRS/Université Pierre Mendès France/Savoie University), in collaboration with the publishers Les Doigts qui Rêvent, worked with 23 totally blind children (who only see the contrast between day and night), and who were blind from birth or lost their sight in the first year. They compared tactile image recognition using three techniques:

- lines in relief but with a single material (identical texture)
- Thermoforming: the whole image is in relief but still with the same material (identical texture)
- various materials with different textures (fur, foam, wallpaper, etc.)

The experimental material comprised 24 tactile images (8 objects illustrated using the three techniques) portraying 4 categories of objects (fruit, kitchen utensils, animals, vehicles). The children were asked to identify each drawing as quickly and accurately as possible. To make this easier, they were given the names of the object categories before the images were presented in random order. The researchers then recorded the percentage of correctly identified images.

The results show that blind children are better at recognizing textured images than other illustration techniques. The researchers' experience also showed that early-blind children who are regularly presented with tactile images are better at identifying these illustrations than those who rarely or never use them. For blind children therefore, it seems that interpreting tactile images is not automatic and requires practice.

More information: Tactile picture recognition by early blind children: The effect of illustration technique. Theurel, Anne; Witt, Arnaud; Claudet, Philippe; Hatwell, Yvette; Gentaz, Edouard, *Journal of Experimental Psychology: Applied*, Vol 19(3), Sep 2013, 233-240. DOI: 10.1037/a0034255