Superior serial memory in the blind: a case of cognitive compensatory adjustment

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Abstract:

In the absence of vision, perception of space is likely to be highly dependent on memory. As previously stated, the blind tend to code spatial information in the form of "route-like" sequential representations [1-3]. Thus, serial memory, indicating the order in which items are encountered, may be especially important for the blind to generate a mental picture of the world. In accordance, we find that the congenitally blind are remarkably superior to sighted peers in serial memory tasks. Specifically, subjects heard a list of 20 words and were instructed to recall the words according to their original order in the list. The blind recalled more words than the sighted (indicating better item memory), but their greatest advantage was in recalling longer word sequences (according to their original order). We further show that the serial memory superiority of the blind is not merely a result of their advantage in item recall per se (as we additionally confirm via a separate recognition memory task). These results suggest the refinement of a specific cognitive ability to compensate for blindness in humans.

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