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Forensic criminal identification is hampered by the limited capacity of witness memory

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Previous research has shown that memory performance for unfamiliar faces are very inaccurate. This is important because judgements of identity are often used in criminal proceedings. Errors of identification have been shown to be a major source of miscarriages of justice; both in the conviction of the innocent and in approximately 75% of DNA exonerations (www. innocenceproject.org). This study investigates the way capacity limits in visual short term memory (VSTM) affect the accuracy of recall for unfamiliar faces. To test this, a Change Detection paradigm was used to contrast visual memory for unfamiliar faces at different levels of memory-to-test similarity in simultaneous and sequential displays. The results indicate that VSTM capacity for unfamiliar faces is poor (< 2 faces). Recall accuracy declines as a function of the number of faces observed, with this decrement greater for faces presented in simultaneous compared to sequential displays. When unfamiliar faces are viewed sequentially, accuracy rates for the last face are significantly greater than those for other faces in the sequence. These data suggest that the VSTM capacity is sensitive to competitive spatial and temporal interactions between faces during encoding. Furthermore, when unfamiliar faces are inverted, the accuracy of recall is severely impaired in both simultaneous and sequential displays. This suggests that configural information plays an important role in the encoding of face identity in VSTM irrespective of the mode of presentation. These findings have a number of implications in real-world eyewitness scenarios. For example, the accuracy of eyewitness identification is likely to depend both on the number of individuals present at the crime scene and the order in which they were observed.

Biography

Tochukwu Onwuegbusi is a Doctoral Student in the School of Psychology-Forensic section, University of Leicester, England. He is a Senior Associate Member Royal Society of Medicine, member of the British Psychology Society, and has worked as part of a forensic psychology team focused on delivery of Youth/Young Offending Behaviour programmes. His core research interest is in Eyewitness Facial Recognition. Currently he is applying psychophysical methods to investigate the perceptual and cognitive mechanisms underlying reliable facial recognition.

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