POSTER

Individual differences in visuo-spatial imagery: further evidence for the distinction between object and spatial imagers

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Background and aims

Neuropsychological studies with brain damaged patients and neuroimaging studies with healthy subjects demonstrated that imagery is not a unified construct and distinct object and spatial imagery subsystems have been reported. More recently, research on individual differences has also provided evidence for two different types of imagers, namely Object and Spatial imagers (Kozhevnikov et al. 2005). Object imagers use imagery to create detailed and pictorial images of the shapes of objects, they perform very well on object imagery tasks and score poorly on spatial imagery tasks. Spatial imagers, that use imagery to represent and transform spatial relations, show a reversed pattern of performance. Differences were also found in perceptual processing: object imagers encode visual stimuli holistically while spatial imagers process figures analytically. A new self-report instrument, the object-spatial imagery questionnaire (OSIQ), has been proposed by Blajenkova et al. (Applied Cognitive Psychology, in press) to directly assess the two typologies.In the present studies we examined the psychometric properties of the Italian version of the OSIQ (Study 1) and we investigated its relationship with performance in a visuo-spatial memory task (Study 2).

Study 1

Methods

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The Italian version of OSIQ was administered to a sample of 460 undergraduates of psychology. A subsample also completed paper-and-pencil object (VVIQ) and spatial imagery (Paper Folding Test) measures.

Results

Factor analysis revealed 3 factors-scales: object imagery, spatial imagery and verbal scale. Acceptable internal reliability values for the three scales were found. Correlations between the two scales of imagery and the other object and spatial measures provided empirical support for the construct validity of the two imagery scales: the OSIQ spatial scale was found to be positively correlated with measures of spatial imagery and it was not significantly correlated with measures of object imagery. The reversed pattern was found for OSIQ object scale. Effect of gender was found for OSIQ spatial scale, with higher scores for males.

Study 2

Methods

Twenty-six participants performed the OSIQ and the visuo-spatial memory task. In the study phase pictures of real objects in different in-plane orientations were shown and the participants were asked to memorize them. In the test phase participants were asked to discriminate between “old stimuli -same orientation of the study phase; “old stimuli - different orientation”, “new exemplars of the old stimuli” and “completely new” stimuli.

Results

The data showed a strong positive association between

OSIQ-spatial score and number of correct responses for the "different orientation" condition indicating that the higher the spatial imagery the stronger the ability to detect orientation changes.

Conclusions

These findings provided further evidence that there are two qualitatively different types of imagery and imagers. In particular the results of Study 1 indicate the usefulness of the OSIQ as a valid and reliable measure to assess individual differences in object and spatial imagery. The results of Study 2 suggest that higher levels of spatial imagery (as measured by OSIQ spatial scale) are associated with a more accurate memory of spatial properties of visual objects.

Keywords Mental imagery · Imagers · Spatial imagery · Visuo-spatial memory

Reference

Kozhevnikov M, Kosslyn S, Shephard J (2005) Spatial versus object visualizers: a new characterization of visual cognitive style. Mem Cogn 33(4):710–726