Evidence for Thinking in Pictures as a Cognitive Account of Autism

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ABSTRACT

In this work, we evaluate the hypothesis that certain individuals on the autism spectrum exhibit a bias towards using visual instead of verbal mental representations. We first make predictions about how this “Thinking in Pictures” bias might manifest itself in behavior, and then we examine empirical data from several independent behavioral and neuroimaging studies that bear on these predictions.

HYPOTHESIS

Many introspective accounts by individuals on the autism spectrum suggest the use of mental imagery that are predominantly visual instead of verbal (e.g., Grandin, 2006; Happé, 2009). Although some studies have found greater dissociations in individuals on the autism spectrum than in controls between nonverbal (particularly visual) and verbal abilities, no study has systematically examined the extent to which individuals on the autism spectrum exhibit a bias towards using visual instead of verbal mental representations.

PREDICTIONS

1) Individuals who think in pictures will show decreased levels of performance, relative to typically developing individuals, on tasks that can only be solved verbally (i.e., tasks that fall into A\(\overline{T}\)B).
2) These individuals will show similar levels of performance and will be using similar (visual) strategies on tasks typically done visually (i.e., tasks that fall into B\(\overline{A}\)T).
3) These individuals will show similar levels of performance but will be using different (visual instead of verbal) strategies on tasks typically solved verbally but that can be solved visually (i.e., tasks that fall into A N T).