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Implicit learning and non-clinical paranoia: does content matter?

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Abstract

Persons high and low in non-clinical paranoia (based on scores from the Paranoia Scale) were administered two implicit learning tasks that comprised information regarding the covariation between a stimulus (e.g. a face) and a specific characteristic (e.g. "fairness"). To assess whether persons high in non-clinical paranoia were particularly sensitive to learning social information, both social (faces) and non-social stimuli (cars) were used. Results showed that the group high in non-clinical paranoia demonstrated implicit learning to all stimuli, irrespective of content. The group low in non-clinical paranoia showed greater implicit learning for non-social relative to social stimuli. The results partially support a content-specific bias since there were differences in social ratings relative to non-social ratings between the two groups. Finally, the group high in non-clinical paranoia was significantly more confident in their ratings relative to the group low in non-clinical paranoia for all stimuli. The implications of these findings for non-clinical paranoia are discussed.

Keywords: Non-clinical paranoia; Implicit learning; Content-specific bias; Social and non-social stimuli

In research on psychotic disorders, there has been an increased interest in the investigation of specific symptoms (e.g. paranoia), rather than on broad diagnostic syndromes (e.g. schizophrenia; Bentall, Corcorcan, Howard, Blackwood, & Kinderman, 2001; Bentall, Jackson, Pilgrim, 1988; Bentall, Kinderman, & Kaney, 1994). Research on paranoia has typically focused on cognitive biases. For example, persons with paranoid delusions show biases (jumping to conclusions) on probabilistic reasoning tasks; they require less information before making decisions (Bentall et al., 2001; Garety, Hemsley, & Wessely, 1991; Huq, Garety, & Hemsley, 1988), and they are more

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confident in their decisions, based on limited data, relative to persons without paranoia (Dudley, John, Young, & Over, 1997; Huq et al., 1988; for an exception, see Garety et al., 1991). This pattern is not limited to neutral reasoning tasks, but extends to more realistic social reasoning tasks as well (Bentall, Kaney, Dewey, 1991; Dudley et al., 1997). Finally, there is evidence that persons with paranoia make external attributions for negative outcomes and internal attributions for positive outcomes (i.e. a self-serving bias; Bentall et al., 1991, 1994; 2001; Kinderman & Bentall, 1996, 1997; see Martin & Penn, in press, for somewhat less supportive findings).

The cognitive biases in paranoia appear to be content-specific. Persons with paranoia have been shown to form illusory correlations to only threat-related words (Brennan & Hemsley, 1984). On a modified version of the Stroop task, persons with paranoia show interference to only threat words; reading times are not affected for depressed or neutral words (Bentall & Kaney, 1989; Fear, Sharp, & Healy, 1996; Kinderman, 1994). This content bias is also evident for memory tasks. Specifically, persons with paranoia show preferential recall for threatening words (Bentall, Kaney, & Bowen-Jones, 1995) and for stories with threatening propositions (Kaney, Wolfenden, Dewey, & Bentall, 1992), a pattern which is also evident in college samples high in paranoia (Fenigstein, 1997).

Previous research on paranoia has focused mainly on explicit-judgment tasks (i.e. reading a vignette, drawing beads from a jar, making attributional judgments, etc.) with little attention to tasks that assess implicit learning. Unlike explicit judgment tasks, in which the objective of the task is clearly verbalized to the subject, the objectives, rules, and strategies in implicit learning are not available to consciousness (Lewicki, Hill, & Czyzewska, 1992; Reber, 1989). For example, instructing a bus-driver to learn a new bus route would be an explicit learning activity, while a regular passenger who realizes that they are going on the wrong route would represent more of an implicit learning activity. Thus, implicit learning can be defined as learning without awareness and can be demonstrated on various memory, attention, and attributional tasks (see Garety & Freeman, 1999, for a review). Implicit tasks can be viewed as either "data driven" or "conceptually driven" with conceptual tasks having some degree of assigned meaning (Roediger, 1990). Conceptual implicit tasks have been previously used to study the role of schemata in several clinical areas (Edwards & Pearce, 1994; Hermans, Pieters, & Eelen, 1998; Hill, Lewicki, & Neunaber, 1991; Watkins, Vache, Verney, Mathews, & Muller, 1996). Furthermore, some have even argued that previous work in implicit learning is consistent with models of schematic processing (Dowd & Courchaine, 1996). Even when implicit learning is initially acquired through bottom-up or data driven processes, once established, implicitly acquired schemata may exert top-down or conceptually driven effects. Therefore, in the present study, the effects of implicitly activated schemata (from exposure to social/non-social stimuli during training) on judgments of test stimuli will be viewed as more of a top-down or conceptually driven process than bottom-up process (see Mathews, Roussel, Cochran, Cook, & Dunaway, in press, for further evidence on the point).

There are empirical, theoretical, and clinical reasons for investigating implicit learning in paranoia. Empirically, there is evidence that the attributional style of persons with paranoid delusions varies as a function of test format; on explicit attributional tasks, paranoid-deluded persons show the aforementioned self-serving bias, while on tasks disguised as a test of memory (i.e. a "non-obvious" attribution task), this bias disappears (Lyon, Kaney, & Bentall, 1994; for an exception, see Martin & Penn, in press). Theoretically, an investigation of implicit learning may shed further