Divergent and Convergent Thinking in Persons with Varying Degrees of Magical Ideation

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Introduction

There is a long tradition of linking creativity to personality disor- ders. Socrates thought creatively gifted individuals to be “haunted by a demon.” Aristotelian association creativity with melancholy. Lombroso proposed a link to schizophrenia and for Freud creative activities were a means to cover neurasthenia. Such claims receive support from well-known cases of highly creative individuals who suffered from psychoses or other personality disorders and from research showing high creativity in healthy individuals with proneness to schizophrenic-like styles of reasoning (schizotypy, Manz, Mass, & Junk).

However, not all studies have provided supporting evidence for such a link. (Kline & Cooper, 1986; Weinstein & Graves, 2001).

Reviewing the literature, we found that not only had very dissimi- lar population samples been assessed in the past but that research- ers had also based on very different measures of creativity. We attempted to establish the association between the degree of schizotypy and two different measures of creativity.

Research Question

We based on Guilford’s (1950) model of creativity, which pro- poses that both divergent and convergent thinking play a substantial role. The former is the ability to quickly generate new ideas, the latter the ability to check whether they are truly useful in a given context. Intense spreading activation in a person’s semi- ntic network has been proposed to underlie both (purposely) divergent as well as convergent thinking.

Participants & Magical Ideation Scale

48 healthy, right-handed native speakers of Swiss/German par- ticipated: 25 women, 23-48 years (mean: 27.40), 12 to 24 years (mean: 17.40 years of education, and 23 men, 20-49 years (mean: 30.40, std: 12.2 to 24 years (mean: 16.7)). Handedness was assessed using the Chapman & Chapman (1987) scale.

Schizotypy was quantified using the Magical Ideation (MI) Scale questionnaire (Edelkamp & Chapman, 1983) which asks 50 yes/no questions about people’s beliefs in telepathy, astrology, conspiracy theories, UFOs, e.g.

Participants had to mark those words which they perceived as “believers”! n = "$% High Magical Ideation "n=#$%

Divergent and Convergent Thinking Tasks

We used two language tasks which are similar in design - with the exception that one triggers predominantly divergent thinking, whereas the other demands convergent thinking abilities.

In the Word Halo Test (Armstrong & McNamara, 1977) partici- pants were given 20 items consisting of a stimulus word and five near-synonyms, all of which are taken from the thesaurus:

I think I could read other people’s minds if I wanted to.

None of our German language design based exclusively on nouns. Our own German language design based exclusively on nouns. The 20 items used those that had shown the greatest vari-

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Divergent Thinking was found to be a single concept from which variations to other concepts are exerted. Convergent Thinking was found to be the act of bearing in order to classify these ideas which solve a particular problem.

Delusional-like beliefs, we hypothesized, should however be less prominent in persons showing pronounced convergent thinking abilities. Our research question was thus: Do healthy individuals who score high on a schizotypy measure show strong divergent but relatively poor conver- gent thinking in comparison to low schizotypy scores?

Results

A double dissociation was found: Individuals from the low MI group accepted fewer synonyms than those of the high MI group, but they managed to solve more items from the Remote Associates test.

A post-hoc analysis revealed that the difference in RAT perform- ance was only significant for the subset of difficult items (the six items for which the fewest correct answers were given).

As in the WHT, we again used only nouns for our German version and selected 20 items of different difficulty levels as measured with a pre-test. A participant scored 1 point for every right answer (scale: 0-20). In order to verify whether non-expected answers were meaningful, we asked three examiners, who did not know the answers we were expecting, to evaluate all suggestions. In one case such an alternative answer was considered correct.

To summarize, both tests assess verbal association abilities, but they differ in the recruitment of thinking styles.

Discussion & Conclusions

Persons scoring high on the Magical Ideation Scale tend to see more links between concepts and thus seem better able to generate potential solutions to a problem, pre- sumably due to a more intense spreading activation, in their semantic network. However, they seem to be less well able to control this activation in order to find appropri- ate solutions if specific requirements must be met.

This dissociation explains the Javanese face of magical ideation: on one hand, pronounced divergent thinking allows one to “see” connections between loosely associated concepts, on the other hand, poor convergent thinking may prevent the integration of novel ideas into an established body of knowledge and thus foster the formation of idio- tactic, delusional-like beliefs.

The double dissociation may explain why previous findings have not provided a coherent picture regarding the link be- tween delusional-like thinking and creativity.

Additionally, the pronounced individual differences in ac- comboutic processing found in this sample of individuals who are all exposed to the same language environment, ques- tions the significance of linguistic relativity - the claim that one’s language shapes one’s style of thinking.

References


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