

Creativity and Schizophrenia: An Equality of Empirical Constructs

By NANCY HASENFUS and PETER MAGARO

Summary. The possibility that schizophrenia and creativity are two aspects of the same process is discussed, and parallels between different types of schizophrenia and different factors of creativity are sought. The discussion begins at a theoretical level, but its main thrust is an analysis of the research literature at an empirical level. Similarities are pointed out between tasks used for the purpose of operationally defining the schizophrenic 'deficit' and tasks used to define creativity. Some evidence is found for different subtypes of schizophrenics exhibiting different factors or types of creativity.

The idea that creativity is madness has a long history going back to Plato. Nineteenth-century theorists such as Lombroso (1894) argued that both creative genius and insanity resulted from the same underlying cause: degeneration. The psychoanalyst Kris (1952) theorized that both the schizophrenic and the creative regress, but that the creative individual is able to regress 'in the service of the ego' while the schizophrenic's regression is uncontrolled. Cattell (1963) and Barron (1972) found that creative people tend to appear more pathological than do normals when evaluated with psychometric methods.

The converse contention that madness is creativity is of a more recent origin. It has been put forward by theorists who argue that the experience of the acute schizophrenic is actually a type of 'peak experience' similar to that experienced by the creative or self-actualized person (Siegler, Osmond and Mann, 1969). Jarvik and Chadwick (1973) argue that so detrimental a condition as schizophrenia, with a probable genetic component, would be expected to decline through natural selection if there were not some positive, adaptive aspects to the process. Karlsson (1968) argues that it is the creativity exhibited by many non-psychotic carriers of the schizophrenia 'gene' that accounts for its persistence in the population.

The more general contention that creativity and schizophrenia are two aspects of the same process is supported by the similarity of many theories guiding research in the two areas and by the overlap in the topics investigated and the empirical constructs used. Broen (1968) concludes from his review of the research on schizophrenia that the two major behavioural changes in schizophrenia are increased response competition and relatively disorganized attention, with varying breadths of attention and a consequent deviant range of cue utilization. Response competition and range of cue utilization are also major topics of research in creativity (Mednick, 1962; Mendelsohn and Griswold, 1964, 1966; Ward, 1969). Investigation of these topics has led to the emergence of associative hierarchy theories and arousal theories in the literature of both schizophrenia and creativity. Mednick's theory of creativity (1962) and his early theory of schizophrenia (1958) were in fact essentially the same, for he posited flattened associative hierarchies resulting in unusual associations and unusual behaviour in each case. Mednick thought that for schizophrenics this flattening was caused by high arousal resulting from anxiety, but he did not specify what caused the flattening for creatives. However, theories that suggest high arousal in creatives have recently been proposed (Martin-

dale, 1975; Fischer, 1971). In research with both schizophrenics and creatives the measures used for the purpose of operationally defining arousal are most typically GSR and EEG levels. Both populations, or segments of both populations, have been found to exhibit higher basal levels of arousal (Martindale, 1975; Venables, 1964).

The similarity of the theories used to explain schizophrenia and creativity are provocative, but it is more instructive to compare the performances of schizophrenics and creatives when they are given similar tasks. During such comparisons, the factor of creativity being measured or the type of schizophrenic employed will be noted, so that the possibility may be evaluated that different factors or styles of creativity parallel different subtypes of schizophrenia. It is now considered important to classify schizophrenics on the following dimensions: good premorbid *vs* bad premorbid, acute *vs* chronic, paranoid *vs* non-paranoid, and process *vs* reactive (Magaro, 1975). Wallach (1970), in his review of the creativity literature, concludes that there are at least two independent factors involved in creativity: ideational fluency and a preference for complex and asymmetrical designs. His review also suggests that 'breadth of attention deployment' and the resultant ability to make wide associations may be a third factor.

Let us now explore the possibility that what is operationally defined as the schizophrenic 'deficit' is in some instances equal to what is operationally defined as creativity. A common ideational fluency test requires the subject to name as many ways as possible in which two objects are similar. Another test requires the subject to give as many instances as possible that exemplify a given category (e.g. things that are round) (Wallach, 1971). Usually, the more creative individual is operationally defined as the one who gives the greater number of responses, because number of responses correlates highly with originality. The parallels are clear between these ideational fluency tests used to operationalize creativity by some investigators and the sorting and object classification tasks on which schizophrenics manifest a 'deficit'. The type of schizophrenic deficit

supposedly manifested on these tasks is over-inclusion, which Cameron (1938) defined as 'the inability to preserve conceptual boundaries, as a result of which distantly associated and even irrelevant ideas come to be regarded as essential parts of the concept'. Payne, Caird and Laverty (1964) showed that overinclusion is exhibited only by acute schizophrenics and primarily by paranoid schizophrenics.

The Object Classification Test used as a measure of overinclusive thinking consists of asking the subject to sort 12 objects in as many ways as he can (Payne and Friedlander, 1962). This task is similar to the ideational fluency test, which requires the subject to give as many ways as possible in which two objects are alike. Both the creative and the overinclusive schizophrenic respond by giving more responses than the normal subject. In the Goldstein-Scheerer Object Sorting Test the subject is asked to hand over one object of the many before him, and then he is asked to hand over all the other objects he thinks could be grouped with the first (Payne and Friedlander, 1962). The over-inclusion score is the average number of objects chosen in each group. The more objects chosen, the more overinclusive the individual is judged. This task is similar to the ideational fluency test of giving as many instances as possible that exemplify a given category. The comparisons described above suggest that ideational fluency and overinclusion may be the same phenomenon. This suggestion is further supported by Andreasen and Powers' study (1975) showing that highly creative writers are overinclusive on the Goldstein-Scheerer Object Sorting Test.

In the creativity literature preference for complexity and asymmetry is often measured with the Barron-Welsh Art Scale or the Revised Art Scale, which consists of approximately 60 different black and white designs. A preference for complex and asymmetrical designs results in a high creativity score. Lewis (1971) gave the Revised Art Scale to 60 schizophrenics, divided into process, reactive, and mixed groups. The mean scores for the mixed group (25.05) and the reactive group (18.50) were above the mean for men (17.33) given by Welsh (1959), and the process group (15.40) was below this mean. The mixed group was

significantly above Welsh's mean for men ($t = -2.65$, $P < .01$), but the other groups were not significantly different from the mean. Thus this study indicates that certain types of schizophrenics prefer the complex and asymmetrical more than normal subjects do. Davids (1964) showed that chronic schizophrenic patients liked ambiguity in auditory communications significantly more than college students or naval officers.

The characteristic that is most often seen as establishing a link between creatives and schizophrenics is their purported similar tendency to emit unusual associations. Mednick's associative theory of creativity postulates that creatives should give a larger number of total responses and more original responses on word association tests, and there is some support for this position (Mednick, 1962; Mednick, Mednick and Jung, 1964). The proposition that schizophrenics give more unusual associations than do controls is strongly supported by the literature (Buss, 1966). Studies which compare different subtypes of schizophrenics on this trait suggest that associative interference and remote associates may be most characteristic of chronic non-paranoid schizophrenics (Lester, 1960; Higgins, Mednick and Philip, 1965; Higgins, Mednick and Thompson, 1966; Goldstein *et al.*, 1969).

In the light of the evidence reviewed it seems justifiable to conclude that there are some similarities between the operational definitions of creativity and some of the operational definitions of the schizophrenic 'deficit'. As measured by certain tasks, the schizophrenic 'deficit' does in some instances equal creativity. It seems probable that ideational fluency and over-inclusion are similar processes. With regard to the word association literature, it is clear that schizophrenics emit remote and unusual associations, as do creatives. Some aspects of schizophrenic performance seem to demonstrate a preference for the complex and asymmetrical, but the evidence on this point is weaker.

It can further be concluded that paranoid schizophrenics have been shown to exhibit the factor of ideational fluency. It is unclear if any particular type of schizophrenic tends to express the greatest preference for the complex

and asymmetrical. The evidence suggests that the production of remote associations is most typical of chronic non-paranoid schizophrenics.

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Nancy A. Hasenfuls, M.A., *Graduate Student in Psychology*,
 Peter A. Magaro, Ph.D., *Associate Professor of Psychology*,
University of Maine, Orono, Maine 04473

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