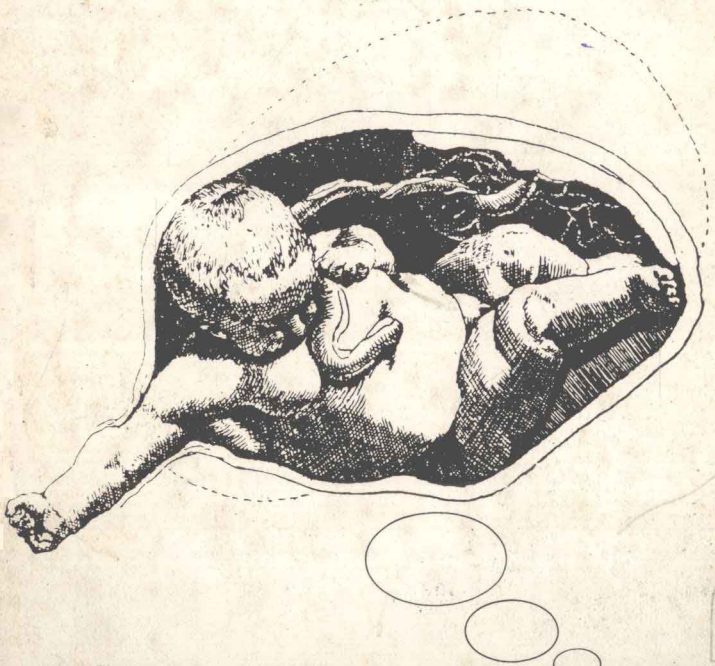
PENGUIN MODERN PSYCHOLOGY READINGS

CREATIVITY

EDITOR: P.E.VERNON



Penguin Education Psychology Readings

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Edited by P. E. Vernon

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Penguin Books

Penguin Books Ltd, Harmondsworth, Middlesex, England
Penguin Books, 625 Madison Avenue, New York, New York 10022, U.S.A.
Penguin Books Australia Ltd, Ringwood, Victoria, Australia
Penguin Books Canada Ltd, 2801 John Street, Markham, Ontario, Canada L3R 1B4
Penguin Books (N.Z.) Ltd, 182–190 Wairau Road, Auckland 10, New Zealand

First published 1970
Reprinted 1972, 1973, 1975, 1976, 1978, 1981, 1982

Made and printed in Great Britain by
Richard Clay (The Chaucer Press) Ltd,
Bungay, Suffolk
Set in Monotype Times

Contents

Introduction

Several excellent symposia or collections of articles in the field of creativity have been published in the past ten years, notably by Anderson (1959), Gruber, Terrell and Wertheimer (1962), Mooney and Razik (1967), Stein and Heinze (1960), C. W. Taylor (1964a and b) and C. W. Taylor and Barron (1963). Useful general summaries are provided by Golann (1963), Barron (1965), Cropley (1967) and Tyson (1966). However these do not serve quite the same function as a book of Readings, which should sample major contributions of the past, as well as recent work. Naturally my choice in the present collection is arbitrary, but I believe fairly conventional rather than idiosyncratic. It is based on the following principles:

1. To show the range and variety of work in the area, both theoretical and applied, not glossing over the fact that much of it is controversial and indecisive.
2. To include many of the major names who are most often quoted, while at the same time trying to fill in the gaps between their articles or excerpts by less generally known contributions.
3. To give reasonable recognition to the work of British as well as American authors.
4. To avoid highly technical matter, which would presume considerable knowledge of, say, statistics.

This Introduction will attempt to indicate the main trends of psychological interest and importance,[1] and to provide a guide to suggested further reading. I say psychological, since I have excluded any discussion of what constitutes a great work of art or of scientific invention; these are matters of aesthetic criticism, or of theoretical or technological evaluation. Similarly art education or other forms of technical training are entirely omitted. The major, though by no means sole, emphasis is on differences between individuals in the abilities and personality characteristics

1. Considerable use has been made of my earlier articles (Vernon, 1964, 1967).

that underlie the production of artistic or scientific work which is generally recognized as creative and original. What various kinds of talents can be distinguished and, perhaps, measured? What are their origins? What promotes and what hinders their development?

It is just 100 years ago that Galton published his *Hereditary Genius* (1869), the first attempt at an empirical study of human abilities, which viewed men of genius, not as a kind of race apart, but as the extreme top end of a continuous distribution. However, the basic principles of measuring mental abilities were pioneered by Charles Spearman in London and Alfred Binet in Paris, in the first decade of the twentieth century. Though Galton himself thought of ability in terms of varied talents, combined with strong motivation, Spearman overemphasized the supreme importance of the general intelligence factor in all types of achievement; and both looked to heredity, rather than environment, as the source of greatness.

Now at the time when Galton was writing, society in general was little concerned about fostering or increasing its resources of men and women of outstanding ability. People were intrigued by the lives and tribulations of great artists, writers, scientists and leaders, but Thomas Gray was exceptional in his concern over 'mute inglorious Miltons' (1750). However, social reformers and politicians were beginning to realize that education was needed not merely for the aristocracy and the church but for the production of doctors, lawyers and the like, and even for the masses.

Since these first beginnings of the technological welfare society, European education has vastly extended its coverage and effectiveness. Particularly since the Second World War it has aimed to provide equality of opportunity, regardless of wealth or class. But it is still élitist in the sense that it differentiates according to the abilities and achievements that students actually manifest. We still assume, in other words, that genuine talent will make its way without requiring special encouragement, perhaps even that creative genius thrives on opposition and difficulties. Thus Europeans find some difficulty in understanding what all the fuss is about in America over creativity and 'the gifted child'. Nevertheless European educationists, like their American counterparts, are increasingly concerned as to whether current methods of teaching,

testing and examining, at school and at university, may not unduly favour the conformist mentality and discourage spontaneous, independent thought among those children or students who might make future original contributions to the arts, sciences and technologies.

American education has always been more 'democratic', aiming to integrate diverse social groups and to reduce, rather than exacerbate, individual differences. Thus when L. M. Terman, profiting from Spearman's and Binet's contributions, embarked on his lifelong studies of intelligence, he deplored the lack of recognition and encouragement of brighter children in American schools. Both teachers and parents, it seemed, wanted to produce the conventional, socially well-adjusted child and viewed the unusually talented student with suspicion. Terman's work, together with Leta Hollingworth's (1926) studies of the difficulties of adjustment of very high-I.Q. children, made a considerable impact; and during the 1930s and 40s there was much experimentation with, and controversy over, schemes of 'acceleration', 'homogeneous grouping' or 'enrichment' of the curriculum. But it was the advent of Sputnik in 1957 that shocked America into asking whether its educational system was failing to produce sufficient original scientists to maintain its technological lead in the modern world.

Another turning point was J. P. Guilford's (1950) paper which pointed out that almost all the tests and achievement examinations used by American psychologists and educationists were 'convergent', that is, for each item there was one predetermined correct answer. Clearly these put the imaginative or independent thinker at a disadvantage. Creative thought is more likely to issue in a variety of new answers, in other words, to be divergent.

Many investigations of so-called creativity tests followed (see Part Four of this volume) together with a spate of publications on the need for early recognition of children with unusual ideas and talents, on tolerating and encouraging independent thinking and creative activities instead of repressing them because they upset the teacher's routine, on the possibilities of training students and industrial employees to develop their potential creative powers (see Part Six), and on the selection of research workers for creativity rather than for convergent types of achievement.

Whether this is a passing craze, or an educational revolution, time will show. As the Ammonses (1962) and others have pointed out, many of the prescriptions for encouraging creative development in children run directly counter to the manner in which creative geniuses in history were often reared.

Research has still not given a clear answer to such questions as whether creativity is an ability distinct from intelligence, or whether, as Thurstone (1952) and Guilford supposed, it involves a number of different primary mental abilities or factors. Nor do we know what kinds of tests, given in what manner, best predict future creative capacities of students and adult workers. A good deal of the confusion in this area arises from loose usage of terms like creative, original, imaginative, nonconformist, gifted, talented, genius, etc. Whereas some writers are talking about people like Mozart and da Vinci, or about highly productive and original artists or scientists of the present and future (say 1 in a 1000 of the population), others are referring to children or adults who score well on divergent thinking tests – a very different matter. Still others refer to the exceptionally able students from the top 1 or 2 per cent in I.Q. and achievement, or even to the top 20 per cent – the well-above average. Again there are many kinds, as well as degrees, of creativeness. Should we expect to be able to subsume a child's drawings or his father's gardening, under the same principles as Einstein's theory of relativity?

Let us go back to the beginning and look at a rather different aspect of the subject. To the layman, and indeed to the artist himself, the nature of the creative process is mysterious and unanalysable. It is difficult even to define creativity, though many have tried (cf. Ghiselin, 1952; I. A. Taylor, 1959), usually emphasizing novel combinations or unusual associations of ideas, and the point that such combinations must have social or theoretical value, or make an emotional impact on other people. To the psychologist, however, creative thinking is merely one of the many kinds of thinking which range from autistic fantasy and dreaming to logical reasoning. Indeed to some extent it seems to partake of both extremes (cf. McKellar, 1957; Vinacke, 1952). Many of the experiments that have been carried out on problem solving and blockages to novel solutions (e.g. Maier,

1930–31; Duncker, 1945; Wertheimer, 1959) are also relevant to creativity, and a few studies (e.g. Patrick, 1935, 1937) have attempted, not very successfully, to investigate creative production under laboratory conditions. Newell, Shaw and Simon (1962) have shown that most of the typical features of creative thinking, at least in mathematics and chess playing, are amenable to computer simulation. Further work along these lines and in information theory may well provide our best hope of progress in understanding the psychology of creative thought. Another possible mode of attack is through studies of the effects of hallucinogenic drugs (see Huxley, 1954). But though these release people from acquired inhibitions and conventional perceptual habits, there is little evidence, as yet, that they result in the production of worthwhile creative ideas.

So far we have considered creativity mainly as an ability and a form of cognitive activity. But throughout the history of its study a recurrent theme has been the underlying personality characteristics and emotional drives of the creative individual. According to John Dryden, 'Great wits are sure to madness near allied', and Lombroso (1891) considered genius as a manifestation of the diseased mind, accompanied by many signs of pathology. Kretschmer (1931) too spoke of a psychopathic element, combined with a high degree of talent, though he was more interested in the association of different types of genius with different physiques and temperaments. However, the first empirical investigation of the topic by Havelock Ellis (1904) showed very little psychosis among British men of genius, though minor nervous disorders and poor health in childhood were rather frequent. Cox's survey in the 1920s confirmed this (Cox, 1926), and emphasized the outstanding persistence and drive of great leaders, intellectuals and artists. Clearly generalizations are dangerous. Many men of genius in the past have shown psychotic or severe neurotic tendencies, and it is difficult to believe that they could have produced as they did had they been more normal. Many others have been eccentrics, rebels or emotionally unstable, while still others have lived full and very ordinary lives, though characterized by extreme devotion to their artistic or scientific work.

Our Readings include selections from Terman and Roe,

Freud and Rogers; while Part Five describes a number of investigations of living individuals, using tests and controlled interviews, which seem to yield a rather consistent picture of the personality and motivation of the creative scientist. Though too long to reproduce here, McClelland's (1962) synthesis of these findings with psychoanalytic theory is particularly worth reading. The creative artist is similar in some respects, but probably very different in others, and less progress has been made in studying him, presumably because he is less essential to technological survival. An unanswered question is why so few women have shown outstanding creativity in any field. Another fascinating problem is how the artist conveys in his pictures, writings or music his personal solutions to emotional conflicts, his insights into human nature, which give us aesthetic satisfaction through their effects on our own emotions. This adds a further complication, since it implies that creativity is always relative to a particular culture; it is not a product of the artist or scientist alone. There are very few who, like Shakespeare, appeal to something so universal in human nature as to retain their reputation over many generations and in diverse cultures. Even in the case of science and invention, where it is easier to judge that some insights are more seminal than others either for theoretical advance or for their practical utility, it is notorious that the value of original contributions is often not recognized at the time.

Some study has been given to cultural environments that favour or inhibit the production of sheer numbers of outstanding scientists or artists. J. M. Cattell (1906) initiated this approach by comparing the numbers of men of science born in different American states which varied in wealth, educational advance and social traditions. Others, such as Knapp (1963), have shown that certain universities or other institutions produce more creative research than others. While these differences are attributable largely to the quality of the students or staff they attract, we are beginning to get some understanding of the social and educational factors which go to make up the institutional 'climate'.

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