



## Understanding Creativity: Where to Start?

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E. Paul Torrance

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Let me say at the outset that I think Eysenck has done an excellent job of doing what he set out to do. He attempted to relate creativity to personality in a much more definitive way than has been done previously and to use the known correlates of personality to suggest a theory of creativity that would explain many of the phenomena associated with this concept.

### Focus for Creativity Theory

Eysenck has had a distinguished career as a personality psychologist in the Institute of Psychiatry of the University of London. There are several ways one can approach the development of a theory of creativity. It has become traditional to consider creativity from four different viewpoints: person, process, product, and press (the environment, climate, etc.) They are sometimes referred to as the *four Ps* (Rhodes, 1961). Eysenck, being who he is, has chosen to begin the development of a theory of creativity with the person or personality view. This view seems to have served him well in psychiatry.

I have had a career in educational psychology. Just as it was natural and useful for Eysenck to choose to start with personality as a focus, it was natural and useful for me to begin with a process focus. An educational psychologist is concerned with the learning, thinking, teaching, problem-solving, creative, development, and other processes—even the personality processes.

### The Process Focus in Tradition

I contend that Spearman (1930) had a process focus. He viewed creative thinking basically as the process of seeing or creating relations, with both conscious and subconscious processes operating. According to one of his principles, when two or more percepts or ideas are given, a person may perceive them to be in various relations (near, far, the cause of, the result of, a part of, etc.). Another principle held that, when any item and a relation to it are cognized, then the mind can generate in itself another item so related.

Ribot (1906) and others after him have emphasized the capacity of thinking by analogy as the essential, fundamental element of creative thinking. He maintained that the process of analogizing gives rise to the most unforeseen and novel combinations, but he warned that it produces in equal measure absurd combinations and very original inventions. Recognizing the nonrational aspects of creative thinking, several investigators have called attention to the exercise of discrimination or choice as a part of the creative process.

The reader will recall that Eysenck repeatedly calls attention to relevance as a criterion. Kubie (1958) conceptualized the creative thinking process as taking place in the preconscious system. The preconscious is able to scan experiences and memories, to condense, to join opposites, and to find relations at speeds impossible in the conscious system. The resulting intuitions, however, are not very precise and are subject to the primary-process type of thinking.

Wallas (1926) identified four steps in the creative process: preparation, incubation, illumination, and revision. Apparently, the process flows somewhat as follows: First, there is the sensing of a need or deficiency, random exploration, and a clarification or "pinning down" of the problem. Then ensues a period of preparation accompanied by reading, discussing, exploring, and formulating many possible solutions and then critically analyzing these solutions for advantages and disadvantages. Out of all this comes the birth of a new idea—a flash of insight, illumination. Last, there is experimentation to evaluate the most promising solution for eventual selection and perfection of the idea. Such an idea might find embodiment in inventions, designs, scientific theories, improved products or methods, novels, musical compositions, paintings, or sculptures.

Among those who have elaborated and refined Wallas's conceptualization are de Bono (1967), Gordon, (1961), Osborn (1948), Parnes (1962), and Parnes, Noller, and Biondi (1977). In fact, one can detect the "Wallas process" as the basis for almost all the systematic, disciplined methods in existence throughout the world today.

#### Reasons for a Process Focus

I chose a process focus of creativity for research purposes because I thought that I could then ask what kind of person one must be in order to engage in the process successfully, what kinds of environments will facilitate it, and what kind of products will result from successful operation of the process (Torrance, 1965).

I described creative thinking as the process of sensing difficulties, problems, gaps in information, missing elements, something asked; making guesses and formulating hypotheses about these deficiencies; evaluating and testing these guesses and hypotheses; possibly revising and retesting them; and, last, communicating the results.

This definition describes a very natural process. Strong human needs appear to be at the basis of each of its stages. If we sense an incompleteness, something missing or out of place, tension is aroused. We are uncomfortable and want to do something to relieve the tension. As a result, we begin investigating, asking questions, manipulating things, making guesses or hypotheses, and the like. Until these hypotheses have been tested, modified, and retested, we are still uncomfortable. Then, even when this is done, the tension is unrelieved until we tell someone what we have discovered or produced. Throughout the process is an element of responding constructively to existing or new situations, rather than merely adapting to them. Such a definition places creativity in the realm of everyday

living and does not reserve it for ethereal and rarely achieved heights of creation.

To illustrate the process, I sometimes give an audience as it assembles one of the tests we have developed for assessing the creative thinking abilities (Torrance, 1966), such as the Incomplete Figures Test. After a while, I check with the audience to find out what has happened. Most admit that the incompleteness or some other quality of the figures made them uncomfortable. Usually some of them went ahead and completed the figures in some way, either by actually drawing lines or imaginatively by thinking of completing the figures. I then ask them to go ahead and complete the figures in some way that will be satisfying. There is then an obvious atmosphere of relief, increased liveliness, even smiles and laughter. There is also spontaneous interest in communicating the results and seeing what others have created.

#### Translation Into an Instructional Model

From the foregoing, it can be seen that, by using a process focus, ultimately one must deal with personality, product, and press. Eysenck's personality theory likewise deals with process, product, and press. The real test of a process theory of creativity is in translating it into an instructional model that can be useful in the teaching-learning process. To meet this challenge, I developed what I call the *incubation model of teaching* (Torrance, 1979; Torrance & Safter, 1990). This instructional model is a three-stage model that provides opportunities for incorporating creative thinking abilities and skills into any discipline at any level from preschool through professional and graduate education and the elderly.

This model consists of three stages: heightening expectations and motivation, deepening expectations or digging deeper, and going beyond or keeping it going. The purpose of the first stage is to create the desire to know, to learn, or to discover; to arouse curiosity; to stimulate the imagination, and to give purpose and motivation. The purpose of the second stage is to go beyond the surface or warm-up and to look more deeply into the new information. For creative thinking to occur, there must be ample opportunity for one thing to lead to another. This involves deferring judgment, making use of all the senses, opening new doors, and targeting problems to be considered or solutions to try. The purpose of the third stage is to genuinely encourage creative thinking beyond the learning environment in order for the new information or skills to be incorporated into daily lives.

Those teachers who have applied this instructional model have reported that teaching becomes an exciting experience to them and to their students. It can be

applied not only to “teaching,” but to lectures, sermons, workshops, seminars, and conferences. This model was first applied on a large-scale in the Ginn Reading 360 (Clymer et al., 1969) and later to the 720 (Clymer et al., 1973). Field reports indicate that this program resulted in more reading, more books checked out of libraries, more seeking information through interviews and experiments, and discovery learning. Since the publication of the incubation model of teaching (Torrance & Safter, 1990), it has been used in many other disciplines with reported success.

### The Future of Creativity Research

Eysenck and others (Glover, Ronning, & Reynolds, 1989) are pessimistic about the future of creativity research. Glover et al. argued that the whole field of study “had come to be a large-scale example of a degenerating research program” (p. xi). Brown (1989) contended that the early excitement about “divergent thinking” has given way to deep-seated misgivings about the measurement of “creativity.” Eysenck seems to think that this is because the system has failed to provide new insights and findings.

I believe that these conclusions and observations are not accurate. There are many new and exciting insights and findings that have been ignored (Torrance, 1991). Some deserve at least further testing. For example, I do not believe that the best predictor of future achievement is past achievement. The best predictor of future achievement may be one’s future self-image and love for whatever that person will be doing in the future. I have offered some preliminary findings that support these insights, but there is a need for further testing.

I wholeheartedly agree with Eysenck’s statement that “the study of creativity clearly needs more creativity in its devotees—more than is required in most other fields in psychology!” There are surely many more

important and exciting insights “out there,” ready to be discovered and used.

### Note

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