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CREATIVITY AND CULTURE*

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In this paper¹ a series of hypotheses will be discussed regarding the personality of the creative individual, his work, the process through which he achieves it, and some of the relationships between these and the culture in which they appear. These hypotheses were developed in the course of studying the personalities of a small number of Chicago artists.² The tentative nature of the hypotheses should be emphasized—their validity is still in question. They are now being subjected to test in a study of chemists.

Let us start with a definition. The creative work is a novel work that is accepted as tenable or useful or satisfying by a group in some point in time. Each of the parts of this definition will be considered separately.

By "novel" I mean that the creative product did not exist previously in precisely the same form. It arises from a *reintegration* of already existing materials or knowledge, but when it is completed it contains elements that are new. The extent to which a work is novel depends on the extent to which it deviates from the traditional or the status quo. This may well depend on the nature of the problem that is attacked, the fund of knowledge or experience that exists in the field at the time, and the characteristics of the creative individual and those of the individuals with whom he is communicating.

Often, in studying creativity, we tend to restrict ourselves to a study of the genius because the "distance" between what he has done and what has existed is quite marked. Such an approach causes us to overlook a necessary distinction between the creative product and the creative experience. The child who fixes the bell on his tricycle for the first time may go through stages that are structurally similar to those which characterize the work of the genius. His finished product, however, is a return to a previously existing state of affairs. The product of an inventor's labor,

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on the other hand, may strike one as creative immediately because it did not exist previously. In speaking of creativity, therefore, it is necessary to distinguish between internal and external frames of reference.

Turning to the characteristics of the creative experience or creative process and the personality of the creative individual, we adopt a bipolar point of view, in which there is an *interaction* between the creative individual and the problem on which he is working, or, in broader terms, and the environment in which he exists. To speak solely of the existence of the stresses and strains in the environment without due consideration of the individual, as some investigators do, or to deal primarily with the stresses and strains in the individual and to overlook the nature of the problem or the environment as other investigators do, is an arbitrary approach which is a consequence of the specialization in our profession today. Such separate emphases, however, can yield only partial insight and understanding.

The first question that arises in analyzing the creative process is the question of motivation: "Why does the individual create?" This does not differ from any other motivational problem. Therefore, in the early stages of the creative process, the individual experiences a state of disequilibrium—one might say that homeostasis is disturbed, or that there is a lack of closure, or, from a hedonistic point of view, that the individual experiences a lack of satisfaction with the existing state of affairs. On probing more deeply into the roots of the individual's personality, one may realize the historical factors and personal needs which determine the subject's *sensitivity* to such states. The creative person has a lower threshold, or greater sensitivity, for the gaps or the lack of closure that exist in the environment. The sensitivity to these gaps in any one case may stem largely from forces in the environment or from forces in the individual.

Associated with this sensitivity is the creative individual's capacity to *tolerate ambiguity* (1). By "capacity to tolerate ambiguity" I mean that the individual is capable of existing amidst a state of affairs in which he does not comprehend all that is going on, but he continues to effect resolution despite the present lack of homeostasis.

To summarize this early stage of the creative process: the creative individual may be characterized as a system in tension sensitive to the gaps in his experience and capable of maintaining this state of affairs. Some individuals go no further than this point in the creative process. Their creativity is manifested in the fact that they have played a critical rôle in calling the attention of others to the gaps that exist. But for others the creative process continues to the next stages—hypothesis formation and

hypothesis testing. These individuals seek various solutions that would close the gap or that would effect closure.

To be capable of developing such hypotheses, it is suggested that just as there need be some communication between the individual and his environment (i.e., that which was termed sensitivity previously), so there need be communication between some or all of the inner personal regions. Stated somewhat differently, the creative individual is characterized by permeable boundaries that separate the self from the environment and that separate some or all of the regions within the self. At times when this permeability does not exist, it may be induced by the taking of drugs or alcohol as we find to be the case in many creative persons. Or it may exist when the person is distracted or devoting himself to other works.

The character of the inner personal region obviously varies with the nature of the work that is undertaken. For persons in one area (physics, for example) it may mean greater flexibility in the intellectual sphere, while for others, the artist, it appears as a greater flexibility in the emotional or affective sphere. To be sure, there is an interaction between the two spheres, and rigidity in one area may well impede developments in the other and sidetrack the creative process.

This interaction and some of its hazards are well illustrated in Schiller's response to a friend who complains of his lack of creative power. He says:

The reason for your complaint lies, it seems to me, in the constraint which your intellect imposes upon your imagination. Here I will make an observation, and illustrate it by an allegory. Apparently, it is not good—and indeed it hinders the creative work of the mind—if the intellect examines too closely the ideas already pouring in, as it were, at the gates. Regarded in isolation, an idea may be quite insignificant, and venturesome in the extreme, but it may acquire importance from an idea which follows it; perhaps, in a certain collocation with other ideas, which may seem equally absurd, it may be capable of furnishing a very serviceable link. The intellect cannot judge all those ideas unless it can retain them until it has considered them in connection with these other ideas. In the case of a creative mind, it seems to me, the intellect has withdrawn its watchers from the gates, and the ideas rush in pell-mell, and only then does it review and inspect the multitude. You worthy critics, or whatever you may call yourselves, are ashamed or afraid of the momentary and passing madness which is found in all real creators, the longer or shorter duration of which distinguishes the thinking artist from the dreamer. Hence your complaints of unfruitfulness, for you reject too soon and discriminate too severely (2, p. 193).

The "momentary and passing madness" is, I believe, a function of the

permeability of the boundaries in the inner personal regions that are usually blocked from consciousness. The intensity of the "momentary and passing madness" is correlated with the depth to which the experience goes. For the artist it may go deeper into subjective experience than for the scientist. Instances of such experiences are described by many creative persons. Thus Zervos, in discussing Picasso's creative process, says:

His only wish has been desperately to be himself, in fact he acts according to suggestions which come to him from beyond his own limits. He sees descending upon him a superior order of exigencies; he has a very clear impression that something compels him imperiously to empty his spirit of all that he has only just discovered, even before he has been able to control it, so that he can admit other suggestions. Hence his torturing doubts. But this anguish is not a misfortune for Picasso. It is just this which enables him to break down all his barriers, having the field of the possible free to him, and opening up to him the perspectives of the unknown (4, p. 109).

For some persons the creative process may stop during the stage of hypothesis formation. They develop too few hypotheses because of intellectual or emotional reasons, or in the process they become sidetracked by considering a specific intellectual matter that is not relevant to the demands of the moment, or they come upon a previously unresolved emotional difficulty that forces its attention upon them.

The process of hypothesis formation in the creative person is not a haphazard nor rigid process. It is a flexible one that is often characterized by either implicit or explicit direction. The creative individual's time perspective is oriented toward the future. He senses in the present how some aspects of the final form of the product are to appear. Thus Wertheimer, in discussing Einstein's thought processes while he was working on the theory of relativity, says:

Before the discovery that the crucial point, the solution, lay in the concept of time, more particularly in that of simultaneity, axiom played no rôle in the thought process—of this Einstein is sure. (The very moment he saw the gap, and realized the relevance of simultaneity, he knew this to be the crucial point for the solution.) But even afterward, the final five weeks, it was not the axioms that came first. "No really productive man thinks in such a paper fashion," said Einstein.

Later he added:

During all those years there was a feeling of direction, of going straight toward something concrete. It is, of course, very hard to express that feeling in words; but it was decidedly the case, and clearly

to be distinguished from later considerations about the rational form of the solution. Of course, behind such a direction there is always something logical; but I have it in a kind of survey, in a way visually (6, p. 183).

It has been observed by some that in the course of the creative process the creative individual experiences depression. The hypothesis is suggested that this depression arises as a result of anxiety that is brought forward by the lack of direction just mentioned. The creative person no longer feels that he is going forward and still he cannot enjoy the present state. The lack of direction may be a consequence of an excessive number of hypotheses that occur to the subject and the feeling of inadequacy as to the possibilities of testing any of them. It may also arise as a result of his inability to communicate his ideas to others. Finally, as the result of the relaxation of the inner personal barriers, old unresolved tensions are brought to the surface which are the residues of earlier life experiences wherein the individual was realistically inadequate—thus there is a process of reinforcement. Indeed, for the creative individual this is only one point in a sequence of events, but for others it may be the end.

After the development of a series of hypotheses, or even simultaneously with them, there is testing of the hypotheses. The testing may vary with the area of the work. For one person it may involve the construction of practical models, while for others it may involve changing the features of a painting. In any case, it is suggested that when the final solution is attained, that is, when there is closure for the individual, he experiences a feeling of satisfaction with the final work, a feeling of exhilaration with the good gestalt. It is this feeling that is manifest in "Eureka" or "This is it!"

Some investigators in the area of creativity who have relied primarily on the Rorschach test have remarked, with some degree of dismay if not disturbance, that the records of their subjects contain responses that are to be found in the records of severely disturbed persons. These responses apparently occur in sufficiently large numbers so that the emotional stability of the subjects is questioned. I would like to suggest that this finding may result from any one or a combination of the following factors. It may indeed be an accurate reflection of the creative person's instability, and it is this instability which may result in the subject's being sensitive to the lack of closure in his environment. It was therefore suggested previously that in the inner personal regions there is communication between *some* or *all* of the regions. The creative person may not necessarily be completely inte-

grated. Some of the factors that differentiate him from the neurotic or the more severely disturbed person, such as tolerance of ambiguity, direction, and a time perspective oriented to the future, have already been discussed. He is also different from the neurotic or psychotic in the next stage—that of communication, which will be discussed below. Furthermore, the Rorschach finding may be a manifestation of the extent to which the creative individual differs from others, and is congruent with his tendency to perceive accepted reality in a manner that differs from most people. By deviating from the traditional and status quo, the individual has achieved the first stage in arriving at the novel work. Furthermore, since many of the so-called “bad” signs in the Rorschach are inadequately formed *Gestalten*, his responses may reflect his ability or capacity to tolerate ambiguity in one area—the perceptual area. The Rorschach responses are then only a sample of an individual’s behavior in one area, from which we may infer his behavior in other areas. Finally, to fixate completely on the disturbed aspects of a creative individual’s personality is to emphasize a finding that may be an artifact of our present theory, which is oriented, possibly much too heavily, toward psychopathology, and an artifact of the experimental design, which does not take into account aspects of the personality for which the Rorschach is not necessarily the best. Mind you, it is not suggested that the Rorschach finding is invalid, but that it is only part of the story. The part that is not considered sufficiently is the creative person’s ability to convey or to communicate his personal experiences to others so that they may react to it.

This brings us to the second part of the definition suggested above: that the creative work is tenable or useful or satisfying. These terms were selected to cover the areas of ideas, things, and aesthetic experiences respectively, although they may well be replaced by other terms. My essential purpose here is to develop the thesis that the results of the creative process must be communicated to others. Communication with the self alone is insufficient. The creative person must achieve, as Sullivan says in another context (5), “consensual validation.” This may be clearer if we take the case of the psychotic person. Much of what the psychotic does has significance only within a narrow idiosyncratic framework. At times he may not even be able to communicate his experiences adequately, as one finds in the “word salads” and neologisms of the schizophrenic. And further, the ideas he has do not stand up under test. But the creative person is able to convey his experiences so that they can be tested, or, if he has tested them, so that they may be reacted to by others.

Suggesting that the creative work may be regarded as an element in communication implies at least two factors: (a) The creative person must have available to him means or media through which he can express himself. Just as each of us required training in language to convey our ideas, so it is obvious that to be creative in painting the artist needs some experience in the use of pigments, charcoal, etc., or to be creative in mathematics, and not in others. Such a study might well reveal the congruence that exists between the personalities of the subjects and the areas in which they have selected to work. (b) In the course of communicating his ideas, the creative person needs to abstract or eliminate certain aspects of his work which are completely of himself. In the final stages of communication, the individual must, as Mead would say, bear in mind the "others" with whom he is communicating. The extent to which this occurs varies with the area of work. Thus it is more prevalent in science than in art. But in either case there is a process of evaluation in which completely autistic factors, or the difficulties that were experienced in the course of arriving at a solution are eliminated. Thus in Einstein's work:

The way the two triple sets of axioms are contrasted in the Einstein-Infeld book is not at all the way things happened in the process of actual thinking. This was merely a later formulation of the subject matter, just a question of how the thing could afterwards best be written. The axioms express essentials in a condensed form. Once one has found such things one enjoys formulating them in that way; but in this process they did not grow out of any manipulation of axioms (6, p. 183).

Similarly, we find that Zervos reports on Picasso's work:

I see for others, that is to say that I can put on canvas the sudden apparitions which force themselves on me. I don't know in advance what I am going to put on the canvas, any more than I decide in advance what colors to use. Whilst I work, I take no stock of what I am painting on the canvas. Every time I begin a picture, I feel as though I were throwing myself into the void. I never know if I shall fall on my feet again. It is only later that I begin to evaluate more exactly the result of my work (4, p. 109).

It should be indicated that at times the creative person may present his work so well after his evaluation that others regard it as "simple," and wonder why they never thought of it.

The next major portion in the definition of the creative work is acceptance by a group. It is suggested that the creative product is congruent with the needs or experiences of a group. It strikes a chord for the group

as it does for the individual. The creative product "resonates" with the needs or experience of a group. The use of this word with regard to creativity reminds one of the resonance theory of hearing, in which it is postulated that different wave lengths of sound are heard because they strike different parts of the basilar membrane. To make an analogy between this and creativity, one might say that creative products resonate all along a responsive membrane. Thus certain art works resonate with feelings, while inventions resonate because they fulfill practical needs. In the case of art, it should be pointed out that there is not always a one-to-one relationship between what the artist attempted to express and what it resonated in the group. The conditions under which this does or does not occur is a matter for further investigation.

Acceptance by a group is significant. It provides the creative worker with his final test of reality, if you wish. The size of the group may vary. At times it may be only those on the "left bank," Greenwich Village, or the small number of persons who first gathered around Freud and Einstein. Individuals may seek out the creative person or he may have to proselytize them. The group provides the individual with necessary feedback so that he can clarify, alter, or make progress in his future work.

Finally, we arrive at the last point in our definition that the creative work is accepted at some point in time. The historical point of view reflected by the phrase "some point in time" is inserted in the definition to account for the fact that some men, like Van Gogh, may not be considered creative in their own lifetime; as a matter of fact, some, like Socrates, pay dearly for their ideas. Yet when the works of art or the ideas are rediscovered or are brought to attention at some future date, when the forces of society have changed, it is only then that these persons attain their rightful places in history. Indeed in some areas of creativity there may be "universals," e.g., form and use of space in art with only content varying in time. But in determining the validity of such universals, one needs to be aware of the hazard that what we regard as the critical elements in the universals today is a function of ourselves, and it may not necessarily be congruent with the manner in which these works were regarded in their own times.

The discussion, up to this point, has been limited primarily to the creative individual and the creative process. Let us now turn to a consideration of the interaction between the processes described and culture.

If what was said previously regarding the sensitivity of the creative individual in relation to both his external and internal environments is valid, then it may be said that a culture fosters creativity to the extent that it pro-

vides an individual with the opportunity to experience its many facets. A culture that limits the freedom of a person to study in one or a variety of areas cuts down his opportunity to pick out the gaps that exist in the culture and also keeps him from learning the necessary media of communicating his feelings or ideas.

A culture also fosters creativity to the extent that its parent-child relationships and child-rearing techniques do or do not result in the setting up of rigid boundaries in the inner personal regions.³ Techniques that result in excessive repression or guilt restrict internal freedom and interfere with the process of hypothesis formation. Attention must also be directed toward the broader aspects of education. For example, does the culture tolerate deviation from the traditional, the status quo, or does it insist upon conformity, *whether in politics, science, or at school?* Does the culture permit the individual to seek new experiences on his own, or do the bearers of culture (parents, teachers, and so on) "spoon-feed" the young so that they constantly find ready-made solutions available to them as they come upon a situation that is lacking in closure? Furthermore, to what extent do the adults accept or reward and thus reinforce the creative experience that the individual has had? For example, in the case I spoke of earlier—the child who fixed his tricycle bell—his experience could have been handled either by a depreciation of his experience and verbalized as, "Oh, anyone could have done that!" or the magnitude of his experience for himself could have been recognized and he could have been encouraged to seek similar experiences in the future. Experiences of this kind should be studied both in the home and in formal educational systems.

The stage of development of a culture obviously influences the means available to the individual for creative progress. Thus the modern physicist has new vistas open to him as a result of the recent developments in nuclear physics. From the experience in this area, it may be said that the variety of creative works that occur in a culture vary with the number of works that deviate markedly from the traditional and are accepted. Only with the acceptance of the theory of relativity and other findings was the present development of physics possible, and we may well expect many new discoveries and applications in this area.

The culture may be marked by strict adherence to a specific philosophy and this too influences progress in the arts and sciences. Giedion (3) suggests how a mechanistic view of the universe has effected the work in many areas

³Indeed, certain cultures set up rigid boundaries in certain regions and not others. This will no doubt affect the areas of creative work.

of inquiry. And, in the course of modern history, we have seen how various political and religious movements have at times stimulated and then markedly limited progress. Points of view which are developed in one area and studied by a worker in another way may aid the latter in sensitizing him to the gaps in his fund of knowledge. This is manifest in the recent developments in communication theory in the social sciences which were stimulated by the physicists. The extent to which progress is made in the new area of application may well depend on the rigidities of the philosophy that is adopted and/or on the manner in which it is interpreted and followed by those who accept it. For example, present-day mechanism and materialism has caused Giedion to suggest that we have been overlooking humanism and he highlights the need for a man who can live in "equipoise."

Furthermore, philosophies of life undergo cyclic change as a result of a multitude of factors. When a "valley" appears, the extent to which a culture comes out of it depends on the extent to which it is capable of tolerating ambiguity and encourages and tolerates a diversity of viewpoints as a new philosophy is developed. Further research might therefore be centered around the comparison of creative works when there is a consistent *Weltanschauung* and when one is lacking or when there is a conflict of philosophies.

Finally we come to a specific aspect of the culture—the audience with whom the creative person communicates—the critic, the patron, the followers, and the population at large.

The critic plays a very significant sociological rôle in determining what the larger population has available to it as instances of creativity. When we started our study of creative artists, we had a difficult time in getting critics to agree on who was a creative painter. Reputable persons in the art world disagreed with each other. Now let us assume that one of the critics, as was the case, is the curator of a gallery. That person would hang the works of one artist and not the other. For some people, because of the prestige of a museum, this work now becomes a "creative" work. But what of the others? They have to wait to be "discovered" by other critics and this may even happen, if they are fortunate, in their own lifetime. It might be wise, therefore, to study the personalities of critics or the supporters of scientific research, since they play such important rôles in determining what is creativity.

In some respects similar to both the critic and the supporter of scientific research, is the patron of arts. He, by virtue of the fact that he contributes financially to the artist's support, must be communicated with. How much of the patron's needs enter into the artist's evaluation of his final work

depends on the relationship that exists between the two. The patron, just as was said of the broader culture, may well direct and restrict the content of his artist's work, if not the manner in which he works, because of his financial position. This raises a more crucial question in our own time when there are few, if any, patrons of the arts who are comparable to the Medicis, let us say. Is there anything to the hypothesis that *one* of the factors resulting in the development of non-objective art is the fact that the artist no longer is subservient to a patron and he can therefore express himself as he wishes?

In considering the final stages of the creative process, it was suggested that the creative work must strike a chord or resonate in some manner with the group that accepts it. If this hypothesis is valid, then it would follow that the personalities or the experiences of the group are in some manner similar to those of the creative individual. It may be further suggested that studies of creative products provide some data for making inferences regarding the needs of the group that are being satisfied. Thus it may be suggested that one of the factors involved in the acceptance of modern art today is that it represents a retreat or a rebellion, if you wish, against the materialism and intellectualism that has marked much of our time. It is a voice speaking against a period in which there is a denial of certain feelings. To be sure, to make similar interpretations of previous cultures may be hazardous if this is accepted as the only evidence. We cannot completely put ourselves in the place of primitive man.

Finally one must also consider the problem of communication between the creative individual and the population at large. In some areas of works, such as practical inventions, communication may exist with an extremely large portion of the population because they are aware of an invention's demonstrated usefulness. Indeed communication may stop when it is necessary to understand the thinking that has gone into the development. Modern artists have been most vociferous in asking why their art is not appreciated more widely than it is, especially when they as individuals feel that they have captured the spirit and problems of the day. This raises the question whether in an "age of anxiety" some individuals do not find it safer for themselves not to be aware of the problems that exist around them. Just as society affects the creative process by developing individuals who cannot relax the boundaries in the internal and external regions, so the extent to which an audience does resonate with an art product is a reflection of the extent to which they as perceivers are capable of relaxing their defenses.

Thus by studying the "non-appreciators" we can also learn a great deal of the culture.

In summary then: A definition of the creative work was presented. A creative work is a novel work that is accepted as tenable or useful or satisfying by a group in time. In line with this, it was hypothesized that studies of the personality of the creative individual may reveal a sensitivity to the gaps that exist in his own culture and his creativity may be manifest in calling attention to these gaps or in finding a means of effecting closure, or his sensitivity to certain facets of this may result in his desire to communicate to others. In addition to sensitivity, attention was called to the creative individual's ability to tolerate ambiguity and to maintain direction as he develops and tests his hypotheses. The final product, considered as an element in communication, resonates with the needs or experiences of a group at some point in time. In considering cultural factors, it was hypothesized that the extent to which a variety of creative products are developed depends on the extent to which cultural influences permit the development of both freedom between the individual and his environment and freedom within the individual; on the extent to which the culture encourages diversity and tolerates the seeming ambiguity that such diversity suggests. We also considered certain aspects of the audience, specifically the critic, the patron, the appreciators, and the population at large with whom the creative person communicates. The experimental problems involved in testing the hypotheses mentioned are numerous, but they are not insurmountable.

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