The categorical answer to this question is: "yes", with very few exceptions. The dictionary definition of the term is this: to create is to evolve from one's own thought or imagination; to make something by investing with new character or functions. And the synonym commonly given for "create" is "originate". Hence, creativity is a term which is applicable to all fields: scientific, humanistic, and artistic.

Since Russia's Sputnik I was launched, American educators and psychologists have been earnestly engaged in conferring about, writing on, and conducting research on creativity. Russia's achievement did for American educators and psychologists what they, by themselves, had not been able to accomplish, although for a long span of years many among them had been urging that exceptional intellectual capacity and the creative talent that often accompanies high level intelligence be recognized and fostered through special educational provisions. Indeed, some had the courage to urge that it is one responsibility of our educational institutions to develop an "aristocracy of talent", even in a democracy, to be used, hopefully, for the common good. Others, interpreting democracy as "uniformity", were opposed to this view; they advocated equalitarianism in education, which is based upon a biological and psychological fiction. Yet, few would deny that individuals differ widely because of genetic differences as well as because of environmental inequalities.

While the race and competition in aero-science are not the educational motivating force we would hope for, the resulting objectives are highly desirable: namely, development and utilization of high-level ability and creative potential, and the encouragement of excellence in achievement. It is natural, then that educators and psychologists should have been most concerned with the methods whereby these objectives could be attained, with the criteria of creativity, and with the evaluation of the products of creative effort. But, unfortunately, the conferences, meetings, and publications have, themselves, not been signally creative.

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Educators and psychologists engaged in these desirable activities have been discussing, speculating, introspecting, making statistical (factorial) analyses, and, at times, conducting naive types of experiments and empirical research which have no demonstrable relationship to creative ability. One unfortunate consequence of these naive researches has been the attempt to minimize the significance of high level mental ability as represented by high intelligence quotients. I would maintain, nevertheless, that a high intelligence quotient (say, 130 or above), validly determined, is the best single type of evidence of potential creative ability, other than engaging in the creative task itself. The best evidence in support of this view is found in the outstanding longitudinal studies—covering more than thirty years—of gifted individuals from childhood well into adulthood; namely, L. M. Terman's Genetic Studies of Genius, especially volumes 3, 4, and 5. Also, in this series, volume 2 is highly significant (Early Traits of Three Hundred Geniuses). Although the intelligence levels of these historical individuals were estimated from data and other information that a skilled psychologist is able to evaluate, rather than by means of standardized tests, they
are quite significant estimates. Few of these 300 persons were rated below 120 IQ, while a very large majority were rated above 130.

Participants in the conferences referred to above, and in their publications, have not, in fact, redefined "creativity". What they have done is to analyze the process and define the term in more detail. Some recent formulations are quite simply stated. For example: creative work requires unusual and imaginative ideas, novel perspectives, recognition and formulation of previously unrecognized problems. Also, it is fashionable now to speak of "convergent" thinking (non-creative) and "divergent" thinking (creative). These two terms only signify the usual as against original thinking. Other analyses are more instructive. Thus: a creative effort requires acquisition of knowledge and techniques, a period of preparation, insights into problems that emerge from this background, and a period of concentrated effort, often followed by a period of incubation. If, to this point, the individual has the necessary ability and motivation, and if he has been able to withstand the frustrations and anxieties of the creative process, he will develop further insights; he will experience feelings of elation which, in turn, motivate him to further efforts at verification, evaluation, and elaboration, resulting in a more or less original product. (Readers of John Dewey will note that this analysis is similar to that in his How We Think.) And this is about the extent to which distinguished persons who have done creative work in the sciences, mathematics, and humanities, and the fine arts have been able to enlighten us through their introspective reports.

**Traits of Creative Persons**

The most useful contributions emerging from contemporary studies of creativity are those relevant to the non-intellective aspects of personality. The question is: What are the traits of highly creative persons, other than adequate intelligence? Most of the items in the following enumeration will not come as a surprise to experienced teachers; but it is gratifying to know that recent investigations confirm educators' empirical observations. Thus, creative persons, as a group, 1) prefer complex and unstructured situations; 2) have high aesthetic and theoretical values; 3) are independent in their judgments; 4) prefer to set their own goals; 5) are willing to assume responsibility for unusual activities; 6) are flexible and adaptive; 7) are open to and expressive of emotional feelings; 8) have intellects that are more perceptive of nuances; 9) have more far-ranging interests and are more receptive to experience; 10) are more often introspective and even introvertive; 11) show little defensiveness in their thinking and activities; 12) are less interested in small detail or in facts for themselves, but are more interested in meanings and implications; 13) are more intuitive in sensing the meanings of their perceptions and ideas; 14) are more complex persons, hence more difficult to analyze than non-creative persons.

Psychological principles of learning, in general, and the foregoing enumeration have certain implications for teaching practices intended to encourage and develop creative potential. Again, the suggested procedures that follow are not surprising; nor are they unfamiliar to creative teachers. They will serve, however, to emphasize aspects of teaching and learning too often disregarded or minimized. Thus, teaching to develop creative potential should encourage: 1) openmindedness to ideas, new and old; 2) intuitive perception; 3) transfer of thinking and training from one area or set of problems to others; 4) the search for common principles from different areas; 5) the viewing of facts and ideas in broad perspective; 6) attention to analogies, metaphors, and similes as a means of extending perceptions and broadening thinking; 7) discussion of ideas that might seem "fantastic"; 8) exercise in imaginative play; 9) high and critical standards for the learner; 10) evaluation, by the learners themselves, of their own progress; 11) continuous and increasingly penetrating learning.

It is axiomatic that, for the best results, the learner should feel that he himself is involved in his task and that he should derive personal satisfaction from what he is doing. These are especially important conditions in creative activity.

The teacher's role is particularly important in defining the objectives of a course of instruction, even at elementary levels. The teacher will thus influence, in fact, direct the pupils' methods of study and their conceptions of what materials they should learn and what mental processes they should try to develop. Should they read and recall? Solve problems? Synthesize and analyze materials? Draw their own conclusions? Relate cause and effect? Develop possible consequences and extensions? Encourage continuous inquiry? Discover esthetic qualities? Discern the characteristics of sound research? Thus the purposes of a course of study and the methods of instruction can either promote stereotyped, routine acquisition of material or encourage the development of mental processes needed in original, creative activities.

I wish to emphasize, however, that creative ability cannot develop in an educational vacuum. The learner
must have acquired the appropriate and necessary materials, skills, information, and techniques to work with and on. This often means that “old fashioned” drill, memorization, recitation, and testing are necessary. The principles of teaching, intended to develop creative ability, should not be regarded as opposed to the acquisition of these essentials. A great deal of what one learns must necessarily be of the non-creative kind. One cannot be “original” in learning arithmetical combinations and processes, correct spelling, grammar, basic historical facts, scientific principles, and the like. A child cannot learn to play musical compositions without learning to read musical notations. In drawing and painting, one must learn, at some point, how to handle perspective, how to mix colors, and other established principles of the visual arts; and one must be familiar with human and infra-human anatomy for some types of art work. It would be gratuitous to belabor the point that contemporary scientists build on the work of their predecessors; that radical artists, like Picasso, first mastered and practiced the techniques of drawing and painting; that competent authors have studied and analyzed the techniques and styles of earlier writers of merit. In other words, “convergent” learning and thinking are essential before an individual can have anything about which to be “divergent”.

While current research, conferences, and publications have not added much that is new or original to an understanding of creative individuals and to insights into the psychological processes involved in creative work, they have served a useful purpose in focussing attention on these aspects of learning and education. Yet, practically all psychologists and educators, in their current concerns, have neglected an aspect of creativity that is of major significance for nearly every person. They have been far too concerned with the recognition of individuals of superior or gifted creative potentialities, and their development in the various realms of academic activities. But they are not concerned enough with the fine arts: architecture, the visual arts, literature, drama, and music.

With relatively few exceptions, however, every person has or has had, from early childhood, an urge to engage in creative activity. Building with blocks, making mud pies, finger painting, inventing tunes, molding with clay, spontaneous dancing, and various forms of dramatization are early expressions of the creative urge. These and similar forms of self-expression are neglected, if not actually discouraged, relatively early in the child’s school career. These activities have had to yield to the more obvious and insistent demands of the traditional and essential subjects of study. They have had to give way to “the more serious business of life”. This priority is understandable and, in some degree, justified. Yet there should and can be opportunity for the continued exercise, development, and refinement of creative potential in the aesthetic arts—self-expression, if you will—as well as in the usual academic areas.

**Contribution of the Arts**

It is well known that handicrafts have therapeutic value (occupational therapy), as do music, painting, clay modeling, dramatics, and dancing. Often, in the case of persons under treatment, arts and crafts are utilized to express repressed and conscious hostilities, anxieties, and needs. But these are not the only psychological values the arts and crafts provide. They afford an opportunity for self-expression, for self-actualization (currently a fashionable term among psychologists), for spontaneity and the removal of inhibitions imposed by cultural patterns and by insistent “practical” demands of daily living. Since these modes of self-expression have therapeutic value for psychologically troubled and disturbed persons, it follows that such creative activity will contribute to the psychological well-being of persons whose emotions and adjustment are within the normal range of behavior.

The need for participation in arts and crafts is shown by the increasing and widespread active participation, especially among adults, in painting, writing, drama (all aspects), and craftsmanship (weaving, woodwork, metal work, book-binding, ceramics, etc.). I believe, also, that the “do it yourself” trend has psychological significance for the doer, as well as economic value, since it gives him a sense of achievement, of something completed, something created. Men and women in retirement who “take up” the arts and crafts do so not merely to have something to do. They find in these a means of self-expression previously not available to them. It is the psychological satisfaction, not alone the activity, that motivates and energizes them.

There are many persons who are unable, or too timid, too fearful of failure, or too fearful of self-expression to participate in creative arts and crafts themselves. Instead, they derive their satisfactions through identification with those who do perform and create. They identify by attending the theater; joining study groups in music, the visual arts, and literature; listening to music, and watching dance recitals. (There are, of course, other valid reasons for these interests, desirable in
standards, since most persons have only limited capacities in these, they should not be encouraged. If this viewpoint prevailed in schooling in general, we would educate few persons in any subject of study, since few are equipped to achieve a high level of performance. We recognize, however, that individuals differ in potential and we try to develop abilities at all levels. The same practice should prevail in the arts and crafts. It has been said that anything worth doing is worth doing badly. This statement is not contrary to the concept of high standards of performance. It is, in fact, a sound psychological principle. It means simply that even if a person’s best performance is only mediocre, it is still valuable for him if it provides desirable modes of expression and satisfactions. Mentally deficient children have shown me their “art work” with pride. I have heard “concerts” by a band made up entirely of mentally deficient adolescents and adults. By ordinary standards, the “art work” and “concerts” were poor products; but they were gratifying achievements for their “creators”.

Evidence of the significance of spontaneous creative expression is provided by the introspective reports of undergraduates and graduate students in the University of Hawaii who had taken the courses in Creative Expression (E.E. 630, Curriculum Construction in Creative Expression; E.E. 330, Creative Expression in the Elementary School). They were asked, among other things, to state what value the courses had for themselves as individuals. Their replies can be classified as: 1) increased awareness of self; 2) increased awareness of others; 3) increased awareness of their environments. The first two categories were subdivided as follows, with examples from each.

1. Increased awareness of self:
   a) self-awareness: recognition of my feelings; better understanding of myself
   b) self expression: a freeing process; freedom from inhibitions
   c) emotional release: lifted me out of myself
   d) personal growth: I feel richer inside; new confidence in myself; helped me think more deeply

2. Increased awareness of others:
   a) understanding of others: more insight into other persons
   b) improvement of interpersonal relations: more ease of communication; appreciated the one-ness of the group
   c) awareness of children: insight into children’s feelings; gained more empathy for children

3. Increased awareness of environment:
   greater appreciation of nature; greater appreciation of poetry; keener perception of the environment

These students were asked, also, to state what effect the course had upon their professional thinking and procedures. Their replies indicated, on the whole, that they had begun to serve their pupils with increased sensitivity to them as persons; that they were in the process of modifying their teaching techniques in some areas to give more scope to the pupils’ imagination and to recognize individualities. Some respondents reported, in addition, that they felt more at ease in the classroom; they were more expressive; they felt encouraged to be more imaginative and experimental in their teaching. As a person learns to be creative, he develops new patterns of behavior, new ways of feeling, thinking, and acting. This, apparently, is what happened with these students.

**Individual Needs**

Several theories have been offered by psychologists to account for the creative urge and creative activity; but it is not possible to discuss these here. All agree, however, that creative effort, of whatever sort, is an expression of the individual’s needs, desires, and values. Even professional works of graphic art, musical compositions, dances, and writing generally are expressions of deep aspects of their creators’ personalities. Often, however, human needs have been repressed and are at the preconscious level (some say, the unconscious), especially in adults and to some extent in adolescents. All agree, too, that in all forms of creative activity, important psychological forces and processes operate without awareness of their occurrence by the person involved. Repressions and conflicts may be released; the processes and products of creative effort give one a sense of expansion, achievement, and well-being. Feelings deepen; understanding of self and environment increase. Furthermore, continued creative effort will develop and enlarge one’s observations, perceptions, recall, and interpretive expressions.

When we say that creativity in the arts and crafts is the individual’s translation, into his own terms, of experiences and their meanings, we are referring to the psychological processes that motivate and direct artists in all media. They often main-

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