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Patterns of Overexcitability in a Group of Artists*

Although we may be well informed on what distinguishes creative from noncreative people, even at an early age (Dellas & Gaier, 1970; Nicholls, 1972; Davis, Peterson & Farley, 1973; Davis & Rimm, 1979; Treffinger, 1980), and although we may have tests designed to predict later creativity (Howieson, 1981), we are still ignorant of what constitutes the endowment for creativity itself. Rather, we measure its effects, its pattern of ripples like those of fish we never see. We are lacking a theoretical advance that would enable us to conceptualize such an endowment. Knowing that creative people are characterized by a constellation of identifiable traits, we need some conception of the endowment that brings them forth.

This paper presents a model of endowment for giftedness and creativity derived from Dabrowski's theory of emotional development (Dabrowski & Piechowski, 1977). This model will enable us to uncover some basic differences between creative and noncreative endowment.

Dabrowski developed his theory from extensive clinical and biographical studies of artists, writers, members of religious orders, gifted and talented children and adolescents. His theory offers a promising framework for examining the components and developmental dynamics of giftedness and creative talent. Furthermore, the theory introduces a concept of developmental potential with identifiable components which gives the concept of *endowment* an operational definition.

What caught Dabrowski's attention as far back as 1938 was the intensity and richness of thought and feeling, vividness of

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imagination, moral and emotional sensitivity of those who are creative and strive for perfection. Their enhanced interactions with the world, and especially with the world of subjective experience, seemed to be over and above the common and average in intensity, duration and frequency of occurrence. Viewing these manifestations as indicators of strong developmental potential, Dabrowski named such heightened capacities "forms of psychic overexcitability."

There are five forms of overexcitability: psychomotor (P), sensual (S), intellectual (T), imaginal (M) and emotional (E). They can be thought of as channels or filters through which information — both external and internal — is processed. To extend the metaphor, these channels may be open, partly closed or even nonexistent. Their "aperture" determines the quantity and quality of the information flow. Since they are described in more detail elsewhere (Piechowski, 1979; Piechowski & Colangelo, 1984), we will give only a short description of each form here (see Table 1).

Psychomotor overexcitability is an organic excess of energy or heightened excitability of the neuromuscular system. It may manifest itself as a love of movement for its own sake, rapid speech, violent or impulsive activity, restlessness, pressure for action and drivenness. It may be viewed as a capacity for being active and energetic.

Sensual overexcitability is expressed in the heightened experience of sensual pleasure, the seeking of sensual outlets for inner tension. Beyond desires for comfort, luxury, stereotyped or refined beauty, the pleasure in being admired and being in the limelight, sensual overexcitability may be expressed in the simple pleasure derived from touching things, such as the texture of a tree bark or the pleasure of taste and smell, for instance the smell of gasoline. In short, it is a capacity for sensual enjoyment.

Intellectual overexcitability is to be distinguished from intelligence. It manifests itself as persistence in asking probing questions, avidity for knowledge and analysis, preoccupation with theoretical problems. Other expressions are: a sharp sense of observation, independence of thought (often expressed in criticism), symbolic thinking, development of new concepts, striving for synthesis of knowledge and searching for truth.

Imaginational overexcitability is recognized through rich association of images and impressions, inventiveness, vivid and often animated visualization, use of image and metaphor in verbal expression. Dreams are vivid and can be retold in

TABLE 1 Forms and expressions of psychic overexcitability (from Piechowski, 1979).

PSYCHOMOTOR

Surplus of energy

rapid speech, marked enthusiasm, fast games and sports, pressure for action, delinquent behavior

Psychomotor expression of emotional tension

compulsive talking and chattering, impulsive actions, delinquent behavior, workaholism, nervous habits (tics, nailbiting)

SENSUAL

Sensory pleasures

seeing, smelling, tasting, touching, hearing

Sensual expression of emotional tension

overeating, masturbation, sexual intercourse, buying sprees

INTELLECTUAL

Probing questions

Problem solving

Learning

curiosity, concentration, capacity for sustained intellectual effort, extensive reading

Theoretical thinking

thinking about thinking, introspection, preoccupation with certain problems, moral thinking and development of a hierarchy of values, conceptual and intuitive integration

IMAGINATIONAL

Free play of the imagination

illusions, animistic and magical thinking, image and metaphor, inventions and fantasy, poetic and dramatic perception

Spontaneous imagery as an expression of emotional tension

animistic imagery, mixing of truth and fiction, dreams, visual recall, visualization of events, fears of the unknown

EMOTIONAL

Somatic expressions

tense stomach, sinking heart, flushing

Intensity of feeling

positive feelings, negative feelings, extremes of feeling, complex feelings, identification with others' feelings

TABLE 1
Continued**Inhibition (timidity, shyness)****Affective memory****Concern with death****Fear and Anxiety****Feeling of guilt****Depressive and suicidal moods****Relationship feelings**

need for protection, attachment to animals, significant others, perceptions of relationships, emotional ties and attachments, difficulty of adjustment to new environments, loneliness, concern for others (empathy), conflict with others

Feelings toward self

self-evaluation and self-judgment, feelings of inadequacy and inferiority

detail. Intense living in the world of fantasy, predilection for fairy and magic tales, poetic creations and dramatizing to escape boredom are also observed.

Emotional overexcitability is recognized in the way emotional relationships are experienced, and in the great intensity of feeling and awareness of its whole range. Characteristic expressions are: inhibition (timidity and shyness) and excitation (enthusiasm), strong affective recall of past experiences or concern with death, fears, anxieties or depressions. There may be intense loneliness, an intense desire to offer love, a concern for others. There is a high degree of differentiation of interpersonal feeling. Emotional overexcitability is the basis of one's relation to self through self-evaluation and self-judgment, sense of responsibility, compassion and responsiveness to others.

Each form of overexcitability may be viewed as a mode of being in the world or as a dimension of mental functioning. Endowment (developmental potential) may be defined as a combination of overexcitabilities supporting special talents and abilities. The richer and more complex their expression, the stronger the potential for development. Through the five forms of psychic overexcitability we may explore not only the extent but the thrust and color of a person's giftedness.

This model brings together a number of separate areas in the research on giftedness and creative talent. Intellectual abilities have thus far received the most attention; imagination has been studied as divergent thinking and creative behavior.

However, the emotional dimension, usually approached through concepts of personality and motivation (Bachtold, 1980; Dellas and Gaier, 1970; Nicholls, 1972) has been studied much less. The psychomotor and sensual dimensions of the model are perhaps closest to what is known as sensation-seeking (e.g., Farley & Farley, 1970; Zuckerman, Kolin, Price & Zoob, 1964) but they encompass more.

The forms of overexcitability, however, cannot be simply equated with research concepts in cognate areas. The model offers a means of approaching all these dimensions side by side. Further, the place of significance given to emotional overexcitability makes the model particularly important since it is becoming recognized that there are very special issues in emotional development of the gifted (Davis & Rimm, 1979; Holden, 1980; Miller, 1981).

An instrument for assessing the five forms of overexcitability (OE), called the Overexcitability Questionnaire (OEQ), was developed by Piechowski (1979). In its present form, it is a 21-item, free-response instrument which has been used in several studies (Silverman & Ellsworth, 1981; Beach, 1980; Hazell, 1982). It is a conservative measure because for a given response unit (one item) the OEQ is rated simply for the presence or absence of OEs without regard for the intensity or complexity of the response (Lysy & Piechowski, 1983).

The OEQ items were designed to elicit responses in each of the five forms of OE but it was soon found that subjects responded in terms of their most characteristic OE, not necessarily the one in which the question was asked. The first item of the OEQ, "Do you ever feel really high, ecstatic or incredibly happy?", ostensibly asks for emotional material, yet the range of actual replies included all other OEs, alone or in various combinations. Thus the mode of the item does not determine the mode of the response. (A listing of the items is included in the Appendix.)

In this study we have asked a group of artists to respond to the OEQ and to submit to an interview. The OEQ gives us material for deriving a quantitative profile of the artist to be compared with the profile of the intellectually gifted. The interview gives us a way of assessing the interactional patterns between the five forms of OE. As we shall describe, we found distinct configurations and styles of interaction of these five forms. Though the present study is just a beginning, the relationship between the strengths and interactional patterns of OE, and the creative and developmental patterns of the subjects, suggest a fertile area for continued research.

SUBJECTS
AND
METHODS

There were thirteen subjects in the study: six women and seven men. Their ages ranged from 19 to 43, educational backgrounds ranged from high school G.E.D. to M.A. and M.D. Several had obtained or were currently working on advanced degrees. A serious involvement with artistic or creative work at professional, vocational or long-standing avocational levels was shared by all subjects. The study group constituted "strategic cases" (Sarris, 1978) or what Glaser and Strauss (1967) have termed "theoretical sampling" as it is a response to new directions of investigation and theoretical refinement suggested by past studies.

The subjects included a weaver, an avocational dancer, a semi-professional classical singer, a rock singer and amateur pianist, an amateur clarinetist, two film producers, two poets, an unpublished novelist, a graphic designer, a commercial copywriter and an artist who was also an art teacher.

The subjects completed the questionnaires before the interviews, which were held in the subjects' homes or their studios. The tone of the interview was kept casual to facilitate subjects' response. Each lasted approximately 90 minutes and was taped. At the start of the interview we explained the concept of psychic overexcitability and its five forms to each subject. They were shown the table of forms and expressions of psychic overexcitability (Table 1) briefly to acquaint them with the kind of material we were seeking — to have them provide examples for each expression if applicable. The basic difference between the structures of the OEQ and the interview was that the interview proceeded systematically through expressions of each form of OE in turn while the items of the OEQ are in random order with respect to the OE expressions they were originally designed to tap.

The OEQs were scored independently by two raters who had no knowledge of and no contact with the subjects. Having done this the raters discussed their score assignments and came to a consensus of agreement. Inter-rater correlation prior to consensus ranged from .56 for POE to .80 for S and M OEs. The consensus ratings were audited by the senior author generating a correlation between consensus rating and the audit of .80 for TOE and .92 for SOE, with the others falling in between. Auditing is a method for rating complex material where the second judge who is more expert checks the correctness of the categories assigned by the first judge (or judges) and adjusts them where necessary in much the same way an examiner audits the work of an accountant (Guba & Lincoln, 1981). However, the data reported here are those of

the consensus rating before the audit. The interview was used to assess the manner of functioning and interaction patterns of the five OEs in each subject.

RESULTS

The overexcitability scores are given in Table 2 where they are compared with similar data for the intellectually gifted (Silverman & Ellsworth, 1981). The most significant difference ($p = .001$) exists between the two groups on imaginal overexcitability (M). This is not unexpected since M is defined by great vividness of imagery, richness and fluency of associations, capacity for metaphor and animistic thinking, characteristics usually associated with creative potential. But the artists are also significantly higher ($p < .05$) on emotional overexcitability (E) which reflects the great depth and intensity of their emotional life as well as their ability to perceive significant shades and subtleties of emotional experience. This would confirm Langer's (1953) thesis that artists are expert in the knowledge of subjectivity, encompassing all forms of human feeling. It is interesting to note that the artists do not appear to be significantly lower ($p < .07$) than the gifted on intellectual overexcitability (T) which is described, among others,

TABLE 2 Mean overexcitability scores of artists and intellectually gifted.

Form of overexcitability	Artists (N = 13)	Intellectually Gifted ¹ (N = 31)	p ²
Psychomotor (P)	3.69 (2.29) ³	3.51 (1.63)	.958
Sensual (S)	5.62 (2.84)	4.42 (2.88)	.217
Intellectual (T)	5.31 (2.39)	7.22 (2.80)	.068
Imaginational (M)	9.08 (3.48)	5.03 (3.34)	.001
Emotional (E)	10.39 (4.54)	6.84 (3.90)	.024

¹from Silverman & Ellsworth, 1981.²the value of p was obtained by the Mann-Whitney test and represents the probability of the two samples having an identical distribution of scores.³standard deviations are in parentheses.

by an avidity for knowledge and discovery and by a questioning attitude. Compared with a sample of graduate students, the artists' intellectual overexcitability (T) is significantly higher ($p < .05$) (Piechowski, Silverman, Falk & Cunningham, 1982).

Even though our group of subjects is small, three patterns can be distinguished. Pattern A presents a relative balance between the five OEs. Pattern B has an excess of emotional overexcitability which seems to permeate all the other OEs. Pattern C has the lowest emotional overexcitability and the remaining OEs seem to show little interaction with one another as if each OE modality was a single channel of experience apart from the others. The mean score of EOE in group A was 8.8; in group B, 16.7; in group C, 6.3. All the other OE scores had a similar distribution in all three groups. There are, however, great differences in how the OEs are interacting. Table 3 presents the data for ten of the 13 subjects. The remaining three represent mixed patterns (Cunningham, 1981).

Pattern A In this group represented by four subjects, psychomotor OE (P) is expressed as a fairly high level of energy available for work, and energy derived from work. Some subjects always have energy, others feel a definite surplus of physical energy. Inactivity or intellectual stimulation may lead to a feeling of restlessness—a "physical anxiety" which signals the need for a physical release, like an hour or two of exhausting racquetball.

Sensual OE (S) is expressed both in terms of aesthetic qualities and as an outlet for emotional tension. The original meaning of "aesthetic" is "perceptible by the senses." But sense perceptions are used to create metaphors—a piece of rock may feel rough or smooth, as a current in a stream may be rough or smooth though we have not touched it or a day in a person's life may be rough or smooth although nothing occurred physically to the touch. Artists can be expected to be particularly aware of sensory qualities and their aesthetic value. That is, what the sensory qualities can be used to express (Langer, 1967).

In terms of aesthetic qualities the artists stressed visual enjoyment. They can be equally excited and inspired by landscapes thick with vegetation or the interplay of sky, water and sunshine, as by barren plateaus, stark settings and clean lines. To them, the air may have a quality of color. Tactile experience is as important: textures of objects or of people in terms of how they touch and how it feels to be touching them. And so is smell: odors of persons, puppies or perfumes, some of which may be disliked intensely. Interestingly, tasting was not impor-

tant in itself but for its associations: e.g., "avocados always taste good and remind me of the sun, the ocean and bare feet in California." A delight in a variety of sounds is mentioned: birdcalls, wind, train whistles and music. As an outlet for emo-

TABLE 3 Overexcitability patterns.

Form of overexcitability	Pattern A		
	Individual scores		
			Mean
Psychomotor	4	3, 1, 2	2.5
Sensual	10	5, 2, 4	5.0
Intellectual	6	2, 9, 5	5.5
Imaginational	11	10, 7, 7	8.8
Emotional	11	8, 7, 9	8.8
Form of overexcitability	Pattern B		
	Individual scores		
			Mean
Psychomotor	2	4, 4	3.3
Sensual	1	11, 5	5.7
Intellectual	6	2, 7	5.0
Imaginational	9	5, 10	8.0
Emotional	16	17, 17	16.7
Form of overexcitability	Pattern C		
	Individual scores		
			Mean
Psychomotor	3	4, 1	2.7
Sensual	5	5, 4	4.7
Intellectual	2	7, 6	5.0
Imaginational	10	9, 6	8.3
Emotional	8	5, 4	5.7

Note: Individual scores for each subject can be read vertically.

tional tension there is an occasional eating binge, run for sweets or a buying expedition. Sex was not included as an outlet because of its positive emotional value in intimacy — sex is experienced not as sensual tension but as "tension of love."

Intellectual OE (T) in this group is expressed as curiosity ("overwhelming curiosity for some things"), and love of learning with the stress on learning by doing — something true of all three groups. One subject, a female, absolutely had to understand the workings of the car engine before she learned to drive. They display a questioning attitude, with less concern for abstract and theoretical thought but more for the meaning of one's life, one's identity, morals, religion, questions of reality versus fantasy, the very experience of thinking, e.g., "I enjoy thinking, it is free flowing, letting the mind go;" "I stop myself to see what I am thinking about. I stop consciously and retrace my thought process;" "Religion should be something that puts you in touch with yourself — I kind of get that experience by creating art — there should be a sense of renewal;" "At the age of 8 I knew that my name was not my identity and I wanted to know who am I? I looked into my mother's three-way mirror and I saw all these reflections of myself and I realized that beyond this image is something else and beyond that is something else.... It scared me!" Amidst such existential questions there were also expressions of strong social concern.

For artists imaginal overexcitability (M) is a way of life. Their imagination is vivid; often they can visualize whole scenes at will. One subject imagines whole scenarios, "at least for a couple of hours," and gets very upset if she is interrupted. She thinks in images rather than words, the whole scene springs before her mind in living detail. For another subject, thinking "almost isn't thinking but a silent movie inside my head most of the time; sometimes I feel my brain is like a movie camera." Another subject said, "When I fantasize it is almost as if I am there. My fingers tingle as if touching the images. I can 'feel' the image on me whenever I am being touched in the fantasy." They can fantasize themselves into different periods at will like being an American Indian 200 years ago or a Victorian aristocrat sitting in a Victorian parlor sipping tea and discussing latest Victorian literary events. There is a facility for moving between fantasy and reality.

This vividness of imagination opens new dimensions of experience: "When the sun sets one can almost hear it slowly, quietly set but noises become more loud. Echoed. As if the sun is the muffler of noise and in its absence dark brings echoes." Or, "I try not to disturb rocks when I walk because I think they

might not be able to get back home" (there is in this an expression of empathy for all things in creation). Or, "My concentration is so visual — almost like meditation on mostly the flow I feel within me, what I hear, what I see — and it all sometimes flows into one." Their rich and powerful imagination does not overwhelm these subjects though at times it may intrude; they feel some sense of control in it (this is different in groups B and C). Consequently, they often use their imagination to preview situations and to resolve conflicts: "I love to visualize events and later live them. That's more real to me. We project our events as precisely as we can visualize them." These examples go together with vividness and high frequency of dreaming, daydreaming, animistic and magical thinking such as endowing inanimate objects with feeling and personality and believing one can make things happen by mentally seeing it happen.

Emotional overexcitability (E) encompasses the capacity for intense feeling through the whole range from extremely negative to extremely positive. In group A the balance is toward positive feeling, from the point of view of the potential for further development a more telling expression of emotional overexcitability: "I can feel very ecstatic working on my art. It really is giving of myself. It is an ultimate love, too. Losing oneself in what one enjoys;" "When I feel really high... I experience a glow, a warmth, an excited peace. My head is together — no conflicting pulls to separate poles. I can become oblivious of surroundings. Sometimes I can become at one with something outside of myself." "Sometimes the energy from this euphoria feels like it cannot be contained."

These artists are reasonably sensitive and responsive to the feelings of others. Relationships with others are built on an appreciation of the other person, on complementarity, not merely on attachment: "attachment doesn't make you happy." Relationships with others are entered from a position of autonomy rather than deficiency, which is wanting the other person to make one complete. They are very independent. One subject said that she is not even into "normal dependency;" another said, "I am complete in myself — it's true — there is no need to be married to be complete;" she also said, "when I am involved emotionally with someone, I need very little sleep and I become energetic and active." This person, who is about 45, said that when she is excited, "I totally and completely 'forget my age'. I think that excitement brings out the same exhilarating feelings in me as when I was very young. That's one of the reasons that I believe that I'm 'young'."

For group A, emotional conflicts and intense internal struggles seem for the most part a thing of the past. Emotional life is lived in the present: "In a pleasant situation I enjoy it to the fullest because of it [i.e., because of concentrating on the present]. When I am depressed, which is really rarely, I also concentrate on it and allow the depression to disappear by itself, without forcing it." Their philosophy of life is of becoming and self-actualizing: "we can always become more fully ourselves;" "the only thing you can do is to set a good example, to be as honest as possible." There is a sense of proportion and balance, tolerance for others and a sense of connectedness with them (Maslow's "Gemeinschaftsgefühl"), and a sense of personal growth and transformation. They are not encumbered by unresolved or chronic negative feelings.

Pattern B

This group, represented by three subjects, has a superabundance of emotional OE, consequently E enters into every form of overexcitability. Psychomotor OE (P) serves here as a channel for the release of emotional frustration; sports are "a tremendous release of bottled-up frustration in a healthy manner." But a lot of P energy is also generated. These subjects often feel a surplus of energy, they run, play racquetball, but the availability of energy is governed mainly by emotional antecedents: "when things are going right in my life and in myself," when filled with enthusiasm, when being the recipient of personal caring. Two of the subjects are singers and for them singing can be both a release of emotional tension as well as a means of building up energy. One subject, a writer, who to some degree straddles patterns B and C, loves excitement and danger, in sports tennis is too slow for him, and if a game of baseball isn't enough he goes on to lift weights — "to be exhausted physically." In team sports, however, besides competition he likes the camaraderie; a game is most satisfying when it is smooth and the sportsmanship is good, then "the body works on overdrive and the spirit moves almost without the body." The contrast between this group and group A is the lack of expressed connection between energy and fulfillment in work and life in general.

Sensual OE (S) is expressed by liking bright colors, scenes in nature, scents and smells, as of trees and gasoline, and by strong disliking of sounds that are unpleasant or irritating (whining, dissonance, children's noises when too close). The taste of food does not seem important but the taste of a kiss does. Physical contact can be pleasant and enjoyable: "when sex was new to me," "warmth of the skin, sun on skin," "holding hands, touching hair." One subject said, "I go out of my

way to feel things — textures, brush strokes in paintings, sculptures, fuzzy kittens, smooth things." For others touch can be an emotionally difficult area charged with strong ambivalence, "I don't touch physically probably as much as I should, I am afraid of being too close, that I'll burn up;" "I like touching someone but I don't like it when a person touches me." Because of these sensitivities and inhibitions emotional tension is released more readily by eating compulsively or buying nice things than through sex. Individually they vary greatly in this respect.

Intellectual OE (T) for this group has much in common with group A. They have great capacity for sustained concentration on things they like to do, be it music or theoretical problems, and they can become totally absorbed in this. This is a love of learning, even more a love of understanding; they question things, they question themselves, they question what is right and what is wrong, they are exceedingly sensitive to the cruelty, injustice and inequality in the world, they question the superiority of human beings over animals. This sensitivity and empathy at times immobilizes them. Their feelings of inferiority generate great doubts about themselves: "I question things too much," "I do think a lot but I do need precision and discipline." Yet, she was told by a famous psychologist who knew her well that she was a thinker.

Expressions of imaginational OE (M) in this group show interesting differences with group A, the main one being that they seem to spend more time visualizing or retrospectively actual past occurrences in their lives than immersing themselves in freely chosen realms, although they do have this capacity. Like group A, they too are good visualizers. Fantasy enriches their lives and mixing truth and fiction is something they used to do a lot or still do; they may exaggerate to make things more interesting: "I decorate it, I add things." They have a great deal of feeling for animals and readily personify things around them: "I often fantasize conversations between inanimate objects around me;" "When I first moved into my place the kitchen sink was perfectly filthy. I felt sorry for it and I told my sink not to worry because I was gonna clean it real good and give it plenty of love and attention;" "Sometimes I even feel that stones have lives which is often unsettling." This seems to express both their imaginative capacity as well as an overflow of emotional identification which, lacking fulfillment in persons, pours out onto other living and nonliving things. One subject, in fact, was disturbed by his fantasized love relationships and love making because it made actuality so much more distant and unrealizable. Another said that fantasies

almost destroyed him when he was younger. Their dreams tend to deal either with personal relationships or with their fears and anxieties (the E component again). Nightmares are not infrequent. Other experiences of imaginational OE also have mainly emotional significance: water seems magical because even watching it can cleanse the soul; the "presences" of significant but deceased persons are another example. As in group A fantasies can be elaborate but often they are just a countermeasure to feelings of inferiority and inadequacy as in imagining oneself famous and prosperous but without making the fantasy a means of focusing on such a goal. This is easily understood in terms of their childhood experience of criticism and rejection. Talent blooms in a climate of support, and the necessary motivation comes from encouragement and confidence in the child's abilities (Bloom & Sosniak, 1981).

Intensity of feeling and accessibility of the whole range of emotions is similar to that of group A. They are capable of enthusiasm for positive qualities they see in others ("a beautiful person," "a wonderful singer") but do not acknowledge in themselves. They are capable of intense positive feeling, such as ecstatic joy when overtaken by a religious experience or of giving out an outwardly noticeable glow. However, the focus is so much more frequently on negative feelings, especially depression, inadequacy, inferiority, that the positive feelings can disappear. They feel constrained, limited, inhibited in expressing the whole emotional spectrum. Yet repeated expression of the whole range of emotions is important for emotional health and feeling of vitality (Clynes, 1977). One subject, for instance, in reply to the first question of the OEQ, "Do you ever feel really high, ecstatic or incredibly happy," wrote "Rarely," and listed a few past occasions. However, in the interview he said music was intoxicating to him and he described listening to it as "an accumulation of serenity," a frequent occurrence for him. Still, the oppression of depressive feeling prevailed: "I get swept away by my negative feelings." There is strong identification with those who suffer, are hurt, are subject to injustice. These artists feel vulnerable and afraid that they will be hurt emotionally again. One subject said about birds: "It's terrible that they are so afraid of people," and later that he himself was afraid of people. Another echoed this by saying she was afraid of what people can do to her (a reference to her parents' ridicule as a method of control). Related to this are feelings of guilt and shame, which may be constant. Thoughts of suicide are not uncommon.

Attachments are strong and separations difficult. One subject said that if he is close to someone he misses the person even if they are gone for a day. To avoid it he pushes people away so as not to be too close. Adjusting to new environments is therefore difficult for them. Their self-assessment tends to be very negative in spite of acknowledging certain strengths and abilities: "I am a person who is always becoming" is counterpointed by "I am a failure, never good enough, I never measure up," or "it hurts to be me" and "there is a very tense void within me." They long for love, the love their parents denied them or gave inconsistently, they fear greatly the hurt of being rejected and abandoned. Consequently, they often respond to the need to protect themselves and refrain from taking this risk by sidestepping possible relationships. Subjects in group B share childhoods of emotional trauma, rejection, negative criticism, even emotional deprivation and disruption of family life.

Pattern C

Psychomotor OE is quite dominant for the two men in this group but all three subjects went through an earlier wild period in their college years or even later. One of them stayed on the street night after night to partake of the pulse of danger and excitement, another engaged in wild pranks and wild driving, the third went through a period of promiscuous sex. They all play racquetball. One subject said that he must move to feel alive and in his office he used to toss a rubber ball "to keep the energy going." He also said that he likes the aggressive feeling of competitive sports because that makes him feel more connected with the real world. These artists often act on impulse; they accomplish prodigious amounts of work in spurts of energy ("cranking out art work"). There is a sense of restlessness. Expressions of P OE were either purely psychomotor or coupled with imaginational and sensual OEs but they were distinctly apart from emotional and intellectual OEs giving pattern C a character of inner disunion.

Sensual OE is very closely associated with P OE: "I make a lot of love and a lot of art," or the intense pleasure from the pure sensation of one's body engaged in strenuous physical activity: "water-skiing in hot sun," "I like tasting cold water (irrigation water) often working hard bailing hay in the hot sun. Such experiences are special in that I am 'merged' with the experience in a total way (like I become nothing but the taste of cold water)." Fascination with pure sensation is quite evident in their feeling of texture: "texture is coenesthetic with sight and taste," the textures of night—"colors at night, city lights, dark places, messy places—all related to a sense of texture."

For another subject smell is full of texture and people are identified by the texture of their odors. All textures can be stimulating and the feeling of cloth, paper or another person next to one's skin is experienced as exciting variations in texture. Colors can be energizing, as well as shapes of women, people, and buildings—"the dizzying excitement of the big city"—visual, auditory and kinesthetic.

Tasting food and tasting one's lover are high on the list. Sex is a favorite activity; eating is for pleasure. Touching is important but again there seems to be more emphasis on the immediate experience than its emotional aspect; sexual touching, touching hard surfaces—"the fireplace stone draws me to touch it" is coupled with a preference for lean, bony women. Emotional tension is dealt with through eating or sex. More often, however, it is expressed through the psychomotor channel, as in going places, driving, running or playing racquetball.

Intellectual OE (T) in this group was expressed either as curiosity, love of learning new things and thinking in images rather than words, or as questions about the phenomena of one's experience, e.g., dreams ("how they become embodied...what is the relationship between image and its embodiment"), truth versus fiction, rational thought versus intuition, "linear versus nonlinear thinking," craft versus art. There is a fascination with the very process of perceiving contrasts and opposites, with the "dark side" of life and of oneself, with the play of ideas breaking the assumptions of orthodox beliefs. In contrast to groups A and B, we do not find here any expression of social and existential concerns, of probing the meaning, direction and moral responsibility of one's life. This lack can be interpreted as a function of the lower emotional OE in this group.

Imaginational OE (M) is abundant. They all are devoted imagers, fantasizers and dreamers: "imaginal reality is just as real as physical reality." "My imagination has a play with me!" (for instance, when she talks to people she sometimes switches their heads and bodies), "images or forms have power over me." The weaver said, "the thread is weaving me." These subjects are acted upon by their images and fantasies. Again, as in almost all of our other subjects, their visualization is excellent. However, they vary in what gets their mind going. For one it is the freakish and grotesque, for another the recall of pleasant memories and experiences, sensual daydreams or "missing and longing for people who have died—situations or locations which don't or can't exist." In this group there were

fewer instances of animistic and magical thinking.

Emotional OE is lower than in groups A and B. It is characterized by intense polarities. The chief difference is lack of reference to the emotional fabric of specific relationships—other persons are not mentioned as specific sources of experience, although contact with others and close friends are mentioned generically. On occasion there is an expression of an underlying despair about human relationships. Feelings are intense over the whole spectrum and back and forth swings between extremes are common. Emotional highs focus on the very sensation of positive feeling: "contentment, peace, being able to see events and conflicts from a much broader perspective...incredible harmony with the world around me...incredible sense of freedom" (this particular experience was drug-induced); "a happiness that is energetically positive and restorative," "I feel as if I will burst from pleasure—as if I cannot contain all the good feeling and it's oozing from me." Other feelings often mentioned are anger, paranoia, alienation. Empathy is often difficult, and so is trust. The woman in this group even though empathic ("it is lovely to share," she says which she feels especially after finishing a piece of art) is not free of paranoid feelings: "Even with people I know I may have to protect myself." One subject entertains conscious and, perhaps, even realistic fantasies of suicide—death to him seems to be more a source of fascination than of fear, and living to the fullest means to him that he already is dying.

This continuous interplay of intensely felt polarities takes its toll on their sense of themselves and makes self-evaluation difficult. "I experience myself as fragmented and multiple," says one, while the others report similar feelings of confusion, of being inhibited and constricted emotionally. Their inability to see themselves from a distance to reach for objectivity toward self is in marked contrast to the strong sense of self in group A where it is positive, and in group B where it is mostly negative, focused on a sense of inferiority and inadequacy. But representatives of pattern B are nevertheless aware of their sensitivity and their strong sense of right and wrong; rather than fragmented inside they are more likely to feel crushed with pain.

Group C shows difficulties of inner integration. These can be interpreted as a function of P and S OEs being much stronger than the E OE (even though our instrument is not sensitive enough for it to be reflected in the scores—the strength of these OEs was assessed both from content analysis of the

OEQ and interview material). There is little self-reflection and self-evaluation but more emphasis on expression. They share fundamentalist backgrounds against which they rebelled and continue to rebel. Their art is driven by conflict. They appear to be particularly good representatives of those artists for whom art is a means of finding structure and solution for the main thematic conflict of their lives (Csikszentmihalyi, 1978). "The conflict artists address exists initially only as a diffuse, free-floating tension without structure or aim. The creative process consists exactly in trying to resolve the problem through symbolic means" (Getzels & Csikszentmihalyi, 1976). Statements made by the subjects in group C seem to fit quite well with this formulation of the process by which a personal problem is transformed into an artistic one. For the weaver, for example, his weaving seems to be the vehicle of intrapsychic integration, as pattern emerges from the "massa confusa" of tangled threads.

CONCLUSION In Langer's view (1953, 1967) the artist's work is to capture the forms of human experience and to find ways of presenting them in a different medium: sounds, colors, lines, textures, mass, movement or words. The artist transposes the fleeting medium of feeling into durable and qualitatively precise forms. Qualitative precision may appear to be a novel notion. It is, however, supported by research on taste perception (Cabanac, 1971), perception and expression of qualities of color, and on the expression of emotion in music and under laboratory conditions (Clynes, 1970, 1977; Piechowski, 1981). Qualitative precision is actually what art stands on. In Getzels' and Csikszentmihalyi's view (1976) the artist's work is to discover the form which pushes from within for expression. The process is at first unconscious, although the feeling that something is struggling to come to the surface is distinct and sometimes painful.

What both views have in common is that they point to the engagement of feeling in judging qualities and nascent forms. Where they differ is in their focus on what the process is about. For Langer what is expressed are qualities of human experience, the life of feeling in all its forms from logical thought to forms as large as the whole fabric of society. For Getzels and Csikszentmihalyi it is conversion of a personal problem into a more universal one shared by others. Either way, the process engages the artist emotionally (E OE) because it is about something to which the artist attaches a great deal of significance. It engages him imaginatively and intellectually (M and T

OEs) for if the quality of what he feels is to be articulated, its form has to be conceived and envisaged. It engages him sensuously (S OE) because the qualities of feeling have to be given expression by means of materials that must appeal to the perceivers' senses and suggest to them the intended form of feeling. Thus one does not use percussion to write lullabies nor flute or dulcimer to portray doomsday. Consequently, the components of the creative task require the artist to possess higher than average endowment in a number of aspects of mental functioning. Five such aspects were introduced here as "forms of psychic overexcitability."

We have described three overexcitability patterns distinguished by the strength of emotional overexcitability (E OE) and differing in content, though not quantity, of the remaining OEs. In pattern A, the OEs richly interacting and are fairly balanced. This group seems to be the modal group. Their endowment moves them to more and richer experiencing but also to selectivity.

In Pattern B, emotional OE is abundant but the surplus is not in intensity and vitality of emotional life but in sensitivity, even oversensitivity, feelings of guilt, inadequacy, shame, shyness or inhibition. Consequently, all the other OEs are emotionally overshadowed. These artists often shrink from experience rather than embrace it. (Still, great talents have been productive despite this unhappy load, for instance, Franz Kafka, Emily Dickinson, Sylvia Plath.) Pattern C is lower on E OE but high on P and S. There is restlessness, drivenness, rebellion. The OEs tend to go separately with much less interaction than in the other groups. There is an intense polarization of feeling. Aggressiveness, paranoid feelings and negative impulse are also more frequent. If anything, group C is more fascinated by the very sensation of experiencing than with its emotional and interpersonal meaning; this gives their emotional tone certain angularity. The principal dimensions of experience are for them intense physical movement, immersion in sensuous perception and imagination.

The model of the five dimensions of mental functioning presented here is useful in describing the psychological endowment of artists in terms of broad categories of level of energy (P), sensuous perception (S), imagination (M), intellect (T) and emotional life (E). These categories allow one to distinguish artists from the intellectually gifted. The most significant differences exist in regard to imaginal and emotional functioning. Somewhat surprisingly, the artists tend to display a high level of intellectual overexcitability. The artists

are characterized by particularly high levels and richness of imagination and strong capacity for precise visualization. Emotionally they are intense and open to the whole range of feeling; they differ among themselves, however, on the freedom to express it. Intellectually they question the world around them and they question themselves. They differ in their sense of self (inner integration or ego strength) and manner of self-evaluation. Three patterns of overexcitability constellations are described: balanced and integrated (pattern A), emotionally vulnerable (pattern B) and polarized and restless (pattern C).

APPENDIX Items of the Overexcitability Questionnaire (OEQ)

1. Do you ever feel really high, ecstatic, or incredibly happy? Describe your feelings.
2. What has been your experience of the most intense pleasure?
3. What is your special kind of daydreams and fantasies?
4. What kinds of things get your mind going?
5. When do you feel the most energy and what do you do with it?
6. In what manner do you observe and analyze others?
7. How do you act when you get excited?
8. How precisely can you visualize events, real or imaginary?
9. What do you like to concentrate on the most?
10. What kind of physical activity (or inactivity) gives you the most satisfaction?
11. Is tasting something very special to you? Describe in what way it is special.
12. Do you ever catch yourself seeing, hearing, or imagining things that aren't really there? Give examples.
13. Do you ever think about your own thinking? Describe.
14. When do you feel the greatest urge to do something?
15. Does it ever appear to you that the things around you may have a life of their own, and that plants, animals, and all things in nature have their own feelings? Give examples.
16. If you come across a difficult idea or concept, how does it become clear to you? Describe what goes on in your head in this case.
17. Are you poetically inclined? If so, give an example of what comes to mind when you are in a poetic mood.

18. How often do you carry on arguments in your head? About what sorts of subjects are these arguments about?
19. If you ask yourself "Who am I?" what is the answer?
20. When you read a book, what attracts your attention the most?
21. Describe what you do when you are just fooling around.

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A Rhetorical Look at Humor as Creativity*

In recent decades students of psychology and related disciplines have been paying increasing attention to the ancient art of rhetoric, because of a growing suspicion that the figures of speech and other linguistic techniques studied by rhetoricians are richly indicative of human thought processes (Goldman, 1972; Ortony, 1980). In this paper I will attempt to use concepts from rhetoric to treat two basic questions about the psychology of humor. First, what is humor — what is the essential psychological process that is responsible for mirth? Second, how is humor related to creativity? It is proposed that an examination of figures of speech which create humor and a comparison of theories of humor and rhetoric can provide clues about how to answer these questions.

TROPES IN HUMOR

The kind of figure which must first be introduced is the *trope*, defined as a device for "stretching" the meanings of symbols — creating new symbol meanings by modifying old ones (Goldman, 1972). A few examples should clarify this definition. First, the most widely discussed trope is *metaphor*, which entails finding some fundamental similarity between two different terms from different contexts. When Max Eastman (1936) spoke of "The momentary vacation afforded by a joke....," he was ignoring all differences between jokes and vacations to emphasize a fundamental similarity. In the process he can be said to have stretched the meaning of both words — and both concepts.

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