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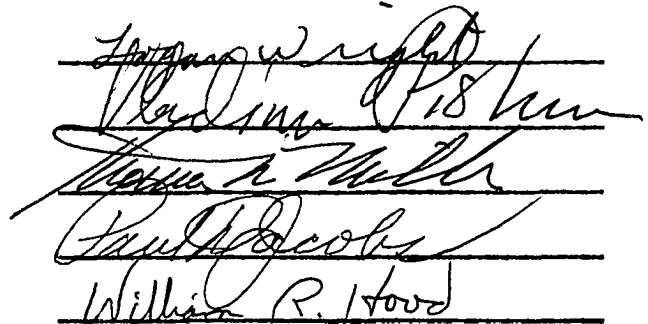
CONFLICT: FACILITATOR OR INHIBITOR
OF CREATIVE PERFORMANCE

A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
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Norman, Oklahoma
1970

CONFLICT: FACILITATOR OR INHIBITOR
OF CREATIVE PERFORMANCE

APPROVED BY


The block contains five handwritten signatures, each written over a horizontal line. From top to bottom, the signatures are: Morgan Wright, Madison Fisher, Thomas A. Miller, Paul Jacobs, and William R. Hood.

DISSERTATION COMMITTEE

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CHAPTER I

INTRODUCTION AND PROBLEM

A recent review of theory and research regarding the psychological study of creativity (Golann, 1963) identifies three issues: (a) What is creativity? - the issue of definition and criteria; (b) How does creativity occur? - the issue of the process viewed temporally; and (c) Under what conditions is creativity manifested? - the issue of environmental conditions resulting in necessary personality characteristics. Golann points out that a striking feature of the literature in the area of creativity is the great diversity of interests, motives, and approaches of various investigators. He cites four areas of investigation which are most popular: (1) the products of creative behavior, (2) cognitive processes involved in creative behavior, (3) the measurement of creativity, and (4) personality dynamics of the creative person. The present study is most relevant to the emphasis on personality.

The psychological studies which approach the problem of creativity from a personality viewpoint have often concentrated upon the uncovering of personality characteristics of life styles of creative individuals. These studies have traditionally contrasted creative versus non-creative Ss on such variables as self-descriptions, others' descriptions, personality test performance, life history material, etc. Creative versus non-

creative groups have been selected on the basis of performance on creativity tests, ratings of creativity, and nominations of individuals of outstanding creativity by a panel of experts in a particular field. Examples of the first technique (performance on creativity tests) include the following: studies of the relationship between self-description and degree of creativity (Barron, 1952, 1958), a study of the relationship between preferences for perceiving and dealing with complexity, and creativity (Barron, 1953 a); a study of the relationship between aptitude and nonaptitude factors and creativity (Guilford, 1957); and studies of the relationship between independence of judgment (Asch line-judgment situation) and creativity (Barron, 1953 b, 1961).

Examples of the second technique (ratings of creativity) include the following: A study of the relationship between Rorschach performance and creativity (Stein and Meer, 1954) and studies of the relationship between life history material and creativity (Roe, 1953; Stein, 1956; Cattell, 1959; MacKinnon, 1961, 1965).

Examples of the third technique (nomination of individuals of outstanding creativity by a panel of experts in a particular field) include the following: studies involving comparisons of groups of writers (Welsh, 1959), artists (Rosen, 1955), and research scientists (Gough, 1961), with groups not usually conceived as containing highly creative individuals, such as groups of unselected adults, business men, and military personnel.

Other psychological studies which have also approached the problem of creativity from a personality viewpoint, have tended to concentrate not so much upon the uncovering of personality characteristics of creative individuals, as upon motivational factors in creative behavior. Among these studies, two dominant viewpoints are apparent. The first attempts to explain creativity by relating it to earlier unacceptable impulses, while at the same time adhering to a tension-reduction theory of motivation. For example, Freud (1930, 1957), described creative behavior as resulting from repression of unacceptable impulses and the diversion of libidinal energy through sublimation.

The second viewpoint conceives of creativity as something which develops as the individual attempts to maximally realize his potential in interaction with his environment. This viewpoint neither appeals to earlier impulses, nor holds to a tension-reduction explanation. While such a view is in accord with the theorizing of Allport (1937), Goldstein (1939), Maslow (1954), May (1959), and Schachtel (1959), it is an essential part of the theory of Rogers (1959, 1961), who describes the primary motivation in creative behavior as "man's tendency to actualize himself, to become his potentialities." (1959, P.72).

Freud's and Rogers' theories of creativity also differ significantly with regard to the role of conflict in creative behavior. Freud's position is that creativity is generated by, and facilitated by conflict, whereas Rogers' position is that

conflict inhibits creativity. In spite of these virtually antithetical positions regarding the role of conflict in creativity, considerations of both conflict and creativity are integral parts of their respective theories of personality. And, most important, the works of Freud and Rogers contain the most specific and testable statements regarding the role of conflict in creative behavior.

While there have been many theoretical speculations concerning the role of conflict in creative behavior, the literature yields only one attempt to submit this specific problem to empirical test (Vogel, 1968). Other studies (White, 1939; Munsterberg and Mussen, 1953; Stein and Meer, 1954; Barron, 1957; Reid, King, and Wickwire, 1959; McReynolds, Acker, and Pietila, 1961; Goertzel and Goertzel, 1962; Golann, 1962; Fried, 1964; Maddi and Berne, 1964; Bowers, 1965; Fleischer, 1965; Guenther, 1966; Zdep, 1966; Tortorella, 1967; Hinton, 1968), did not deal specifically with the role of conflict in creative behavior, but rather with the relationship between anxiety and creativity, frustration and creativity, and psychological adjustment and creativity.

It was the purpose of the present study to submit to empirical test, the specific problem regarding the role of conflict in creative behavior. Freud's position was that creativity is both generated and facilitated by conflict. Rogers' position is that conflict inhibits creativity. It was hypothesized, in accord with Rogers' position, that conflict would result in dim-

inished creative performance. It was felt that the soundest empirical approach would be to generate conflict experimentally in the experimental group, as opposed to attempting to select high and low anxious or conflicted individuals. The latter method often results in a contamination of variables, whereas the former method tends to circumvent such contamination factors.

CHAPTER II

THE ROLE OF CONFLICT IN CREATIVITY

REVIEW OF THE LITERATURE

Theoretical Approaches

Freud

Freud's early writings began a continuing courtship between psychoanalysis and artistic creativity. Freud was fascinated by poets, artists, and writers, and avidly studied the lives of such individuals as Leonardo da Vinci. However, while Freud dealt with the phenomenon of creativity in numerous contexts, he failed to develop a systematic conceptualization about it. Because of this lack of clarity, varied interpretations and formulations may be, and have been, derived from his work. It is clear, however, that according to Freud, the source of creativity is found in conflict. He drew the following parallel between conflict as the source of neurosis, and conflict as the source of creativity:

...There is in fact a path from phantasy back again to reality, and that is - art. The artist has also an introverted disposition and has not far to go to become a neurotic. He is one who is urged on by instinctual needs which are too clamorous. He longs to attain to honor, power, riches, fame, and the love of women; but he lacks the means of achieving these gratifications. So, like any other with an unsatisfied longing, he turns away from reality and transfers all his interest, and all his Libido too, to the creation of his wishes in the life of phantasy, from which the way might readily lead to neurosis. There must be many factors in combination to prevent this becoming the whole outcome of his development; it is well known how often artists in particular suffer from partial inhibition of their cap-

acities through neurosis. Probably their constitution is endowed with a powerful capacity for sublimation and with a certain flexibility in the repression determining the conflict. But the way back to reality is found by the artist thus: He is not the only one who has a life of phantasy; the intermediate world of phantasy is sanctioned by general human consent, and every hungry soul looks to it for comfort and consolation. But to those who are not artists the gratification that can be drawn from the springs of phantasy is very limited; their inexorable repressions prevent the enjoyment of all but the meagre daydreams which can become conscious. A true artist has more at his disposal. First of all he understands how to elaborate his daydreams, so that they lose that personal note which grates upon strange ears and becomes enjoyable to others; he knows too how to modify them sufficiently so that their origin in prohibited sources is not easily detected. Further, he possesses the mysterious ability to mould his particular material until it expresses the ideas of his phantasy faithfully; and then he knows how to attach to this reflection of his phantasy-life so strong a stream of pleasure that, for a time at least, the repressions are out-balanced and dispelled by it. When he can do all this, he opens out to others the way back to the comfort and consolation of their own unconscious sources of pleasure, and so reaps their gratitude and admiration; then he has won - through his phantasy - what before he could only win in phantasy: honor, power, and the love of women. (Jones, 1957, pp. 384-385)

Mackler and Shontz (1965) write of Freud's view:

Freud felt there were three means of adapting to the hardships of life: powerful diversions of interest, which lead one to care little for misery; substitutive gratifications, which lessen the misery, and intoxicating substances which make one insensitive to it. Creativity was seen as a substitute, a means of running from hardships in order to achieve some degree, limited at times, of satisfaction. Sublimation aided in this substitution process by transferring instinctual aims into directions that could not be easily frustrated by the environment. The creative individual turns away from reality because he cannot meet the demands of renouncing instinctual satisfaction, and he turns to fantasy, where he gives full play to his erotic and ambitious wishes. To be

successful he must mold his fantasies into a new reality: the product is his creation, be it in art, music, science, or literature (1965, p. 218).

What Freud seems to have said is that the artist is overwhelmed by his failure to attain honor, power, riches, fame, the love of women. In order to cope with this overwhelmingly painful reality, the artist turns away from reality via repression, and seeks to realize his wishes in fantasy life. At this point, the artist can become neurotic or not. Whether or not he does become neurotic, depends upon his ability to eventually attain gratification of his wishes in reality. If he is able to do so, he will not become neurotic, as is the case with what Freud refers to as the "true artist." Such a person is able, by virtue of his powerful capacity for sublimation (defined as the ability to exchange the original sexual aim for another that is no longer sexual) and a certain flexibility in regard to the repression determining the conflict, to derive great gratification from his fantasy life. He is capable of understanding how to develop his daydreams so that they gratify the needs of other people, and of understanding how to modify or disguise them so that their unconscious origin is not really apparent. He is also able to express the content of his fantasy life very faithfully in his art. He is thus able to derive such great pleasure from his accomplishment that repression is no longer a necessary method of coping for, by virtue of his fantasy life, he is able to attain in reality that which he had failed to attain previously, namely,

honor, power, riches, fame, and the love of women. Thus the "true artist" avoids neurosis by means of his ability to create for himself a new reality in which his wishes are gratified.

It is important to note that whether or not an artist can be considered neurotic, in accord with Freud's definition, his creative endeavor is motivated by a conflict, namely, the overwhelming pain resulting from his failure to attain gratification of his deepest wishes.

Freud's idea that the material for working out the conflict which, in effect, becomes the manifest substance of the creative production, is founded in the experience of childhood, is reflected in the following passage:

You will not forget that the stress laid on the writer's memories of his childhood, which perhaps seems so strange, is ultimately derived from the hypothesis that imaginative creation, like day-dreaming, is a continuation of and substitute for the play of childhood (Freud, 1949, pp. 181-182).

It is important to note the essential role played by the unconscious in Freud's theory of creativity. Freud viewed the source of the artist's creative impulse as lying in some important unconscious fantasy. This unconscious material supposedly results in the creative act by virtue of the artist's powerful capacity for sublimation and his unique flexibility in regard to repression. The latter was felt to be accomplished by some kind of ego dominated cooperation between a preconscious and an unconscious impulse which circumvents the repressive mechanisms. Associated with this process was what Freud

considered to be an unusual tolerance on the part of the artist for material in his unconscious. He felt that somehow the artist's intellect imposed less restraint upon his imagination, but he did not elaborate on this process.

In summary, Freud conceived of the artist or the creative person as a conflict-ridden, frustrated, potential neurotic. The source of the artist's conflict was felt to be an inability to obtain gratification for his instinctual needs (for honor, power, riches, fame, and love of women) and the corresponding repression of these ungratified needs. Accordingly, the artist copes with the problem by turning away from reality and investing himself (interest and libido) in the realization of his wishes in fantasy. However, he is saved from becoming a neurotic solely by virtue of an exceptional capacity for sublimation in combination with an exceptional indirect access to, and tolerance for the unconscious material determining the conflict. These two qualities are seen as enabling the artist to transfer primitive and otherwise useless and unproductive fantasy into products celebrated by others as creative. And, by so doing, he is able to obtain gratification for his instinctual needs in reality.

Other Psychoanalytic Views

The notion that creativity is derived from or facilitated by conflict is supported by many psychoanalytic writers, both past and present. Bergler (1947) viewed creativity in writers as an

expression of an unconscious desire to reproduce an "autarchic infantile fantasy" of oral independence as a spiteful defense against a masochistic dependence upon another. He later wrote:

I have never encountered a normal writer In nearly twenty years of psychoanalytic practice, I have seen a great number of neurotics, in my office and outside. I admit that the most repressed and pitiful lot has been that of writers. On this score no other neurotic can beat them, (1948, p.247).

Lee (1948), in agreement with the findings of the British psychoanalytic school, concluded that the wish to create is but an attempt to restore objects destroyed by the artist's unconscious aggressive wishes. In the same vein, Bychowski (1951) wrote:

The progress of psychoanalytic knowledge has taught us the importance of preoedipal conflicts and we have sufficient clinical evidence to include them as sources of creative fantasies It is probable that the creative urge springs more often than not from less pathological sources among which narcissistic omnipotence is predominant (1951, pp. 593-594).

Jones' views regarding motivational sources of creativity are summed up in the following statement:

When one considers the material used in the five arts - paint, clay, stone, words and sounds - any psychologist must conclude that the passionate interest in bringing orderliness out of chaos must signify at the same time an extraordinary sublimation of the most primitive infantile enjoyments and the most extreme denial of them. In psychoanalytical terms that passionate concentration represents a fixation on a stage of 'preliminary pleasure' (1957, p. 415).

Deutsch (1960) believed the basis of conflict to lie in the unconscious, and that it is also in the unconscious that the creative and the neurotic solutions to conflict take place.

Like Freud, Deutsch viewed the motive and function of the creative production as a defense against neurosis:

As the instinctual pressure rises and a neurotic solution appears imminent, the unconscious defense against it leads to the creation of an art product. The psychic effect is the discharge of the pent-up emotion until a tolerable level is reached (1960, p. 34).

Eissler (1961) has also emphasized the importance of conflict and pathology as the source of creativity. In his analysis of the life and work of Leonardo da Vinci, Eissler stressed the role of unconscious conflicts in da Vinci's success as an artist. Concerning the relationship between psychopathology and creativity, he wrote:

It is no longer disputed that in the study of genius a surprisingly large amount of psychopathology is encountered Observation of the genius suggests the possibility that psychopathology is indispensable to the highest achievements of certain kinds (1961, p. 96).

Alexander (1964) upheld the traditional Freudian position regarding the role of conflict in creativity. He wrote:

In summary, the ultimate motive power behind creativity is the urge of mastery of tension creating situations, be it conflict with external reality, internal conflict or struggle for greater mastery of the faculties of the body and the mind (1964, p. 127).

Stamm (1967) contended that the motivation for creative behavior is derived from primitive, unneutralized, aggressive, and libidinal sources. His observations of creative people convinced him that the motivation for creativity stems from unresolved unconscious conflicts:

It is the unconscious conflict that seems to provide the drive-cathexis so vital for the completion of creative work in individuals inherently endowed with specific sensory modalities. The reverse is also true: after periods of frenetic creative activity, one often notices a relaxation of tension in the artist, and a concurrent ebb in creative production. Economically, then, there appears to be an optimum range of tension within which the creative individual works best (1967, p. 82).

Stamm went on to state:

Creative expression is motivated by conflict, invariably driven by instinctual tension, nurtured fortuitously by the inheritance of hyperacute sensory modalities which have been developed into ingrained attributes or tools through habit. Creative expression can thus become a vehicle for the discharge of tension on all levels, subserving instinctual demands, secondary autonomous functions, defense functions, and both the reality principle and the pleasure principle (1967, p. 94).

Neops psychoanalytic Views

Freud's conceptions with regard to creativity have been modified by his followers to varying degrees in accord with the shift in emphasis from id processes to that of ego processes, and the corresponding shift in emphasis from unconscious to preconscious cognitive processes. The first really systematic statement reflecting this shift in emphasis appears to have come from Earnst Kris (1952). While some have interpreted his work as inferring that all creativity is not solely the result of conflict (Golann, 1962), this writer is less comfortable with such an inference. In essence, Kris deemphasized the importance of the unconscious and stressed the importance of the preconscious in creativity. It was Kris who introduced the

notion that the ego can initiate regression of its own functions in accord with its own interests; that is, it can employ, at will, more primitive modes of functioning. This process has come to be known as regression in the service of the ego (Kris, 1934), a concept which implies the flexibility on the part of the ego of which Freud spoke in vague and general terms. Such regressions were felt to be accompanied by a reduction of control over discharge of drive cathexis, resulting in patterns of more rapid discharge, but not without substantial ego remaining:

... Ego regression (primitivization of ego functions) occurs not only when the ego is weak in sleep, in falling asleep, in fantasy, in intoxication, and in psychoses -- but also during many types of creative processes (1950, pp. 551-552).

Kris wrote of the creative person's capacity to allow his ego to enter into id territory and return (which distinguishes the creative person from the psychotic who cannot return, at least at will); to oscillate between closeness to the id and distance from it, thereby using the id in the service of the ego. Kris felt that the creative individual's powerful capacity for sublimation was related to his unique ability to absorb psychic energy, via many avenues, from the depths of the id, and to direct that energy into channels of creative activity.

In further elaboration of Freud's views, Kris viewed creative people as having a less rigid defensive system; as capable of exchanging or substituting different kinds of defenses

for each other; as able to drop certain defenses temporarily, and to employ more archaic defenses; all of which enable the creative person to keep more closely in touch with his unconscious than is true of the non-creative person.

Getzels and Jackson found it difficult to reconcile the concepts of creativity and pathology; to explain something as positive and healthy as creative behavior by means of repression, a concept with pathological connotations, despite the attempt to render it more appetizing by indicating that it takes place in the service of the ego. They pointed out that despite the psychoanalytic shift of emphasis from the unconscious to the preconscious as the source of creativity:

..... the special kinship between neurotic and indeed psychotic processes and creative processes in more or less maintained (1962, p. 94).

Schachtel (1959) has also found it difficult to reconcile the concepts of creativity and pathology. He held that creative behavior, according to the neops psychoanalytic view, is seen in essence as:

... the product of a repressed libidinal or aggressive impulse and of a regression to infantile modes of thought or experience, to the primary process, albeit in the service of the ego (1959), p. 243).

Neo-neops psychoanalytic Views

The term "Neo-neops psychoanalytic"¹ was chosen to depict an

¹This term was appropriated from Sigmund Koch (1960) who used it in regard to behaviorism.

even further decrease in emphasis upon the importance of the unconscious and conflict with regard to creativity, and a corresponding tendency to associate creativity with emotional health. This trend is apparent in the views of the following theorists. Schafer (1958) elaborated upon Kris' concept, "regression in the service of the ego":

Regression in the service of the ego is a partial, temporary, controlled lowering of the level of psychic functioning to promote adaption. It promotes adaption by maintaining, restoring, or improving inner balance and organization, interpersonal relations, and work. It is the process which increases the individual's access to preconscious and unconscious contents, without a thoroughgoing sexualization or aggression of major ego functions, and therefore without descriptive anxiety and guilt (1958, p. 122).

Schafer went on to describe major psychological determinants likely to facilitate creative regression. These include a well-developed set of affect signals: a secure sense of self; relative mastery of early trauma; relative flexibility of defenses; a history of positive interpersonal relations; and a self-awareness which includes meaningful and effective communication with others. Such characteristics are hardly compatible with pathology, and thus the trend away from associating creativity with pathology is apparent.

Kubie (1958) departed even further from the traditional psychoanalytic position than did Kris and Schafer. Of previous psychoanalytic formulations he wrote:

In early days the importance of the unconscious in the derivation and shaping of the neurotic process

was still a fresh and astonishing discovery. Therefore it was natural to assume that it must also be the source of the creative drive and of the great creative inspiration in human life. It is out of this natural but fallacious deduction that many erroneous clichés have been drawn: such as the notion that a man produces only from his unconscious, that to be creative a man must be sick(1958, p. 47).

Kubie's formulation explicitly rejected the role of the unconscious in creativity, and in fact, argued that the role of the unconscious is more likely to be one of interference with creativity. He held that the preconscious system is the essential component of creativity and that creativity is not possible unless the preconscious can grow freely. He went on to argue that both conscious and unconscious processes can interfere with the preconscious process and render even the most potentially gifted person uncreative:

Where conscious processes predominate at one end of the spectrum, rigidity is imposed by the fact that conscious symbolic functions are anchored by their precise and literal relationships to specific conceptual and perceptual units. Where unconscious processes predominate at the other end of the spectrum there is an even more rigid anchorage, but in this instance to unreality; that is, to those unacceptable conflicts, objects, aims, and impulses which have been rendered inaccessible both to conscious introspection and to the corrective influence of experience
....

Yet flexibility of symbolic imagery is essential if the symbolic process is to have that creative potential which is our supreme human trait. I will repeat that this creative flexibility is made possible predominantly if not exclusively by the free, continuous, and concurrent action of preconscious processes.
(1958, p. 38).

Kubie dismissed sublimation, the key concept in Freud's theory of creativity, on the basis that the concept was misleading, based upon inaccurate assumptions, and formulated prior to the understanding of the preconscious system.

Van Den Haag (1963) also departed from the orthodox Freudian notion that creativity stems from the unconscious. Rather, he emphasized the special use that the ego makes of unconscious motivations and experiences, and stressed the relationship between creativity and mental health:

The creative disposition, the ability to recognize experience, perceive new elements and respond in new ways valuable to the respondent in that ability is, I believe, part of general health and fostered by the factors that foster health. To be non-creative is to be less than healthy. It involves not utilization but repetition of the past, and an inability to respond to new situations except by mechanical repetition. Whereas the creative person utilizes it, the non-creative is shackled to the past (Van Den Haag, 1963, p. 151).

Horney's (1950) views were similar to those of Kubie and Van Den Haag. She believed that a person's capacity to be creative depends upon the extent to which his real self is alive; upon the extent to which he is able to experience life in depth and express this experience. She wrote:

And here we come to see the flaw in the contention that neurotic conflicts are an indispensable moving force for the artist. They may at best mobilize a temporary incentive, but the creative urge itself and the creative power can stem only from his desire for self-realization and the energies in its service. To the extent to which these energies are shifted from the simple and direct experiencing of life to having to prove something - that he is something he is not - his

creative abilities are bound to be impaired. Conversely an artist may retrieve his productivity when in analysis his desire for (his drive toward) self-realization is liberated. And if the power of this drive had been recognized, the whole argument of value of neurosis for the artist would never have arisen in the first place. An artist then creates not because of his neurosis but in spite of it (1950, p. 332).

Phillips (1957) was of the opinion that conflict and neurotic functioning tend to interfere with creativity. Of Freud's explanation of the creative process, he wrote:

Freud's few attempts to explain the nature of art are not very impressive Perhaps the least impressive of Freud's observations was that it was the desire for fame, power, and the love of women that lay behind the creative will of the writer. Nor do I find a satisfactory explanation of the creative act in the analogies of daydreaming and fantasy building noted by Freud. As for the origin of the creative gift, Freud insisted on many occasions that psychoanalysis had no special explanation for this mysterious force, though the concept of sublimation would suggest that all the achievements of civilization come from the taming of the id Any total approach to art that sees the creative gift or process as a form of neurosis is bound to produce a lopsided and absurd theory It is true, of course, that people who are not creative may also be neurotic; hence the popular belief that the connection between art and neurosis has been much exaggerated (1957, pp.16-17).

Trilling (1957) also took issue with the position that neurosis gives rise to creativity. He believed that neurosis is no more an explanatory factor in creativity than it is in normal everyday functioning, and that creative behavior depends upon and is evidence of some degree of mental health. He wrote:

We are all ill; but even a universal sickness implies an idea of health. Of the artist we must

say that whatever elements of neurosis he has in common with his fellow mortals, the one part of him that is healthy, by any conceivable definition of health, is that which gives him power to conceive, to plan, to work, and to bring his work to a conclusion (1957, p. 518).

And, finally, Michels wrote:

The time is long past when analysts assumed that, since neurotic behavior has unconscious roots, the discovery of unconscious motives in artists or scientists means that they are neurotic (1969, p. 2).

Thus, there appears to be three distinguishable psychoanalytic theoretical orientations with regard to the role of conflict in creativity. The first (psychoanalytic) includes those who agree with and support Freud's view that conflict is the primary source of creativity; the second (neopsychanalytic) includes those who concede that conflict may not always be related to creative behavior; and the third (Neo-neopsychanalytic) includes those who are of the opinion that conflict interferes with or inhibits creativity. It is this third orientation which provides a bridge between psychoanalytic and Non-psychoanalytic formulations regarding the role of conflict in creativity.

Non-psychoanalytic Views

Allport (1937) believed that the process of striving, which includes creative striving, is a source of primary satisfaction to the striver. Goldstein (1939) agreed with Allport and cited self-actualization as the process by which man comes to realize his potential. In a similar vein, May (1959), who was critical

of psychoanalytic approaches for their tendency to explain creative behavior by means of conflict, described creativity as:

... the expression of the normal man in the act of actualizing himself not as the product of sickness, but as the representation of the highest degree of emotional health (1959 , p. 58).

Schachtel (1959), in agreement with May, criticized the analytic approach for similar reasons. He believed that the main motivation for creative behavior is not mysterious id forces, but rather a need to relate to the world, a process which he termed "the encounter." He, too, viewed the creative person as a healthy, optimally functioning individual who is open to the world.

Similar to the above approaches is that of Maslow (1959), who perhaps places somewhat more emphasis upon interpersonal factors. According to Maslow, when a person is mentally ill, his creativity is severely hampered. He viewed the person most likely to be creative as one who is maximally self-actualized or who has been most successful in realizing his potential:

In such a state, the person becomes more open to experience and far more spontaneous and fully functioning, essential characteristics as we have already seen, of self-actualizing creativeness (Maslow, 1959, p. 89).

Rogers

Rogers' special interest in creativity was sparked by his experience in psychotherapy, and from this experience sprang his theory of personality and, contained therein, his theory of creativity. In psychotherapy, Rogers saw clients create new

formations of their own personalities and this phenomenon suggested to him that the potential for creative behavior exists in all individuals. Rogers defines creativity as:

... the emergence in action of a novel relational product growing out of the uniqueness of the individual on one hand and the materials, events, people or circumstances of his life on the other (1961, p. 350).

In discussing the motivation for creativity, Rogers wrote:

The mainspring of creativity appears to be the same tendency which we discover so deeply as the curative force in psychotherapy -- man's tendency to actualize himself, to become his potentialities (1961, p. 350).

In the above quotation, Rogers refers to what he views as a directional trend which is evident in all organic and human life -- the urge to expand, extend, develop, and mature; the tendency to express and activate all the capabilities of the organism or the self. Thus according to Rogers, man possesses as basic to his nature, a tendency to realize his potential, to become what he is capable of being, to do what he is capable of doing. The extent to which the individual is able to realize his potential, to do what he is capable of doing, is the extent to which that individual is capable of behavior which Rogers defines as creative. Whether or not an individual is capable of creativity depends, according to Rogers, upon the nature or quality of the environment to which that individual is exposed. If the seed of creativity which is inherent in every individual is properly nurtured, it will grow and blossom. If the proper nurture is not forthcoming, the

seed will not grow and blossom and the individual will not realize his potential. Instead, that individual's creative potential will be squelched and buried under layer after layer of psychological defenses constructed to protect the self-organization from conflict and resulting threat.

Rogers' experience in psychotherapy has lead him to the opinion that the essential nurturing conditions of constructive creativity are "psychological safety" and "psychological freedom," which he labels X and Y respectively. X or psychological safety is considered to be established by three associative processes: (1) The unconditional acceptance of the individual; (2) The provision of a psychological climate in which external evaluation is absent; and (3) Empathic understanding (Rogers, 1961, pp. 357-358).

"Unconditional acceptance of the individual" occurs when he is viewed as worthwhile in his own right in that he is a human being, rather than on the basis of his behavior or achievements. The individual who experiences unconditional acceptance feels safe - safe to be himself, to do his "own thing," to behave in a manner which is genuine as opposed to phoney. Such an individual is free to discover what it means to be himself, to try to realize his potential, to actualize himself in new and spontaneous ways, and ultimately, to be creative.

"The provision of a psychological climate in which external evaluation is absent" involves situations in which an individual is not measured by external standards, for example, grades, or

level of achievement. Since evaluation is considered to be threatening, and to create a need for defensiveness and associated distortion of the experience admitted to awareness, the absence of such evaluation is considered to be enormously freeing. It allows the individual to be more open to his experience, to better recognize his own likings and dislikings and the locus of evaluation within himself, and to move toward creativity.

"Empathic understanding" according to Rogers, provides the ultimate in psychological safety, as long as the other two processes are also present. Empathic understanding refers to an individual being understood from his own point of view, rather than from the point of view of the person attempting to understand. Empathic understanding also implies the acceptance of the individual. In such a climate, the individual is able to permit his real self to emerge, and to express itself in varied and novel ways as it relates to the world.

Y or "psychological freedom" is considered to occur when the individual is permitted complete freedom of symbolic expression. This permissiveness, according to Rogers, allows the individual complete freedom to think, feel, and be himself. It fosters openness (the ability to toy with percepts, concepts, and meanings). It promotes a secure inner locus of evaluation, and hence, tends to bring about the inner conditions which Rogers felt to be most closely associated with potentially constructive creativity.

There are three such inner conditions (conditions existing within the individual). They are: (1) Openness to experience or extensionality; (2) An internal locus of evaluation; and (3) The ability to toy with elements and concepts (Rogers, 1961, pp. 353-355).

Openness to experience or extensionality is defined as the opposite of psychological defensiveness. Rogers defines psychological defensiveness as the organism's response to experiences which are perceived as threatening, or as conflicting or incongruent with the individual's picture of himself in relation to the world. These threatening experiences are temporarily rendered harmless by means of either denial to awareness or by reaching awareness in distorted form. The individual cannot accurately see those experiences, feelings, and reactions in himself which are significantly in conflict with the picture he already possesses of himself. A person whose self-organization is secure and free of conflict does not need to protect that self-organization by means of such defenses. Such a person is thus maximally open to his experience, and each stimulus is freely relayed, without distortion, through the nervous system. Such a person is flexible as opposed to rigid in regard to concepts, beliefs, perceptions, and hypotheses. He is able to tolerate ambiguity, and is able to receive conflicting information without forcing closure upon the situation.

Rogers believes that complete openness to experience is an

important condition of constructive creativity (Rogers, 1961, p. 352). He distinguishes between constructive creativity and non-constructive or socially destructive creativity. He points out that a very narrowly circumscribed openness to experience may be present in a deeply conflicted and maladjusted artist who is unaware of the inner sources of his unhappiness. Such an individual may, nevertheless, be very sensitively aware of form and color in his experience, and because there is this openness to one phase of experience, creativity is possible. However, because this openness is only to one phase of experience, the product of such an individual's creativity may be potentially destructive of social values. According to Rogers, the more the individual is capable of a sensitive awareness to all phases of his experience, the more likely his creativity will be personally and socially constructive.

"An internal locus of evaluation" is the second condition which is considered to be closely associated with constructive creativity. Rogers considers this to be one of the most fundamental conditions of creativity. It means that, for the creative individual, the value of his product is based upon his own evaluation, rather than upon the evaluation of others. Others' evaluations and criticisms are of interest, but play no essential part in his evaluation of his product.

"The ability to toy with elements and concepts" is the third and final condition. Rogers conceives of this condition as less important than the first two, although still an important

condition of creativity. The ability to toy with elements and concepts is considered to be associated with openness and lack of rigidity. It is the ability to play spontaneously with ideas, concepts, and relationships in ways unimpeded by traditional conceptual limitations. From this spontaneous toying and exploration, there is seen as arising the creative viewing of life in new and significant ways.

According to Rogers, if the above three conditions obtain, constructive creativity will occur. He wrote:

From the very nature of the inner conditions of creativity, it is clear that they cannot be forced, but must be permitted to emerge. The former cannot make the germs develop and sprout from the seed; he can only supply the nurturing conditions which will permit the seed to develop its own potentialities. So it is with creativity (1961, p. 357).

In summary, Rogers views the constructively creative individual as one who has experienced unconditional acceptance and empathic understanding in his interaction with the primary figures in his life. As a result, he experiences a psychological safety which permits him freedom to think, feel, and be himself. His well developed self-concept and self-organization render him minimally defensive and maximally secure, and enable him to leave himself open to all experience. He is flexible and can tolerate considerable ambiguity and conflicting information without forcing closure. His values are self-determined as is his behavior. He is able to play spontaneously with ideas and to see beyond traditional conceptual limitations; to see in significantly new and meaningful ways. In short, the

creative person is seen as one who comes closest to realizing his human potential.

Summary

The Psychoanalytic theoretical orientations presented began with Freud (1949, 1957) who viewed conflict as the primary source of creativity and included those who have supported this view (Bergler, 1948; Lee, 1948; Bychowski, 1951; Jones, 1957; Deutsch, 1960; Eissler, 1961; Alexander, 1964; Stamm, 1967). Next came the Neops psychoanalytic view that creative behavior need not always have its source in conflict (Kris, 1952). And, finally, came the Neo-neops psychoanalytic view that conflict inhibits creativity (Schafer, 1958; Kubie, 1958; Van Den Haag, 1963; Horney, 1950; Phillips, 1957; Trilling, 1957; Michels, 1969).

As was pointed out earlier, this third orientation provides a bridge between Psychoanalytic and Non-psychoanalytic views regarding the role of conflict in creativity. The Non-psychoanalytic theoretical orientations presented (Allport, 1937; Goldstein, 1939; May, 1959; Schachtel, 1959; Maslow, 1959; Rogers, 1959, 1961), in agreement with the Neo-neops psychoanalytic orientations, argued that conflict inhibits creativity. However, the major difference between the Neo-psychoanalytic and the Non-psychoanalytic orientations seems to be that the latter go farther in that they view creativity in an individual, not only as indication of the absence of significant conflict in

that individual, but as indication of exceptional emotional health. To state this in Rogers' terms, the truly creative person is viewed as one who has come closest to realizing his human potential.

Empirical Studies

In Support of Freud

While there are many theoretical statements and generalizations from clinical observations supporting the Freudian position regarding the role of conflict in creativity, there are few empirical studies which do so. The following studies are the only reasonably substantial studies to be found in psychological literature relating to the problem at hand.

White (1939) attempted to investigate whether or not any kinds of mental achievements tend to be associated with pathological mental conditions. Among the kinds of mental achievements considered, was that of creativity. His data consisted of biographical material to which (unreported) statistical procedures were applied. White concluded that aesthetical types, particularly poets and novelists appear to be distinctly "less well balanced" than the average of other types of genius. It was speculated that the poet or novelist experiencing conflict may sometimes respond by taking refuge in an inner world of "feeling and imagination." This study is vulnerable to criticism on the basis of poor controls, unreported statistical methods, an inadequate definition of pathology, inadequate data

(mentioned by the author himself), and the use of subjective impressions as opposed to objective criterion for determining the extent of pathology.

There is some evidence that the home life of creative scientists and some other professional groups has been less happy than the home life of the average person. Mackinnon (1961), for example, found that the male child often found it impossible to identify with his father, a factor which was felt to have interfered with proper sex-role identification. The latter condition was found to be associated with creative tendencies. Weisberg and Springer (1961) generally agree. Through tests and interviews, they elicited information indicating that the family of the more creative child is not a close one. The home was characterized by serious (parental) marital problems and considerable dissension. Little emphasis was placed on the child's adopting the values of the parents, and little concern was paid to the child's regressions, conditions which the authors viewed as contributing to the development of creative tendencies.

Goertzel and Goertzel (1962) studied the biographies of eminent and presumably creative individuals. They found what they felt to be a high incidence of troubled homes and "wretched childhoods" in the histories of these individuals. Handicaps and uncommon characteristics among the parents were frequently present, and many of these individuals suffered experiences which the authors felt to be common in the lives of

those who later become delinquent, neurotic, or psychotic.

In an often quoted study, Münsterberg and Mussen (1953) investigated the relationship between personality structure and artistic creativity in the plastic and graphic arts. They attempted to test seven hypotheses derived from psychoanalytic writings and empirical studies regarding the personality characteristics of artists. Their subjects were thirty exceptionally promising art students and thirty non-art students from several different fields. The personality measures used consisted of the TAT and a personality questionnaire. The data was interpreted as supporting the following hypotheses: (a) More artists than non-artists are introverted and have a rich inner life; (b) More artists than non-artists have intense guilt feelings; (c) More artists than non-artists have a strong need to express their feelings and ideas either verbally or nonverbally; (d) More artists than non-artists show overt aggressive tendencies; (e) More artists than non-artists value acceptance of their work more than personal acceptance or recognition; (f) More artists than non-artists are unable or unwilling to comply with parents, and the demands and wishes of society. No support, however, was found for the hypothesis that more artists than non-artists would experience conflict with their parents.

The authors mentioned that, while there is some evidence that intense guilt feelings are more prevalent among artists than among non-artists, the study did not test the hypothesis that

the artist's creativity serves as a means of relieving these feelings. It was also mentioned that the data did not support the hypothesis that appreciation of the artist's work supplies basic narcissistic gratification for the artist or that such appreciation is interpreted by him as evidence that others share his guilt.

The authors point out that although their findings were interpreted as supporting some aspects of psychoanalytic theory concerning the artist, they were not interpreted as confirming all of the theory. Certainly some of the interpretations of the data are open to question. For example, the fact that more artists than non-artists preferred social situations "involving a few close friends in contrast to large group activities such as social dances" was interpreted as evidence of introversion. It is important to note that Maslow found this very preference to be characteristic of individuals which he termed self-actualizing. Maslow (1959) also found self-actualizing individuals to be unwilling to comply with demands and wishes of parents and society which ran counter to their own personal standards and moral codes. The interpretation regarding intense guilt feelings being more prevalent among artists could be accounted for, at least in part, on the basis of a greater self-awareness and honesty on the part of artists. In addition, some of the other findings can be interpreted as lending support to the Rogerian position. For example, the greater need for self-expression and the richer inner life

among artists both would have been predicted on the basis of Rogerian theory. Moreover, as is true of most, if not all, of the studies encountered in existing literature, the population sampled (artists) was narrowly circumscribed and the findings cannot be legitimately extended to creative people in general. Finally, and of great importance, creativity was not operationally defined, and what was termed creative once again smacked of a heightened capacity to please an instructor on the part of a student who skillfully conformed to acceptable artistic standards.

Maddi (1965) had accused contemporary psychology of harboring "a couple of old wives' tales" concerning creativity, one of which was that a person is not likely to be creative if he is in a state of strong frustration and torment. He indicated that such a state is supposed to narrow the focus of perception, intention, and cognition so that a person is too concerned with the alleviation of pain and the satisfaction of deprivations to be able to muster the freedom and sense of safety required for the creative behavior. He went on to state that this kind of thinking is found in the explicit and implicit statements of psychotherapists, proponents of self-actualization and exploratory and curiosity behavior. Of such a position he wrote:

It may be true that some of the people who show evidence of strong torment and frustration do not seem to be living up to their creative potential. But this alone cannot constitute a demonstration that it is the existence or strength

of these states that inhibits creativity. The case for the old wives' tale would be much stronger if it were also true that people who are creative do not show much torment and frustration. But when we consider the lives of people who have been significantly creative, we find very little that conforms to this More systematic evidence for my criticism is provided by a study from my laboratory The evidence clearly indicates that the frustration and torment of need states does not necessarily inhibit creativity (1965, p. 332).

The study to which Maddi referred (Maddi and Berne, 1964) was an attempt to determine if the desire for novelty and novelty of productions variables represent, respectively, passive and active forms of the need for variety, or if the novelty of productions variable is measuring not a form of the need for variety, but rather the tendency toward original or creative functioning. The authors reasoned that if the latter were so, assuming that the creative process is one involving playfulness, flexibility, and freedom, it would be expected that creativity would be reduced by strong motivations including conflict. This reduction would be achieved as a result of the narrowing of the focus of attention and intention brought about by strong motivations. It was further reasoned that if the existence of any strong motivational state is inconsistent with creative functioning, the novelty of productions variable ought to be negatively correlated not only with desire for novelty, but with measures of other motives as well. In contrast, if the existence of any strong motivational state is not inconsistent with creative function-

ing, novelty of productions should be positively correlated with desire for novelty, as these two variables are considered alternate manifestations of a single underlying motivation.

The authors administered TAT pictures to a group of 60 male undergraduate volunteers and the stories composed were scored for novelty of productions, desire for novelty, and needs for achievement, affiliation, and power. It was found that novelty of productions was negatively correlated with desire for novelty, but not with needs for achievement, affiliation, and power. These results were interpreted as supportive of the position that these two variables tap active and passive forms, respectively, of the need for variety, and as failing to support the alternative position that novelty of productions reflects the non-motivational tendency toward creative functioning which is diminished by any strong motive. The author's vague and merely implied definition of strong motivational states seems broad enough to include anything from love of travel to the predicament of Isaac. While the authors concede that there are other adequate explanations of these results, to claim as they did, that this study "clearly indicated that the frustration and torment of need states does not necessarily inhibit creativity," is a classic example of inferences which extend well beyond the data.

The above study was included because it is one of the few empirical studies tending to support the Freudian position.

Actually, it does not support Freud's position as much as it fails to support Rogers'.

In Support of Both Freud and Rogers

The following studies cannot be categorized as supportive of either the Freudian or the Rogerian positions as a whole; but rather they provide some support for certain aspects of each. At the same time, they fail to support certain aspects of each position. They were included because they may be considered important studies in view of the frequency with which they appear in the literature. In addition, they are representative of the studies found in the literature which appear to provide some support for both positions, and reflective of the prevailing confusion regarding the relationship between creativity and personality factors.

Barron (1953 a) investigated cognitive complexity and simplicity as a personality dimension. Subjects consisted of 40 male graduate students from approximately twelve departments, who had been carefully studied by means of a large number of objective tests, experimental procedures, and extensive interviews. Subjects were then assessed and rated by several eminent psychologists on 40 variables. Two basic perceptual tendencies or preferences were found: the preference for perceiving and dealing with complexity, and that for perceiving and dealing with simplicity. These two correlates were viewed as pervading many areas of human behavior, both having their ef-

fective and ineffective aspects regarding human functioning. The preference for complexity factor was found to be positively correlated with originality and artistic expression, breadth of interest, independence of judgment, impulsiveness, sensuality, and effeminacy. It was found to be negatively correlated with rigidity, constriction, repression, conservatism, and social conformity. The preference for simplicity tended to be inversely related to the above characteristics.

Barron also found that both groups contained effective and well adjusted individuals and ineffective and poorly adjusted individuals. A .34 correlation of complexity with overt anxiety as measured by the Welsh Anxiety Index (MMPI) suggested that the perceptual decision in favor of admitting complexity may also make for greater subjectively experienced anxiety. It was reasoned that in order to tolerate complexity, one must be able to tolerate anxiety. The findings also suggested that the highest level of personal stability and balance may be found at the positive end of the continuum on the preference for simplicity dimension. If subjectively experienced anxiety is positively correlated with conflict, as many would claim, these results could be interpreted as supporting the Freudian position. On the other hand, it could be argued that some conflict could exist buried and well concealed under strong and effective personality defenses resulting in a minimum of subjectively experienced anxiety. At the same time, Barron's finding that effective and well adjusted individuals exist

among both groups, fails to provide support for either position.

The other frequently cited study which falls into this limbo-like category is that of MacKinnon (1965) who investigated personality factors among creative architects. MacKinnon obtained what, in his opinion, was a sample of highly creative architects by asking professors of architecture to nominate the 40 most outstanding creative architects in the country. (13 of these were nominated by 4 professors, 11 by 3, 13 by 2, and 40 by 1. These statistics suggest that selection of subjects was far from unanimous.) Subsequently, each panel member rated the creativity of those not nominated by him originally. Two other groups were also selected to represent significantly different levels of creativity. Group I was considered to be the most creative, Group II next in creativeness, and Group III, least creative. It was hypothesized that Group I would be the "creative type," Group II, the "conflicted type," and Group III, the "adapted or normal type." The selected architects were then studied with respect to (a) the nature of the individual's socialization and his interpersonal behavior (b) the level of richness or complexity of his psychological development, and (c) the degree of personal soundness or psychological health manifested. It is important to note that Group I underwent intensive testing in person, whereas Groups II and III were tested by mail. The data were interpreted as generally supportive of the hypothesis. Group II was found to be "unequivocally

more conflicted and psychologically disturbed" than either Group I or III. However, the scores of Group I were reported to be very close to those of Group II on some personality measures. On others, such as the Barron Es scale and the Gough Self Assertiveness Scale, Group I scored significantly higher than Group II. At the same time, it is stated that personal histories revealed that Group I came from homes which provided extraordinary respect by parents for child, an early granting of unusual freedom, and a relatively better parent-child relationship, all of which were considered to have a liberating effect upon them as children.

The finding that Groups I and II (the former scoring significantly higher than the latter, and both scoring significantly higher than Group III) were found to be high in psychological richness and complexity was interpreted in accord with Rankian theory. Rank considered the conflicted and neurotic type to be close to the creative type. He reasoned that it is only out of the richness, complexity, and conflict experienced by the neurotic type that the creative integrations characteristic of the creative type are achieved. In regard to this matter, MacKinnon wrote:

And I would reject any inference which might be drawn from my remarks, that one must be neurotic if one is to be creative. Rather, in agreement with Lawrence Kubie (1961) I believe that both neurotic and creative potential are inherent in the structure of the human psyche. It is a question of which gets emphasized and most developed in any given person (p. 280).

In a statement which seems difficult to reconcile with some of the findings and the above theoretical implications, MacKinnon wrote:

If I were to draw a summary picture I would say that what is most impressive about architects is the degree to which they have actualized their creative potentialities. They have become in large measure the persons they were capable of becoming They are perhaps the prototype of the person of strong ego, the man of will and deed. Confident in themselves and basically self-accepting, they are to an unusual degree able to recognize and give expression to most aspects of inner experience and character, and thus are able more fully to be themselves and realize their own ideals (p. 280).

Van Den Haag (1963) criticized MacKinnon's method of selecting his creative subjects. He wrote:

MacKinnon studies architects whose work was labeled "creative" by a panel of colleagues. So used, "creativity" comes near to meaning success or approval by colleagues. Though one may be related to the other - more often negatively, I think, than positively - success and creativity are not identical enough to regard MacKinnon's study of successful architects as a study of "creative" ones. The rating "creativity" may amount to winning a popularity contest; or be based on fashionableness of an architectural style; or an originality, or perhaps, the works of the "creative" architects met on the popular stereotype of creativity. The least implication of the selection method is: what colleagues call creativity, actually is creativity. When no operational definition is given (creativity) remains unclarified (1963, p. 146).

In addition to the above criticism, the fact that the evaluation process was not the same for the three groups makes for an important uncontrolled variable. The final criticism involves the seemingly conflicting interpretation of the data in which Group I is viewed as nearly as emotionally disturbed

as Group II, and yet as "having become in large measure, the persons they were capable of becoming ... the prototype of the person of strong ego."

In Support of Rogers

The literature contains considerably more support for the Rogerian than the Freudian position. An attempt has been made to include the better studies relating to the problem of the role of conflict in creativity. Most of the studies cited did not deal specifically with that problem, but rather with the relationship between creativity and such factors as psychological adjustment, personal and intellectual functioning, life styles, frustration, anxiety, stress, personality integration, and defensiveness. While all of these factors certainly can be said to relate to "conflict," only one study was found which specifically dealt with the role of conflict in creativity.

A review of the literature yields frequent clinical impressions regarding the effect of successful psychotherapy and the resulting resolution of conflicts upon creativity. The majority of writers are of the opinion that where there is genuine talent and creativity, successful resolution of conflicts through psychotherapy will result in greater creativity. Even Freud, himself, was of this opinion. In reply to a violinist who posed this issue, he wrote:

It is not out of the question that an analysis results in its being impossible to continue an artistic activity. Then, however, it is not the

fault of the analysis; it would have happened in any case and it is only an advantage to learn in good time. When, on the other hand, the artistic impulse is stronger than the internal resistances, analysis will heighten, not diminish, the capacity for achievement (Jones, 1957).

While there has been much speculation regarding this question, one of the few attempts to submit it to relatively rigorous empirical test is found in the work of Fried (1964), a three year longitudinal investigation of the effects of long-term psychotherapy on six distinguished and prominent artists. These were a sculptor, a writer, an actor-singer and three painters. In an effort to circumvent the difficult problem of determining the extent or quality of creative performance, the criteria used consisted of constructiveness and appropriateness of work habits, and quantity of output. The data was interpreted as demonstrating that the constructiveness and appropriateness of work habits and quantity of output increased significantly as a result of psychoanalytically oriented psychotherapy. While this study can be criticized primarily on the basis of a small sample, and the fact that it dealt with changes in work patterns and productivity as opposed to changes in creativity, it is probably the best attempt appearing in the literature to submit this particular problem to empirical test. While the results were predicted by Freud himself, they are more easily reconcilable with the position of Rogers than that of Freud regarding the role of conflict in creativity.

Barron (1957) attempted to investigate the relationship be-

tween originality and other aspects of personal and intellectual functioning of extraordinarily effective military officers. Tests measuring originality consisted of the Unusual Uses Test, the Consequences Test, and the Plot Titles Test. Projective tests were used to measure personality variables. It was found that the effectively original person is characterized by an ability to regress very far temporarily, but with an equal ability for rapid return to a high degree of rationality, and for making effective use of the temporary regression. Accurate and self-confident reality testing was viewed as facilitative of imaginative powers. It was concluded that the basis for regression in the highly creative individuals is precisely opposed to the basis for regression in mentally ill individuals. While findings were interpreted in terms of psychoanalytic theory (regression in the service of the ego), assuming that greater tolerance of regression and associated lack of rigidity, and accurate and self-confident reality testing are characteristics associated with greater effectiveness, these findings appear to provide more support for the Rogerian than for the Freudian position.

Reid, King, and Wickwire (1959) attempted to systematically investigate differences in certain cognitive and other personality characteristics between children who are perceived as creative by their peers and those who are not so perceived. The Ss were 48 seventh graders selected on the basis of sex, family status, and peer nominations of creativity, who were

administered cognitive and personality attitudinal measures. The measures were the IPAT Junior Personality Quiz, the Brown-Holtzman Survey of Study Habits and Attitudes, the Texas Cooperative Youth Study, and the McCandless Anxiety Scale. It was found that creative children held more desirable attitudes toward their school work, tended to value intellectual attainment more highly, and evidenced a higher degree of self-discipline. The most salient finding was that creative children appeared less anxious than non-creative children.

The main criticism of the Reid, et al, study centers around the selection of Ss. The only criterion of creativity was peer selection of creativity behavior. From what is reported, one cannot help but wonder if peer selection was more heavily influenced by such factors as popularity and a demonstrated high level of performance in class, than by factors associated with original and innovative behavior. The absence of any objective and empirical check as to whether or not Ss selected by peers were, in fact, "creative" renders the results somewhat suspect.

Golann (1962) hypothesized that one difference between what he termed "extreme" groups (artists and writers in contrast to people in general, military personnel, and psychiatric inpatients) was the degree to which they strive to express themselves in their inter-action with their environment. Artists and writers were seen as striving to experience their environment in new ways and to deal actively with their environment in such a way as to express themselves, or as the author stated,

"to experience their selves in action, to use Rogers (1959) terms." Those belonging to the other extreme were seen as defending against the environment, or dealing with it in such a way as to maximize predicability, comprehensibility, and stability. It was further hypothesized that individuals strongly motivated to experience their perceptual, cognitive, and expressive potentials would prefer objects and situations permitting more ideosyncratic ways of dealing with them.

Golann's Ss were 150 male undergraduates who gave one association to each figure in the Welsh Figure Preference Test (WFPT) and filled out questionnaires regarding their preferences for activities and situations. It was found that Ss preferring "ambiguous, evocative, and dynamic stimuli" on the WFPT preferred activities and situations allowing for self-expression, independence, and the utilization of creative capacity. In contrast, those preferring less ambiguous, evocative, and dynamic stimuli on the WFPT, preferred structured, assigned, familiar, or routine activities which allow less self-expression and are less demanding of creative capacity. These findings were interpreted as supporting the author's hypotheses and as being "more consistent with the self-actualization views for creativity than with the reductionistic theories" (Golann, 1962, p. 598).

Hinton (1968) studied the effect of environmental frustration on creative problem solving performance. Alternate forms of analysis were applied to test the relationship between en-

virommental frustration and creativity under various sets of assumptions about the experimental conditions. It was concluded that environmental frustration significantly reduced creative problem solving performance.

Guenther (1966) investigated the relationship between anxiety and cognitive processes in children and youth in a school setting. It was found that anxiety interferred with creative thinking and complex learning, tended to interfere with cognitive processes, and facilitated simple learning.

Fleischer (1965) examined the relationship between anxiety and creativity. High anxious (HA) and low anxious (LA) male introductory psychology students were administered four tests of creativity (Remote Associates Test, Alternate Uses Test, Consequences Test, and Concept Mastery Test). The two groups were matched for intelligence. Anxiety was measured by the Mandler-Saranson Anxiety Scale. Half of each anxiety group was placed under high-stress conditions, and half under low-stress conditions. In a related experiment, 40 HA and 40 LA Ss were administered the Maier Coat-Rack problem to solve in order to investigate the effects of anxiety and stress in a more life-like situation. It was found that two of the four measures of creativity significantly discriminated between HA and LA individuals, the former performing less well than the latter. The Alternate Uses Test did not discriminate except when scored for infrequent responses, whereupon LA Ss produced more infrequent responses than HA Ss. The Remote Associates Test failed

to discriminate at all. Different degrees of stress were found to be of no significance either in terms of analysis of variance, main effects, or in regard to interactions with other variables.

On the basis of these findings, the author tentatively concluded that tests of creativity (generally) tend to be sensitive to anxiety. However, this relationship was felt to be a function of specific stimulus factors which may be present in tests of creativity. It was further concluded that tests of creativity which are sensitive to anxiety seem to be ambiguous and divergent, and to demand independence of thought and judgment. It was felt that this may reflect a tendency on the part of HA individuals to behave in a conforming and cautious manner in situations which are vague and unstructured.

Zdep (1966) compared high, middle, and low creativity in groups of reportedly creative individuals (matched for IQ) on the variable of anxiety as measured by the Taylor Manifest Anxiety Scale. Creative individuals were found to be less conforming than other less creative individuals, and highly creative individuals were found to possess a lower level of anxiety than individuals of lower creativity.

McReynolds, Acker, and Pietila (1961) attempted to determine whether or not there is a relationship between object curiosity (associated with creativity) and psychological adjustment. The Ss were 30 upper middle class children, 14 females and 16 males, with a mean age of 11.5 years. Ratings of object curiosity were

made by teachers and a variation of an object curiosity test. Estimates of psychological adjustment were based upon ratings made by the classroom teacher utilizing six behavioral rating scales: nervous behavior, worry over achievement, classroom adjustment, adjustment to teacher, adjustment to peers, and overall psychological health. Ratings were also obtained in regard to scholastic activation, activity level, creativity, originality, and curiosity, with the prediction in each case being a positive relationship with object curiosity. A positive relationship was found between object curiosity and high psychological adjustment, while a negative relationship was found between curiosity and maladjustment. The authors interpreted their findings as suggesting that aspects of learning which depend upon curiosity may be hindered by anxiety. As the authors themselves point out, this study is vulnerable to criticism on the basis of its small sample; but more important is the fact that the determination of adjustment was based completely upon the judgments of only one rater who, in addition to rating adjustment, also rated Ss for object curiosity, and was the Ss' classroom teacher.

Tertorella (1967) attempted to assess the effect of a stressful situation upon the performance of individuals who are designated high creative (HC) and low creative (LC). Creativity was measured by the Remote Associates Test (RAT). The Ss were 45 HC and LC male college freshmen. The HCs were those who scored in the top 27 percent on the RAT, the LCs were those who

scored in the bottom 27 percent on the same test. The HC and LC Ss were divided into control, moderate, and severe stress groups; stress consisting of verbal criticism of performance on an ambiguous task. Following the stress task, Form II of the RAT was individually administered. The authors concluded that HC scorers were able to function more effectively than LC scorers under a similar stress situation. The level of stress itself (moderate or severe) appeared to have no appreciable effect upon performance. These findings were interpreted as suggesting that HC individuals possess characteristics (independence, dominance, self-confidence, and perseverance) which allow them to work effectively even when the circumstances in which they are working are somewhat stressful.

Stein and Meer (1954) administered the Rorschach to 18 industrial research chemists who purportedly showed more or less creative ability. The scoring system used gave the highest score to a well-integrated response given to a difficult card at the shortest exposure. A biserial correlation of .88 between total weighted score and criterion creativity ratings was reported. An overall analysis revealed that individuals judged as being more creative achieved significantly more well integrated responses than did individuals judged as being less creative. It was suggested that the difference between individuals with more and less creative potential might be a function of the latter's defensiveness and over-criticalness which interferes with the generation and communication of hypotheses.

This study is open to criticism on the basis of its small sample and the rather loose definition of creativity. In addition, the criterion used in determining to which group Ss belonged was not reported.

In a very sound study, Bowers (1965) attempted to investigate the hypothesis that potential for creativity is inhibited by defensiveness. It was hypothesized that hypnosis and suggestion of reduced defensiveness should lessen inhibition and allow fuller expression of creativity. The Ss, 80 female college students who had attained a score of at least 7 on the Harvard Group Scale of Hypnotic Suggestibility, were randomly assigned to four experimental groups in which both state of the S (hypnotic or waking) and kind of instruction (cognitive set or defense-reducing) were varied. A pretest under waking conditions was administered to all groups. Among the creativity tests used were the Alternate Uses and Consequences Tests, half of which were administered during pretest conditions, and half during posttest conditions. The pretest waking groups were asked to relax and the hypnotic groups were hypnotized. One of the two hypnotic groups and one of the two waking groups was then read a cognitive set instruction to be original, clever, flexible, and fluent. The other hypnotic and waking groups were read a defense-reducing instruction. It was found that both hypnotic groups attained higher scores on Remote Consequences than did the waking groups ($p < .001$). No main or interaction effects were found with regard to the kind of instruc-

tion. The data indicated that hypnosis can increase test originality above the level exhibited by relaxed waking Ss with the same instructions regarding creative expression. The author interpreted these findings as suggesting that highly creative individuals may be less defensive than less creative individuals..

The study which provided the major impetus for the present research was that done by Vogel (1968), who also attempted to compare Freud's and Rogers' positions with regard to the role of conflict in creativity. Vogel attempted to induce a state of conflict in 60 university undergraduates whose responses to a religious questionnaire (Wrightsmen, 1961) indicated them to be highly religious. These Ss were then divided randomly into experimental and control groups. Conflict was generated in the experimental Ss by requiring them to choose whether or not to view pictures of nude women. Control Ss were required to choose whether or not to view a local newspaper, a choice assumed to be devoid of conflict. Prior to the actual decision, Ss were administered three creativity tests (Alternate Uses, Consequences, and Circles Tests). Results indicated that conflict impaired creativity but not productivity. These results were interpreted as supporting the Rogerian position regarding the role of conflict in creativity.

One criticism of the above study is that control for intellectual functioning employed only one measure, GPA (grade point average). A more telling criticism involves measures of arous-

al and the scoring of the creativity tests. The determination of whether or not an actual state of conflict was induced was based upon arousal (skin conductance) measures and responses to a Likert conflict scale obtained in a pilot study of 14 Ss. Skin conductance readings taken at the point where experimental Ss were informed of the choice to be made, and at the end of instructions, were significant (both at the .02 level). However, there is no way of determining if this heightened arousal was due to conflict or to affect associated with sexual arousal brought about by the introduction of content relating to nude women. Even if the former were true, difference in skin conductance readings obtained at the end of each of the three creativity tests (the only measures reported, although it was indicated that skin conductance readings were taken at the beginning, middle, and end of each creativity test) were not significant. Thus the determination of whether or not an actual state of conflict was induced was based solely upon the results of a non-standardized, self-report Likert scale. It was then assumed that the situation was conflict generating, and no arousal measures were obtained during the actual research.

With regard to the scoring of the creativity tests, there was no mention as to how and by whom this was done.

Summary

While there are many theories, statements, and generalizations from clinical observations supporting the Freudian posi-

tion regarding the role of conflict in creativity, there are very few empirical studies which support the Freudian position. No one of these studies dealt specifically with the role of conflict in creativity. Rather, they dealt with the relationship between creativity and such factors as pathological mental conditions (White 1939), early home life (MacKinnon 1961; Weisberg and Springer, 1961; Goertzel and Goertzel, 1962), personality structure (Münsterberg and Mussen, 1953), and strong motivational states (Maddi and Berne, 1964), all factors relating to, but not synonymous with, conflict.

Two studies which are frequently cited in the literature dealt with the relationship between creativity and preference for cognitive complexity or cognitive simplicity (Barron 1953a) and creativity and personality factors (MacKinnon, 1965). These two studies are somewhat unique in that they provide support for certain aspects of both Freud's and Rogers' positions.

The literature contains considerably more support for the Rogerian than for the Freudian position. However, as with the studies found in support of Freud, most of the studies in support of Rogers did not deal specifically with the role of conflict in creativity, but rather with the relationship between creativity and such factors as psychological adjustment (McReynolds, Acker, and Pietila, 1961; Fried, 1964), personal and intellectual functioning (Barron, 1957; Reid, King, and Wickwire, 1959), life styles (Golann, 1962), frustration (Hinton, 1968), anxiety (Guenther, 1966; Fleischer, 1965; Zdep, 1966), stress

(Tortorella, 1967), personality integration (Stein and Meere, 1954), and defensiveness (Bowers, 1965). Only one study (Vogel, 1968) specifically dealt with the role of conflict in creativity, and it was this study which provided the basis for this investigation. However, in contrast to the Vogel study, the present research attempted to more adequately control for intellectual variables, and to more adequately demonstrate whether or not an actual state of conflict was generated in experimental Ss.

The subject population in this research was also different from Vogel's in that, in contrast to Vogel's use of highly religious Ss, religion was not a factor in the selection of Ss. This served the purpose of testing the extent to which Vogel's findings could be generalized to a somewhat more representative population. In addition, conflict of a non-sexual or non-religious nature was generated in an attempt to avoid the confounding of arousal due to conflict with arousal due to sexual stimulation. Non-sexual or non-religious generation of conflict was also chosen as a means of determining the extent to which creativity is affected by the manner in which conflict is induced (sexual-religious versus perceptual-interpersonal).

Experimentally Induced Anxiety

The Asch Situation

The issue in the classic Asch experiments (Asch, 1952, 1956) was a perceptual judgment on the length of lines. The S was

confronted with the fact that his own perceptions were in conflict with those of the group. the situation in which the S found himself in disagreement with the group in regard to judgments on length of lines was found to produce intense conflict. In describing the behavior of the average S, Asch wrote:

After the first one or two disagreements, he would note certain changes in the manner and posture of this person. He would see a look of perplexity and bewilderment come over this subject's face at the contradicting judgments of the entire group. Often he becomes more active; he fidgets in his seat and changes the position of his head to look at the lines from different angles. He may turn around and whisper to his neighbor seriously or smile sheepishly. He may suddenly stand up to look more closely at the card. At other times he may become especially quiet and immobile (1952, p. 454).

The disagreement with the majority which first produced the series of reactions described above, eventually aroused a number of emotional reactions centering around the self.

As the disagreement persisted many began to wonder whether it signified a defect in themselves. They found it painful to be (as they imagined) the focus of attention, in addition to which they feared exposure of their weakness which they suspected the group would disapprove. These circumstances fostered an oppressive sense of loneliness which increased in prominence as the subjects contrasted their situation with the apparent assurance and solidarity of the majority (Asch, 1956, p. 32).

In further describing the impact of this experience upon the subject, Asch wrote:

The evidence cited above indicates that generally the subjects acted as if something of consequence were at stake and that neither independence nor compliance were trifling mat-

ters. Concern, doubt, and temptation were the prevailing reactions and were expressed in terms of fairly strong emotion. The fact seems to be that the circumstances quickly gained an import that went beyond the immediate task (1956, pp. 35-36).

The following statement by Asch suggests that the conflict generated by the experimental situation was not soon relieved or resolved:

The interview followed directly upon the conclusion of the experimental session. During the greater part of the interview, the subject was still under the stress that the experimental conditions had created (1956, p. 25).

Jahoda (1959) in her comprehensive review of the literature in the area of conformity, concluded that only in a situation where the subject is ego involved will his "effectiveness as a person" be demonstrated. Thus "emotional and intellectual investment in the issue" is seen as essential in regard to any test of independent behavior. Of Asch's classic studies, Jahoda wrote:

This series of experiments is outstanding in several ways, but particularly in relation to one point which, perhaps, Asch himself has not sufficiently emphasized. In addition to the conventional statistical treatment of the variations in his basic design, there is hidden in his data a perfect correlation of +1, a result of 100 per cent, which it will be admitted, is a rarity in psychological research. The implicit result I refer to is the creation of intense conflict in all his experimental subjects. The evidence for this result comes from the interview Asch conducted with all his subjects after the experiment (1958, p. 110).

Brown (1965) agrees with Jahoda:

One can see the power of the Asch situation in the distress² of subjects who are in the presence of a false majority (p. 671).

Brown (1965) cites the work of Bogdonoff, Klein, Estes, Shaw, and Black (1961) who found that an increase in the level of plasma-free fatty acids (FFA) (considered to be an index of CNS arousal) accompanied the confrontation of naive subjects with majority opposition in a modified Asch type situation. It was also found that for subjects who yielded to the majority (thus reducing or eliminating the conflict), there was a reduced increase in the level of acids. However, for those who resisted the majority (and conflict remained unreduced) the increase in the level of acids remained unmodified. The correlation found between the decrease of FFA levels and conformity is .63; $p < .05$ ($N=36$). These findings suggest that yielding to the majority resulted in a reduction in level of conflict, whereas resisting the majority may have resulted in an unreduced level of conflict.

The question arises as to why the intensity and universality of conflict in subjects in the Asch situation. In an attempt to answer this question, Asch wrote:

The answer touches upon the role and function of consensus in social life. Our procedure pro-

²While "distress" is not synonymous with conflict, it may be used to describe a reaction to a conflict generating situation.

duced a failure of consensus where it was least understood and expected, tending to turn disagreement into a more ultimate kind of contradiction. Now consensus, especially on fundamental traits of the surroundings, is the vital prerequisite of social action; to abolish or impair it is to threaten the relations of interdependence which ordinarily experience continually validates. It is in these terms that we propose to account for the strength of the reactions which the present situation produced. Although ostensibly the disagreement centered on very specific and limited data, it acquired a wider import. It signified to the critical subjects that they were at odds with a majority about a basic relation in the world (1965, p. 66).

Published data are unanimously supportive of Asch's claims regarding the intense level of conflict generated in his subjects. Thus the Asch situation appeared to be an ideal method for generating a significant level of conflict for this investigation.

CHAPTER III

METHOD

Subjects

Forty white males between the ages of 18 and 22 years served as Ss. They were drawn from the freshman class at a large state university in the southwest and selected on the basis of scores on the American College Test (ACT) and grade point average (GPA) after approximately one semester (14 to 23 accumulated hours of college credit). In an attempt to eliminate significant differences in level of academic achievement, only students scoring in the midrange of both the ACT and GPA were selected. Midrange on the ACT was considered to extend from 18 to 25. The mean and median ACT Composite score for students at this particular university is 22. The standard deviation was not available for 1968-69 freshmen. Midrange on the GPA was considered to extend from 1.90 to 2.10. The mean GPA at this university is 2.0. Again, the standard deviation was not available. Approximately 99 of 1600 freshman males at the university from which the sample was drawn fell in the midrange on both the ACT and GPA. Of these, a random sample of 40 were contacted and asked to participate in this research. The only information provided Ss prior to the experiment was that they had been randomly selected, and that the experiment would require approximately an hour of their time. Only five potential Ss refused to participate. In each of these cases,

another S was selected randomly from the remaining names on the list. Ss did receive extra credit (bonus points) for their participation in the research. The 40 Ss were then randomly divided into experimental and control groups. The mean ACT Composite score was 21.60 for the experimental group, and 21.65 for controls ($t=.0716$, $df=38$, $p=NS$). The mean GPA was 2.00 for both the experimental and control groups. The mean age was 18.65 for the experimental group, and 18.70 for controls ($t=.2980$, $df=38$, $p=NS$).

Measures of Creativity

Alternate Uses Test. This test was developed by Guilford (1959) and is a revised and improved form of the Unusual Uses Test which was designed as a measure of a hypothesized factor of flexibility of thinking. Several factor analytic studies of the Alternate Uses Test have yielded significant loadings in the factor termed "spontaneous flexibility," the essential feature of which has been found to be the ability to produce a variety of class ideas. It is a timed twelve minute test, with four minutes allowed for responding to each of the three parts of the test (each part containing three items). Each item presents the name of a well-known object and a statement of its common use. The examinee is to list as many as six other less common uses (see Appendix B).

The Alternate Uses Test is scored for both productivity and originality, although this study is mainly concerned with the

originality score. The productivity score is simply the number of acceptable alternate uses provided by each S. Credit is given for an original response if it is acceptable and if it is mentioned no more than three times by all the Ss. Reported reliability estimates (Guilford, 1959) extend from .68 to .81. A construct validity study (Guilford, 1959) yielded a validity coefficient of .51.

Consequences Test. This test (Guilford, 1959) purports to measure the ability to produce remote or uncommon responses. Factor analytic studies have consistently yielded a substantial correlation with the factor identified as "originality." This factor has been defined as "the ability to produce remotely associated, clever, or uncommon responses." The test has also been found to be a measure of the factor "ideational fluency." It is a timed ten minute test, with one minute allowed for responding to each of the ten test items. Each item is framed as a question, beginning: "What would be the results if ..." (see Appendix C). The content of the items was chosen so as to bring the problem within the common knowledge of most individuals growing up in the United States. Responses are classified as being either "obvious" or "remote" in accordance with a manual of acceptable responses provided by the authors. An "obvious response" is defined as one indicating an immediate result in terms of a cessation of usual functions, or absence of commonly associated things, with less awareness of social, economic, or cultural ramifications. For

example, an "obvious response" to the question, "What would happen if all humans lost the ability to reproduce" would be "the species would eventually die out." The number of "remote responses" is considered to provide a score for originality and it is this score with which the present study is mainly concerned. A "remote response" is defined as one indicating consideration of more distant temporal or geographical changes, or a specific substitute, a new system, or some other fairly specific manner of adjusting to the changed situation. Responses merely indicating the need for adjustment or those providing relatively vague solutions are considered "obvious" as opposed to "remote."

The reported alternate forms reliability coefficient for the "obvious" score is .87. For the "remote" score, it is .67. Reported construct validity for the "obvious" score is .62. For the "remote" score, it is .40. The fact that no estimates of interater reliabilities are available for either score is felt to constitute a serious deficiency of the instrument as far as its reliability and validity are concerned.

Scoring of Creativity Tests. Both sets of tests were scored by three Ph.D. psychologists who were naive in regard to which group (experimental or control) the Ss belonged. Only those responses regarding which two of the three judges, or all three of the judges considered creative, were scored as creative responses. Interater reliability was tested using

the tetrachoric calculations as approximated from the Chesire, Saffir, and Thurstone Table (1933). The average interater reliability for the Consequences Test was found to be .92. With regard to the Alternate Uses Test, it was found that the values or cuts were too extreme (less than 5% responses were creative, while over 95% of the responses were non-creative) to warrant confidence in the tetrachoric calculation (McNemar, 1960), and no other statistical technique was deemed appropriate to deal with the data. However, interater agreement appeared quite high, and in view of the fact that the same three raters rated both tests, it seems probable that the interater reliability for the Alternate Uses Test was also high.

Definition of Creativity. For purposes of this research, creativity was defined as the scores attained on the Original Uses part of the Alternate Uses Test, and on the Remote Consequences part of the Consequences Test.

Measures of Conflict

Galvanic Skin Response (GSR). It was assumed, on the basis of the literature, that Ss could be placed in a state of conflict when confronted with disagreement from the remainder of the group on a matter which appears to be so clear-cut as to preclude the possibility of disagreement.

When two groups are undergoing apparently similar experiences with the exception that in the one group, experimental-

ly induced conflict (the Asch situation) is introduced, it might be assumed an increased arousal state might be anticipated in the experimental group. In order to obtain the degree of physiological arousal accompanying this expected state of conflict, a measure of skin conductance or galvanic skin response (GSR) was used. The galvanic skin response is a change in the resistance of the skin to the flow of cell activity generated electrical current. Decreased resistance of the skin is considered to be characteristic of a state of alertness and arousal (Morgan and King, 1966). Many researchers and writers consider the galvanic skin response to be a sensitive index of activation or arousal (Woodworth and Schlosberg, 1954; Young, 1961). The instrument for measuring GSR in the present study consisted of a direct reading constant voltage conductance meter in which one volt was applied to two masked skin sights on the tips of the thumb and first finger of the S's non-preferred hand. Current was measured with a transistorized amplifier and ammeter in micromils. Skin conductance measures were obtained on all 40 Ss (both experimental and control Ss) at periodic intervals throughout the experimental session (beginning with the completion of the reading of instructions to the Asch situation, before and after each of the 18 trials of the Asch situation, and at two minute intervals throughout the completion of both tests of creativity).

Self-report Conflict Scale. This instrument (see Appendix A) was included as a measure of the extent of conscious conflict experienced by Ss during the experimental and control situations. It consisted of a point scale in which the S indicated the extent to which he experienced conflict, ranging from extreme conflict to extreme lack of conflict, at seven critical points during the session. These were during relaxation, reading of instructions, discrimination of lengths of lines, performance of the first task, performance of the second task, upon completion of both tasks, and "right now" (near the completion of the scale). The S also indicated at which of the seven critical points during the session, conflict, if experienced at all, began to subside, and completely subsided. Vogel (1968) found that such a conflict scale differentiated between his experimental (conflicted) and control (non-conflicted) groups at the .001 level.

Procedure

Conflict was generated in Ss composing the experimental group by means of the Asch (1952, 1956) situation. Ss in the control group were handled in a manner similar to Asch's handling of his control groups; however, in the present study, pains were taken to minimize conflict in the control situation. Ss in both the experimental and control groups were introduced to the situation in the same manner. In both cases, the group consisted of four persons, three members of "the majority,"

and the S. The three persons composing the majority, unknown to the S, were confederates of the experimenter. The same three individuals served in this capacity in both the experimental and control groups for all 40 Ss. The majority consisted of three males, two freshmen age 18, and a sophomore age 19, all students attending the same university as the Ss. They were paid for their participation. The majority consisted of three persons because it has been found that the strength of the conformity effect increases only up to a majority of three confederates. Beyond that value, increasing the size of the majority results in no further significant increments in conformity (Asch, 1951; Rosenberg, 1961).

In the experimental situation, the majority cooperated with the experimenter by giving, at certain times, unanimously wrong responses to the comparison of length of lines task. In the control situation, the majority cooperated with the experimenter by responding unanimously with that response (correct or incorrect) given by the S. The members of the majority met with the experimenter several times prior to the running of Ss. They were instructed in the manner described by Asch (1956). The aim of the experiment was fully explained to them and their role was carefully rehearsed in a series of trial runs. They were instructed to act in a natural way, and to give the impression that they were new to the situation, and that they had had no previous contact with the experimenter. The experimenter acted as an impartial chairman. He conducted

the proceedings in a matter of fact way, reading the instructions, presenting the stimulus materials, and recording the announced estimates. When dissident judgments were given, the experimenter listened and recorded them without any show of surprise. He did indicate his awareness of the disagreement, and occasionally would look in the direction of the S; however, he attempted to refrain from exerting pressure in addition to that which was already contained in the situation itself. The examiner's presence seemed to help to discourage discussion and other undesirable interruptions.

It was arranged so that all members of the group (S and confederates) arrived at the designated room at approximately the same time. After being greeted by the examiner, they were seated in a row. In the experimental situation, the S was jockeyed into the third seat (with one member of the majority on his left, and the other two on his right), so that he was the third to respond. In the control situation, the S was jockeyed into the first seat, so that he was the first to respond. On the few occasions when attempts to jockey the S into the designated chair failed, the examiner informed the group that they would be seated randomly. He then told the group that he had picked a number between one and ten, and that the person who responded with the number closest to that number would be seated in the first chair. This procedure was followed until all were in their designated places.

Upon having been seated, the four group members were fitted

with the electrodes used to monitor skin conductance. While all four were fitted with identical electrodes, only those connected to the S were plugged into the conductance meter and were operating. The meter itself was shielded from the view of the group by a cardboard box which allowed convenient reading by the experimenter. The electrodes from all four members led into the box; however, those connected to the three members of the majority were merely taped to the inside of the cardboard box.

After all group members were fitted with the electrodes, they were instructed to relax for a period of ten minutes. The purpose of the relaxation period was to establish a basal GSR reading, the latter consisting of the mean of three readings taken after 8, 9, and 10 minutes of relaxation.

Immediately following the ten minute relaxation period, the experimenter introduced the Asch situation by placing two white cards on a shelf situated 104 inches directly in front of the group. (The experimenter was unable to find any mention in Asch's publications as to the exact distance between the group and the cards. From Asch's description of the experimental situation, 104 inches was estimated to be the appropriate distance used in his work). Vertical black (tape) lines $\frac{1}{4}$ inch wide were pasted on the $17\frac{1}{2}$ x 6 inch white cards. The cards used in this study were the same size as those used by Asch, as were the lengths of the lines appearing on them. However, the width of the lines differed ($\frac{1}{3}$ inch in the Asch

studies, $\frac{1}{4}$ inch this study) due to the unavailability of tape in the $\frac{1}{2}$ inch width. The card on the left (from the vantage point of the group) carried the standard line while the card on the right carried the three comparison lines which were numbered 1, 2, and 3 from left to right. The three comparison lines on the card on the right differed in length. One of them was equal to the standard line on the card at the left; and the other two differed from the standard and from each other by varying amounts (see Fig. 1 and Table 1). The standard and its matched comparison line were separated by a distance of 40 inches (Asch, 1956), and the two cards were placed so that the first and fourth members of the group were equidistant from the card nearest them.

After having placed the two white cards on the shelf in front of the group, the experimenter read to the group the following instructions:

The task which you are about to do involves the discrimination of lengths of lines. Before you is a pair of cards. On the left is a card with one line; the card on the right has three lines differing in length; they are numbered 1, 2, and 3, in order. One of the three lines at the right is equal to the standard line at the left. You will decide in each case which is the equal line. You will state your judgment in terms of the number of the line. There will be 18 such comparisons in all.

As the number of comparisons is few, and the group small, I will call upon each of you in turn to announce your judgments, which I shall record here on a prepared form. Please be as accurate as possible. Suppose you give me your estimates in order, starting at the right and proceeding to the left. Upon completion of this ("session" in the experimental situation, "task" in the control situation), you will be given the correct answers.

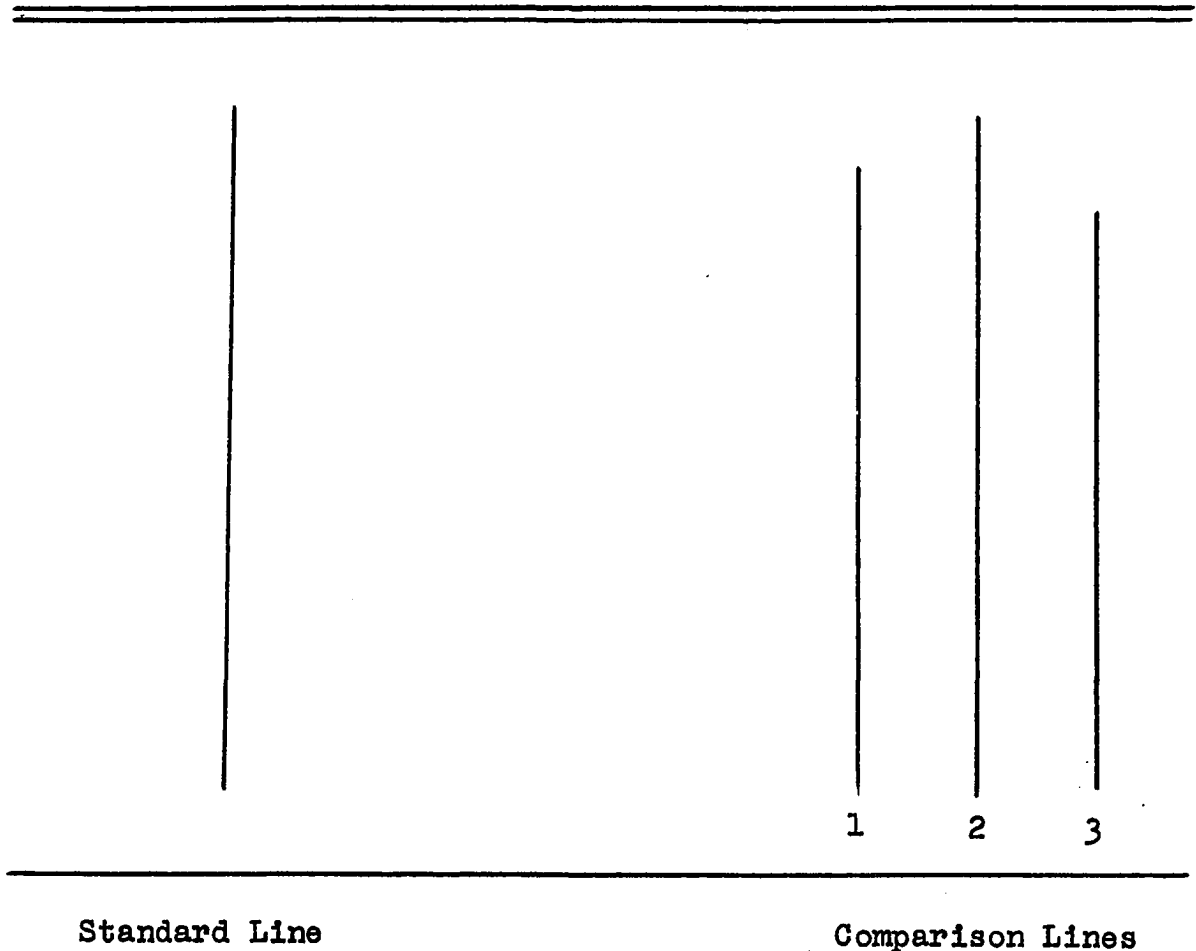


Fig. 1. A sample comparison

The cards on which the lines appeared were $17\frac{1}{2}$ inches by 6 inches. The lines had a standard width of $\frac{1}{4}$ inch; their lower ends were $2\frac{1}{2}$ inches from the lower edge of the cards. Standard lines appeared in the center of the card while comparison lines were separated by distances of $1\frac{3}{4}$ inches. The numbering of the lines was done with black gum figures $\frac{3}{4}$ inches long. They were placed $\frac{1}{2}$ inch directly beneath the base of each line.

TABLE I

Majority Responses to Standard and Comparison Lines on Successive Trials (experimental situation)

TRIALS	LENGTH OF STANDARD LINE (in inches)	LENGTH OF COMPARISON LINES (in inches)			MAJORITY ERROR (in inches)
		1	2	3	
1*	7 1/2	5	5 3/4	7 1/2	0
2*	5	6 1/2	7	5	0
3	8	8	<u>7</u>	6	1
4	3 1/2	<u>3 3/4</u>	5	3 1/2	1/4
5*	9	7	9	11	0
6	6 1/2	6 1/2	5 1/4	<u>7 1/2</u>	1
7	5 1/2	<u>4 1/2</u>	5 1/2	4	1
8*	1 3/4	2 3/4	3 1/4	1 3/4	0
9	2 1/2	4	2 1/2	<u>3 3/8</u>	7/8
10	8 1/2	8 1/2	<u>10 1/4</u>	11	1 3/4
11*	11	3	1	2 1/4	0
12	4 1/2	4 1/2	3 1/2	<u>5 1/2</u>	1
13*	7 1/2	5	5 3/4	7 1/2	0
14*	5	6 1/2	7	5	0
15	8	8	<u>7</u>	6	1
16	3 1/2	<u>3 3/4</u>	5	3 1/2	1/4
17*	9	7	9	11	0
18	6 1/2	6 1/2	5 1/4	<u>7 1/2</u>	1

*These designate "neutral" trials, i.e., trials to which the majority responded correctly. All other trials were "critical," i.e., the majority responded incorrectly.

Underlined figures designate the incorrect majority responses.

Immediately following the reading of instructions, a skin conductance reading was taken. Four seconds later, another pre-trial reading was taken, and the first group member (on the experimenter's far left - a confederate in the experimental situation, the S in the control situation) was asked to start off the announcement of judgments. Immediately after the last group member (on the experimenter's far right - always a confederate) announced his judgment, a post-trial skin conductance reading was taken. The first two cards were then removed and replaced by the next pair of cards with different standard and comparison lines. There were 18 sets of standard and comparison lines in all. Skin conductance readings were obtained immediately before the first member of the group announced his judgment and immediately after the fourth member announced his, on all 18 trials. Thus there were 36 readings taken during this portion of the experimental session.

In an effort to maximize and maintain conflict in experimental Ss, and to minimize conflict in control Ss, a differential feedback system was used. In the control situation, after the 18th and last perceptual judgment trial, the group was informed that their judgments had been without errors (whether or not there were, in fact, any errors). In the experimental situation, after the 18th trial, the group was reminded that upon the completion of the experimental session, they would be given the correct answers to the perceptual judgment task.

Immediately after the above differential feedback was given,

the first of two measures of creativity was administered (to all members of both the experimental and control groups). The first creativity measure to be administered was the Alternate Uses Test. A copy of the test and a pencil were placed before each of the four group members. The group was then instructed as follows:

Please write your name in the place provided at the top of the first page, and then read the instructions. When you understand the instructions, let me know by looking up at me. If you have any questions about the instructions, I will try to answer them.

When the group indicated that they understood the instructions and were ready to begin, the experimenter indicated that they should turn to Part I and begin working. Twelve minutes later the completed Alternate Uses Test was collected and the second measure of creativity, the Consequences Test, was provided. The group was given the same instructions for this test as for the Alternate Uses Test. Throughout both tests, skin conductance readings were obtained at two minute intervals, beginning at zero minutes into the test, and ending at the termination of the test's allotted time.

Immediately following the completion of the Consequences Test, the test booklet was collected, and a copy of the Likert Conflict Scale was passed out. The following instructions were given:

Please write your name at the top of the page and fill it out according to the instructions. If there are any questions about the instructions, I will try to answer them.

The completed Likert Conflict Scale was then collected, and the group was directed to remove the skin conductance electrodes. In the control situation, the group was thanked for their cooperation and dismissed. In the experimental situation, as the group was removing the electrodes, the experimenter said: "I noticed that there were some differences in your answers to the discrimination of lengths of lines task." (pause for response) Following the group's response to this statement, the experimenter addressed the S as follows: "Do you have any idea as to why some of your answers were different than those the others gave?" Following the S's reply, he was then asked: "Do you feel that you were right or that the others were right?" The S was then asked: "Were you aware of making any errors or of answering differently than the way it really looked to you?" If the S responded that he felt he had made some errors, he was asked approximately how many and to explain how he happened to make them. At this point, if the S had made any errors, the trials on which he erred were administered again. This was done in an attempt to determine if those errors were due primarily to impaired eyesight, or to other factors, such as anxiety and/or group pressure. If the S was able to correct all or most of his original errors, it was assumed that his eyesight was not seriously impaired, and that his errors were probably due to factors such as anxiety and/or group pressure. The S was then asked if he had any idea as to the purpose of the experiment. If so, he was asked to

explain. If, at this point, there was still some doubt as to whether or not the S "saw through" the experiment, he was asked the following additional questions: (a) "Did you suspect that the group intended to affect your judgment?" If the answer to the above question was to the affirmative, the S was asked: (b) "When did you first begin to feel suspicious?" and (c) "Did you retain this suspicion?" Ss who definitely suspected that the other group members were cooperating with the experimenter were eliminated from the study. "Definite suspicion" in the present study was defined as it was in Asch's studies: where the S is certain or nearly certain that the other group members were cooperating with the experimenter. "Definite suspicion" was considered in contrast to the suspicion which a number of Asch's Ss entertained as a temporary hypothesis at some point during the experimental session. The latter Ss (as was the case with Asch) were not eliminated. In the present study, only one S had to be eliminated on the basis of his having suspected the nature of the experiment. None of the other Ss appeared to have been remotely suspicious.

If the experimenter was certain that the S did not "see through" the experimental situation, he explained to the S the structure of that situation and attempted to deal with any stress that S still experienced as a result of it. In view of the apparent intensity of the conflict generated in many of Asch's experimental Ss, it was deemed important in the present study to make certain that experimental Ss not be allowed to

leave without full knowledge of what had happened. Finally, experimental Ss were asked: "Do you feel that this experience was in any way beneficial, detrimental, or neither beneficial or detrimental?" They were also asked to keep the experiment in strict confidence. In turn, they were assured that the experimenter and the group would not violate their confidence.

Specific Hypotheses Tested

After reviewing the literature regarding the role of conflict in creativity, it was the opinion of this experimenter that the Rogerian position is more valid than the Freudian position.

Hypothesis I: The experimental or conflicted group evidences higher level of arousal during the Asch situation, and during both creativity tests than does the control or non-conflicted group.

Hypothesis II: The experimental or conflicted group reports more conflict (lower scores) on the self-report conflict scale than does the control or non-conflicted group.

Hypothesis III: The experimental or conflicted group performs less well on the two creativity tests than does the control or non-conflicted group.

Hypothesis IV: Within the experimental or conflicted group, an inverse correlation exists between level of arousal (during the Asch situation and during the creativity tests) and performance on the creativity tests.

Hypothesis V: Within the experimental or conflicted group, an inverse correlation exists between amount of yielding to the majority (errors in accord with those of the majority) and level of arousal (during the Asch situation and during the creativity tests).

Hypothesis VI: Within the experimental or conflicted group, a positive correlation exists between the amount of yielding (errors made in accord with the majority response) and performance on the creativity tests.

The null form of the above hypotheses had to be rejected at the level $p < .05$ for one-tailed tests before the positive form was considered "confirmed."

CHAPTER IV

ANALYSIS OF DATA AND RESULTS

Because the statistical analysis has been specifically tailored to each hypothesis, the method of presentation in this section will consist of a statement of the hypothesis, followed by the specific method of statistical analysis used in regard to that hypothesis, and a statement of the results.

Hypothesis I

The experimental or conflicted group evidences a higher level of arousal during the Asch situation, and during both creativity tests, than does the control or non-conflicted group.

Analysis: A total of 53 measures (readings) of arousal (Skin conductance) was obtained from each S: one measure at each 8, 9, and 10 minutes into the ten minute period of relaxation (a mean was then derived from these three readings, and this was considered the basal state reading); one measure after the reading of instructions (Asch situation); one measure immediately before and one immediately after each of the 18 Asch situation trials (36 in all); one measure at each 0-2-4-6-8-10 and 12 minutes into the Alternate Uses Test (seven readings in all); and one measure at each 0-2-4-6-8 and 10 minutes into the Consequences Test (six readings in all).

Each S's basal state reading was subtracted from each of

his subsequent readings so as to rule out the effects of the variability of skin conductance from person to person.

Means were derived for both the experimental and control groups for basal arousal and fifty subsequent measures. Fifty-one t tests after McNemar (1960) were run to determine if there were significant differences between the two groups.

Results: As indicated in Table 2, the above hypothesis was supported. The experimental or conflicted group did evidence a higher level of arousal during the Asch situation and during both creativity tests than did the control or non-conflicted group.

Hypothesis II

The experimental or conflicted group reports more conflict (lower scores) on the self-report conflict scale, than does the control or non-conflicted group.

Analysis: Self-reports of extent of conflict (see Appendix A) were obtained from each S at seven critical points during the experiment: during the relaxation period, during the reading of instructions, during the discrimination of lengths of lines, during the performance of the first task (Alternate Uses Test), during the performance of the second task (Consequences Test), upon the completion of both of the above mentioned tasks, and "right now" (at the moment of completing the conflict scale).

TABLE 2

One Tailed t Tests* Comparing Mean Skin
Conductance Readings for Experi-
mental and Control Groups

	<u>ME</u>	<u>SE</u>	<u>Mc</u>	<u>Sc</u>	<u>t</u>	
Basal Readings:	19.25		19.23		.01(NS)	
After Instructions:	2.45	1.76	2.62	2.30	.25(NS)	

		Asch Situation						Post-trial					
		Pre-trial											
Trial		<u>ME</u>	<u>SE</u>	<u>Mc</u>	<u>Sc</u>	<u>t</u>	P	<u>ME</u>	<u>SE</u>	<u>Mc</u>	<u>Sc</u>	<u>t</u>	P
1		2.69	1.94	2.95	2.13	-.39	NS	4.15	2.67	3.13	1.77	1.39	NS
2		3.27	2.27	3.37	2.41	-.13	NS	3.93	2.29	3.55	2.20	.52	NS
3		3.27	2.56	3.43	2.52	-.10	NS	5.21	2.72	3.27	1.71	2.64	c
4		4.31	2.59	3.20	1.90	1.50	NS	5.01	2.64	2.93	1.96	2.76	d
5		4.07	2.57	3.01	2.18	1.37	NS	4.37	2.75	2.77	1.80	2.12	b
6		3.91	2.44	2.51	1.89	1.98	a	5.11	2.43	2.69	2.04	3.33	d
7		4.19	2.44	2.61	1.93	2.22	b	5.03	2.84	2.87	2.35	2.56	c
8		4.27	2.72	2.31	1.71	2.66	c	4.53	2.74	2.31	1.56	3.08	d
9		4.11	2.82	2.33	1.62	2.40	b	5.50	2.09	2.49	1.92	4.63	e
10		4.31	2.86	2.91	2.09	1.72	a	4.79	2.57	2.59	1.66	3.13	d
11		4.01	2.74	2.55	1.98	1.88	a	4.35	2.64	2.35	1.43	2.91	d
12		3.97	2.94	2.27	1.57	2.23	b	5.31	2.84	2.57	1.56	3.69	e
13		4.17	2.62	2.27	1.65	2.68	c	4.37	2.69	2.57	1.42	2.58	c
14		4.21	2.66	2.51	1.86	2.29	b	4.39	2.87	2.63	1.37	2.41	b
15		4.05	2.87	2.69	1.81	1.75	a	4.85	2.90	2.91	1.53	2.58	c

Table 2 continued on following page

Table 2 (continued)

Asch Situation (continued)											
Pre-trial						Post-trial					
Trial	<u>M_E</u>	<u>σ_E</u>	<u>M_G</u>	<u>σ_G</u>	<u>t</u>	<u>P</u>	<u>M_E</u>	<u>σ_E</u>	<u>M_G</u>	<u>σ_G</u>	<u>P</u>
16	4.15	2.84	2.71	1.64	2.12	b	4.51	2.75	3.11	1.55	a
17	4.17	2.62	2.81	1.53	1.97	a	4.33	2.68	2.89	1.75	a
18	4.15	2.85	2.83	1.61	1.76	a	5.47	3.59	3.13	1.79	c

* df = 38 on all trials

a=P .05
 b=P .02
 c=P .01
 d=P .005
 e=P .001

Creativity Tests

Alternate Uses						Consequences					
Interval VAL	<u>M_E</u>	<u>σ_E</u>	<u>M_G</u>	<u>σ_G</u>	<u>t</u>	<u>P</u>	<u>M_E</u>	<u>σ_E</u>	<u>M_G</u>	<u>σ_G</u>	<u>P</u>
(Min.)											
0	5.85	3.34	3.99	2.31	2.00	a	8.45	4.47	5.19	3.34	c
2	5.93	3.64	4.17	3.10	1.61	NS	7.95	4.98	4.81	3.37	b
4	6.43	4.31	4.41	3.28	1.63	NS	8.13	4.79	4.53	2.90	d
6	6.73	3.84	4.69	3.32	1.75	a	8.00	4.54	4.71	2.79	c
8	7.13	4.82	4.77	3.15	1.79	a	8.33	5.30	4.97	3.91	b
10	7.35	4.64	4.71	3.46	1.99	a	8.25	4.87	5.27	3.23	b
12	7.69	4.85	5.09	3.80	1.84	a					

* df=38 on all trials

a=P < .05
 b=P < .02
 c=P < .01
 d=P < .005
 e=P < .001

Means were derived from the scores taken at each of the seven critical points, for both the experimental and control groups, and t tests were run to determine if there are significant differences between the two groups at any of these seven points.

In addition, the scores attained at each of the seven critical points were added together into a total score for each S. Mean scores were derived for both the experimental and control groups, and a t test was run to determine if there was a significant difference between the total scores of the two groups.

Results: As shown in Table 3, the above hypothesis was not supported. No significant differences were found between the two groups in regard to either separate or total conflict scale scores.

Hypothesis III

The experimental or conflicted group performs less well on the two creativity tests than does the control or non-conflicted group.

Analysis: Measures of creativity were the Original Uses score of the Alternate Uses Test, and the Remote Consequences score of the Consequences Test. Mann-Whitney U Tests after McNemar (1960) were run to determine if there are any significant differences between the two groups in regard to these two test scores.

TABLE 3

t Tests Comparing Conflict Scale Scores for
Experimental and Control Groups

Seven Critical Points	M_E	σ_E	M_C	σ_C	$\underline{t}$	P
a) Relaxation	4.30	1.10	4.85	1.24	1.45	NS
b) Instructions	4.45	.05	4.25	1.22	.52	NS
c) Discriminations	3.00	1.14	3.40	1.16	1.07	NS
d) First Task	2.45	.77	2.25	1.04	.67	NS
e) Second Task	2.65	1.94	2.15	.65	1.42	NS
f) After 2nd Task	3.85	1.31	3.95	1.28	-.24	NS
g) "Right Now"	4.35	1.35	4.50	1.34	.49	NS
h) Total Likert Scores	25.15	5.34	25.30	1.05	-.12	NS

In order to determine whether or not there is a significant relationship between creativity scores (Original Uses score of the Alternate Uses Test, and Remote Consequences score of the Consequences Test) and productivity scores (Alternate Uses score of the Alternate Uses Test, and Obvious Consequences score of the Consequences Test), Pearson product moment correlations were estimated between Original Uses scores (creativity) and Alternate Uses scores (productivity) on the Alternate Uses Test, and between Remote Consequences scores (creativity) and Obvious Consequences scores (productivity) on the Consequences Test.

Results: As indicated in Table 4, the above hypothesis was not supported. The experimental or conflicted group did not perform less well on the two creativity tests than did the control or non-conflicted group.

TABLE 4

Mann-Whitney U Tests Comparing Creativity
Test Scores for Experimental
and Control Groups

Tests	CU	P*
Original Uses	187.00	NS
Remote Consequences	179.50	NS

As indicated in Table 5, there was no significant relationship between Original Uses scores (creativity) and Alternate Uses scores (productivity) on the Alternate Uses Test, and between Remote Consequences scores (creativity) and Obvious Consequences scores (productivity) on the Consequences Test.

TABLE 5

Pearson Product Moment Correlations between
Creativity and Productivity Scores

Tests	r (df=38)	P
Alternate Uses	.110	NS
Consequences	.260	NS

*t tests also failed to reach significance

Hypothesis IV

Within the experimental or conflicted group an inverse correlation exists between level of arousal (during the Asch situation and during the creativity tests) and performance on the creativity tests.

Analysis: Spearman Rank-difference correlations after Siegel (1956) were run between Original Uses scores (Alternate Uses Test) and skin conductance readings taken: a) pre-trial (Asch situation), b) post-trial (Asch situation), c) during the Alternate Uses Test, d) during the Consequences Test, and e) during the above four situations (a composite). Remote Consequences scores were correlated in the same manner. Thus ten Spearman Rank-difference correlations were calculated in all.

Results: As indicated in Table 6, the above hypothesis was not supported. Within the experimental group a significant inverse correlation did not exist between level of arousal and performance on the creativity tests.

Hypothesis V

Within the experimental or conflicted group an inverse correlation exists between amount of yielding to the majority (errors in accord with those of the majority) and level of arousal (during the Asch situation and during the creativity tests).

TABLE 6

Spearman Rank-difference Correlations between Level
of Arousal and Creativity Test Performance
within the Experimental Group

Skin Conductance Readings	Original Uses Scores		
	p	t	P
a) pre-trial	.083	.353	NS
b) post-trial	.061	.259	NS
c) Alternate Uses Test	.020	.085	NS
d) Consequences Test	.011	.047	NS
e) composite	.047	.200	NS

Remote Consequences Scores			
a) pre-trial	.262	1.152	NS
b) post-trial	.170	.732	NS
c) Alternate Uses Test	.234	1.021	NS
d) Consequences Test	.205	.889	NS
e) composite	-.040	-.170	NS

Analyses: Pearson product moment correlations after Siegel (1956) were run between the number of errors (regarding lengths of lines in the Asch situation) made by each of the experimental Ss, and the mean of that S's skin conductance readings taken: a) pre-trial (Asch situation), b) post-trial (Asch situation), c) during the Alternate Uses Test, and d) during the Consequences Test.

Results: As shown in Table 7, the above hypothesis was not supported. Within the experimental or conflicted group, a significant inverse correlation did not exist between amount of yielding to the majority, and level of arousal.

TABLE 7

Pearson Product Moment Correlations between
Amount of Yielding and Level of Arousal
within the Experimental Group

Skin Conductance	r (df=18)	P
a) pre-trial	-.23	NS
b) post-trial	-.13	NS
c) Alternate Uses Test	-.15	NS
d) Consequences Test	-.16	NS

Hypothesis VI

Within the experimental or conflicted group a positive correlation exists between amount of yielding (errors made in accord with the majority response) and performance on the creativity tests.

Analysis: Spearman Rank-difference correlations after Siegel (1956) were run between number of errors (regarding lengths of lines in the Asch situation) and: a) Original Uses (Alternate Uses Test) scores, and b) Remote Consequences (Consequences Test) scores.

Results: As indicated in Table 8, the above hypothesis was partially supported in that there was a significant positive correlation between amount of yielding and performance on the Original Uses portion of the Alternate Uses Test. That is, Ss who evidenced greater yielding to the majority (more errors), performed significantly better on the Original Uses portion of the Alternate Uses Test.

On the other hand, a significant correlation was not found between amount of yielding and performance on the Remote Consequences portion of the Consequences Test.

TABLE 8

Spearman Rank-difference Correlations between
Amount of Yielding and Creativity Test
Performance within the Experi-
mental Group

Test	p	t	P
Original Uses (Alternate Uses)	.462	2.21	.02
Remote Consequences (Conseq)	.016	.07	NS

CHAPTER V

DISCUSSION

As stated earlier, the purpose of the present study was to submit to empirical test the specific problem regarding the role of conflict in creative behavior. Freud's position was that creativity is both generated and facilitated by conflict. Rogers' position is that conflict inhibits creative behavior. In the present study, it was hypothesized in accord with Rogers' position that experimentally induced conflict would result in diminished creative performance.

It is clear that if there was to be any valid test of the above hypothesis, it was necessary to demonstrate that a state of conflict was induced in the experimental group. While the self-report conflict scale failed to differentiate the experimental and control groups, the experimental group did evidence a significantly higher level of arousal during the Asch situation (a technique widely acknowledged to be a generator of conflict) and during both creativity tests, than did the control group. The higher level of arousal generated in the experimental group is assumed to be due to the Asch situation. This assumption is supported by the work of Bogdonoff et al (1961), and more immediately, by the reports of Ss in the experimental group (of the present study) indicating that they experienced conflict during the experimental session due to

the Asch situation.

The failure of the self-report conflict scale to differentiate between the experimental and control groups may be accounted for on the basis of one or both of the following factors: a) The actual level of conflict induced may not have been available to awareness due to the operation of repressive defensive mechanisms, and b) The instrument itself may have been inadequate. While Vogel (1968) found that a similar scale successfully differentiated between his experimental (conflicted) and control (non-conflicted) groups, both his manner of generating conflict (sexual-religious) and his subject population (religious Ss) were different from those in the present study. In addition, the self-report conflict scale is a non-standardized instrument, without demonstrated validity or reliability. It was used in the present study in the absence of a suitable standardized instrument.

While it appears that significantly more conflict was generated in the experimental group than in the control group, the two groups could not be differentiated in regard to performance on the creativity tests. In addition, within the experimental group, an inverse correlation was not found between level of arousal and creativity test performance. These results fail to support either the Freudian or the Rogerian position regarding the role of conflict in creativity. It is possible that conflict possesses minimal consequences in regard to either facilitation or inhibition of creative behavior. How-

ever, in view of the extensive literature supporting both the Freudian and Rogerian positions, and particularly, the considerable acceptable empirical studies supporting the latter position, such an explanation of the present study's failure to obtain significant results does not appear to be indicated.

It seems that the above results can be accounted for more plausibly and parsimoniously on the basis of lack of theoretical refinement, experimental factors, or a combination of the two. For example, it is possible that the amount or extent of conflict experimentally induced was not sufficient to interfere with creative functioning. Certainly the comments of Jahoda (1959), Brown (1965), and the work of Bogdonoff et al (1961), not to mention Asch's (1952, 1956) own estimation of the power of the Asch situation to generate conflict, all tend to argue against the possibility that the quantity, amount, or extent of conflict generated by the Asch situation was not sufficient to affect functioning. However, it is not known what extent of conflict is necessary to interfere with, or facilitate creative functioning.

At a clinical level, while some experimental Ss in the present study were observed to behave in a manner described by Asch (1952, 1956), just as many Ss behaved in ways which did not suggest the extent of upset inferred by Asch in regard to his Ss. It is possible that the difference in observed reaction, if indeed there was such a difference, was not reflective of a difference in quantity or extent of conflict gener-

ated in both cases, but rather of a difference in regard to expression of the experienced conflict in overt behavior. In other words, it is possible that Asch's Ss were more expressive of their inner state than those in the present study. On the other hand, it is also possible that Asch's Ss' overt behavior was reflective of an eagerness or felt need to please by expressing what they sensed was the expected and/or desired response to the situation. Thus, there is some possibility that Asch tended to overestimate the extent of conflict generated by his classic situation. This possibility may receive some support from a close examination of Asch's attempt to account for the apparent intensity and universality of conflict in Ss exposed to the Asch situation. He wrote:

The answer touches upon the role and function of consensus in social life. Our procedure produced a failure of consensus where it was least understood and expected, tending to turn disagreement into a more ultimate kind of contradiction. Now consensus, especially on fundamental traits of the surroundings, is the vital prerequisite of social action; to abolish or impair it is to threaten the relations of interdependence which ordinarily experience continually validates. It is in these terms that we propose to account for the strength of the reactions which the present situation produced. Although ostensibly the disagreement centered on very specific and limited data, it acquired a wider import. It signified to the critical subjects that they were at odds with a majority about a basic relation in the world (1956, p. 66).

The above statement impresses the writer as a rather generous statement of the powers of the Asch situation. It might be argued that only in the severely unstable and pathological

personality, could the Asch situation precipitate such profound self-doubt and intense anxiety.

In addition to quantity or amount of conflict, another variable which may have played a part in the present study's failure to obtain significant results, is quality or kind of conflict. Certainly, no arbitrary distinction can be made as to where quantity of conflict ends and quality of conflict begins; however, an attempt at such a distinction may be useful. For example, it is possible that the Asch situation did indeed generate intense conflict, but a quality or kind of conflict which does not affect creative functioning. And it follows that while the Asch situation may generate conflict of ample quantity and quality to interfere with creativity, that particular conflict may be of a quantity and quality which tends not to affect creative functioning as required by the two creativity tests used in the present study. In other words, it is possible that induced conflict of a sexual-religious nature produces sufficient quantity and quality of conflict to significantly affect creative functioning on the two creativity tests used in both the present study and Vogel's (1968) study, and that the kind of induced conflict used in the present study did not produce sufficient quantity and quality of conflict to affect functioning on the creativity tests used.

Closely related to both quantity and quality conflict, is depth of conflict. There is a possibility that for creative functioning to be affected, conflict must exist at a much

deeper (unconscious) level than that precipitated by the Asch situation. An example of deep unconscious conflict might be conflict between id and superego, or conflict regarding recognition, acceptance, or expression of deepseated unacceptable impulses, or conflict centering around love and hate concerning one's self and/or others, or conflict between one's will to live and one's will to die, or possibly conflict of a sexual-religious nature as in Vogel's (1968) study. These are the kinds or depths of conflicts usually referred to in the literature, and it may require a conflict of such depth to interfere appreciably with creative functioning. Of course, it is not ethically desirable to generate such conflict in a laboratory situation. Yet, if it were possible to demonstrate that experimentally induced conflict at a more superficial or conscious level could interfere with creative functioning, such a finding would certainly lend support to the position which holds that severe personality conflicts are likely to interfere with creative functioning.

Another possible explanation for the present study's failure to obtain significant results, is the possible inadequacy or insensitivity of the creativity tests used. There is a paucity of acceptable measures of creativity primarily because of the diversity of opinions as to what kinds of behavior can be appropriately labeled "creative" and the subjectivity involved in making such a decision. While the measures used in the present study appeared to be two of the more promising of

such instruments, they have not yet been widely used and questions as to their validity and reliability remain to be answered. It is important, however, to note that Vogel (1968) did obtain some significant data using these instruments.

One problem with these tests which became apparent concerns instructions with regard to scoring on both the Alternate Uses and the Consequences Tests. The scoring criteria were sufficiently strict that very few of the Ss' responses passed the creative criteria. A close examination of the scoring criteria for both tests suggested that the strictness lay in the scoring instructions rather than in the judges misinterpretation of the scoring instructions. The average number of creative responses for the Alternate Uses Test was 1.471. The range extended from zero to five creative responses with only two Ss achieving five creative responses. The average number of creative responses for the Consequences Test was 5.630. The range extended from one to fourteen with only one S achieving fourteen creative responses. The very limited number and the extremely restricted range of creative responses, particularly on the Alternate Uses Test, made for problems with regard to statistical treatment of the data. Because of the limited number and restricted range of creative responses, a tetrachoric correlation could not be run in regard to the Alternate Uses Test in order to determine interater reliability. In addition, the same factors worked against the obtaining of significant statistical correlations, particularly in regard to the Alter-

nate Uses Test. Thus a more liberal set of scoring instructions would have resulted in a greater number, and a less restricted range of creative responses which, in turn, would likely have facilitated statistically the appearance of a true effect if such were present. Therefore, it is possible that this factor (the very limited number and range of creative responses) alone was primarily responsible for the present study's lack of significant results.

In addition to the aforementioned findings, there were several interesting results which deserve mention, particularly in that they suggest directions for future research. Vogel (1968) found that while conflict adversely affected performance on tasks measuring originality (creativity), it did not adversely affect performance on tasks measuring productivity. In the present study, it was found that the experimental group produced significantly more responses on the Obvious Consequences (productivity) portion of the Consequences Test, than did the control group, ($CU=107.5$ $p=.02$ $df=18$, 2tail). This finding suggests that certain amounts and kinds of conflict may not only not interfere with performance on tasks measuring or involving productivity (as opposed to creativity), but may actually facilitate productivity. This phenomenon may correspond with a not uncommon clinical phenomenon referred to as "flight into activity," wherein a person copes with conflicts and resulting anxiety by means of heightened, and often productive activity.

The facilitation of productivity by a conflict state is perhaps at least partially explained by Spence (1959), who views heightened drive states (such as that caused by conflict) as energizing or strengthening responses which are dominant in the response hierarchy, i.e., have a higher probability of occurring, and impairing the emission of non-dominant or unusual responses. Future research might be directed toward determining whether or not, or to what extent, conflict states of varying kinds and intensities facilitate various kinds of productivity (as opposed to creativity).

Another interesting finding is the partial support found for hypothesis 6 (see Table 8). While a significant correlation was not found between amount of yielding and performance on the Remote Consequences portion of the Consequences Test, there was a significant positive correlation between amount of yielding and performance on the Original Uses portion of the Alternate Uses Test. That is, Ss who yielded more frequently to the majority performed significantly better on the Alternate Uses Test. This finding argues against ruling out the possibility of the existence of an inverse correlation between level of conflict and creative performance. A replication or modification of the present study might help to clarify the problem.

The present study has served to raise questions which can only be answered by future research. A basic problem which creativity related research will be struggling with for some time is in regard to defining creativity. One of the problems

in creativity related research has to do with the failure of many researchers to define creativity as used in their particular study, and especially to provide an operational definition.

Closely related to the problem of defining creativity is that of measures of creativity themselves. Certainly research in the area will only be as valid and reliable as the measures used. Current measures, such as the ones used in the present study, must undergo further validity and reliability studies, and new and more innovative measures requiring less subjectivity must be developed.

Replication of Vogel's (1968) study is recommended to assess the validity and reliability of the results. The present study has raised questions centering around amount, kind, and/or depth of conflict. Replications of the present study would also be desirable as a means of assessing the reliability of the results, thereby helping to determine their validity and generalizability. Other studies might attempt to determine the amount, kind, and/or depth of conflict necessary to interfere with creativity. Such studies might use various methods of inducing conflict in "normals." Assuming a substantial relationship between states of pathology and conflict, still other studies might involve Ss with varying degrees of pathology, ranging from extreme pathology (psychoses) to mild pathology (neurosis). Control groups might include "normals" and/or conspicuously effective individuals. In addition, various types of promising creativity measures might be used. And,

finally, the three main variables discussed, namely subject population, method of conflict generation, and creativity measures, might be manipulated in an effort to understand the rule of conflict in creative behavior.

CHAPTER VI

SUMMARY

The purpose of the present research was to submit to empirical test the contrasting positions of Freud and Rogers, regarding the role of conflict in creative behavior. Freud's position was that creativity is both generated and facilitated by conflict. Rogers' position is that conflict inhibits creative behavior. It was hypothesized, in accord with Rogers' position that conflict would result in diminished creative performance.

The Ss were 40 white, university freshmen males, ages 18 to 22, selected on the basis of midrange scores on the American College Test (ACT) and grade point average (GPA), after approximately one semester of college credit. The Ss were randomly divided into experimental and control groups.

A state of conflict was induced in the experimental group by means of the classic Asch situation; while in the control group, conflict was reduced to a minimum by means of a modified Asch situation. Immediately following the Asch situation, Ss were administered two standardized creativity tests.

In spite of the fact that the experimental group evidenced higher levels of arousal as measured by GSR, no significant differences were found between experimental and control groups with regard to performance on the creativity tests. Within the experimental group, no significant inverse correlation was

found between level of arousal and creativity test performance.

Results failed to support either the Freudian or the Rogerian position regarding the role of conflict in creative behavior. Several possible explanations for the present study's failure to obtain significant results were offered, and possible productive directions for future research were discussed.

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APPENDIX A. SELF-REPORT CONFLICT SCALE

SELF-REPORT CONFLICT SCALE

In the course of the experimental session, I experienced the following state of conflict:

1	2	3	4	5	6
extreme	moderate	slight	slight	moderate	extreme
conflict	conflict	conflict	lack of	lack of	lack of
			conflict	conflict	conflict

- a) during the relaxation period _____
- b) during the reading of instructions _____
- c) during the discrimination of lengths of lines _____
- d) during the performance of the first task _____
- e) during the performance of the second task _____
- f) at the end of the performance of the above two tasks _____
- g) right now _____

If you experienced conflict, at what point, a through g, did it:

- 1) begin to subside _____
- 2) completely subside _____

APPENDIX B. ALTERNATE USES TEST

ALTERNATE USES

FORM A

Christenson, Guilford, Merrifield, and Wilson

NAME _____ DATE _____

In this test you will be asked to consider some common objects. Each object has a common use which will be stated. You are to list as many as six other uses for which the object or parts of the object could serve.

EXAMPLE:

Given: A NEWSPAPER (used for reading). You might think of the following other uses for a newspaper -

- a. start a fire
- b. wrap garbage
- c. swat flies
- d. stuffing to pack boxes
- e. line drawers or shelves
- f. make up a kidnap note

Notice that all of the uses listed are different from each other and different from the primary use of a newspaper. Each acceptable use must be different from others and from the common use.

Do not spend too much time on any one item. Write down those uses that occur to you and go on to the others in the same part. You may return to the incomplete items in a part if the time for that part permits.

There are three parts to this test, with three items per part. You will have 4 minutes for each part.

If you have any questions, ask them now.

STOP HERE.

WAIT FOR FURTHER INSTRUCTIONS.

PART I

List as many as six possible uses for each of the following objects:

1. SHOE (used as footwear)
2. BUTTON (used to fasten things)
3. KEY (used to open a lock)

PART II

List as many as six possible uses for each of the following objects:

4. CHAIR (used for sitting)
5. WATCH (used for telling time)
6. SAFETY PIN (used for fastening)

PART III

List as many as six possible uses for each of the following objects:

7. WOODEN PENCIL (used for writing)
8. AUTOMOBILE TIRE (used on the wheel of an automobile)
9. EYEGLASS (used to improve vision)

APPENDIX C. CONSEQUENCES TEST

CONSEQUENCES

Christensen, Merrifield, and Guilford

NAME _____ DATE _____

This is a test of your ability to think of a large number of ideas in connection with a new and unusual situation.

Look at a sample item.

SAMPLE ITEM:

What would be the results if people no longer needed or wanted sleep?

SAMPLE RESULTS:

1. Get more work done
2. Alarm clocks not necessary
3. No need for lullaby song books
4. Sleeping pills no longer used
5. _____
6. _____
7. _____

Of course, there are many more possible results that could have been written.

There will be ten (10) different situations somewhat like the one above, each one on a separate page. Four examples will be included for each item. You will be given one minute on each page to write down other possible results. Write as many different consequences or probable sentences as possible. Your score will be the total number of different consequences that you write down in the time given you.

Are there any questions?

STOP HERE. WAIT FOR FURTHER INSTRUCTIONS.

LIST AS MANY DIFFERENT
CONSEQUENCES AS YOU CAN.

What would be the results if none of us needed food any more in order to live?

- a. No need for farmers
- b. No plates, knives, and forks
- c. No grocers
- d. Save time

What would be the results if humans lost their group feeling to the extent that they all preferred to live alone?

- a. No more marriages
- b. Population decline
- c. More hermits
- d. No more cities

What would be the results if the entire United States west of the Mississippi became an arid desert?

- a. Shortage of water
- b. People would move East
- c. Food shortage
- d. Trees would die

What would be the results if everyone suddenly lost the sense of balance, and were unable to stay in the upright position for more than a moment?

- a. People would fall down
- b. Could not walk
- c. Many accidents
- d. Confusion

What would be the results if all the people in the world lost the ability to reproduce offspring?

- a. Race would die out
- b. No more babies
- c. No more baby doctors
- d. No more diapers, toys, etc.

What would be the results if it appeared certain that within three months the entire surface of the earth would be covered with water, except for a few of the highest mountain peaks?

- a. Everyone will move to mountain peaks
- b. Increased sale of boats
- c. Business failure
- d. Panic

What would be the results if everyone suddenly lost the ability to read and write?

- a. No newspapers or magazines
- b. No libraries
- c. No mail or letters
- d. TV sales increase

What would be the results if human life continued on earth without death?

- a. Overpopulation
- b. More old people
- c. Housing shortage
- d. No more funerals

What would be the results if the force of gravity were suddenly cut in half?

- a. Jump higher
- b. More accidents
- c. Less effort to walk
- d. Easier to lift things

What would be the results if suddenly no one could use arms or hands?

- a. Learn to use feet more
- b. No need for gloves
- c. Clothing would be changed
- d. Couldn't drive cars

APPENDIX D. RAW DATA FOR CONTROL SUBJECTS

RAW DATA FOR CONTROL SUBJECTS

S	Age	ACT	GPA	Asch	Alternate		Consequences	
				Situation Errors	Uses C	A	C	A
1	18	25	1.93	0	2	25	9	23
2	19	22	2.00	2	1	17	5	23
3	18	23	2.00	0	1	26	8	32
4	19	20	1.93	1	0	20	2	24
5	19	24	2.07	1	3	21	9	30
6	19	22	2.00	0	0	15	3	18
7	20	18	1.93	3	3	21	5	28
8	19	24	2.00	0	1	29	9	24
9	18	24	2.07	2	0	16	3	28
10	19	23	1.94	2	2	25	8	26
11	19	20	2.00	6	3	22	1	19
12	18	24	2.06	0	5	12	10	16
13	18	25	1.94	2	3	19	8	25
14	19	18	2.06	2	0	11	1	18
15	19	21	2.00	1	1	24	8	26
16	19	18	2.00	6	0	14	2	23
17	18	21	1.94	6	1	15	5	30
18	19	20	2.07	2	1	30	4	33
19	18	21	2.07	3	0	21	2	29
20	19	20	2.07	2	1	12	4	23

APPENDIX E. RAW DATA FOR EXPERIMENTAL SUBJECTS

RAW DATA FOR EXPERIMENTAL SUBJECTS

S	Age	ACT	GPA	Asch Situation Errors	Alternate Uses		Consequences	
					C	A	C	A
1	18	23	2.06	5	1	27	9	37
2	19	20	2.00	4	2	36	10	40
3	19	23	1.93	0	2	17	7	34
4	19	23	2.07	1	1	14	3	29
5	18	25	1.94	5	3	16	10	34
6	18	22	1.94	3	3	35	8	20
7	19	18	1.93	3	1	25	9	38
8	19	22	1.94	10	0	16	1	28
9	18	24	2.00	0	0	11	2	16
10	19	18	2.07	1	0	7	2	16
11	18	24	2.07	1	1	23	4	23
12	19	20	2.07	6	3	16	4	27
13	19	23	1.93	1	1	27	9	28
14	18	18	2.00	5	4	18	3	45
15	19	22	2.07	1	1	24	5	32
16	19	23	2.00	0	1	27	7	26
17	19	21	2.00	3	0	26	3	34
18	18	22	2.00	1	0	30	14	29
19	19	22	2.06	5	5	24	5	33
20	19	19	2.00	4	2	23	4	32