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The University of Oklahoma, Ph.D., 1963
Psychology, general

University Microfilms, Inc., Ann Arbor, Michigan

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UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

THE EFFECTS OF INHIBITION AND TENSION ON FANTASY

A DOCTORAL

DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PHILOSOPHY

BY

DEAN VERNON HARRIS

Norman, Oklahoma

1963

THE EFFECTS OF INHIBITION AND TENSION ON FANTASY

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ACKNOWLEDGMENTS

The writer wishes to express his appreciation to Dr. Percy Teska who served as director for the dissertation, to Dr. William Lemmon for his warm encouragement in times of stress, to Dr. Carl Oldroyd for his constructive criticism and giving of time to discuss them, to Drs. Rupiper and Glixman for their assistance particularly in regard to the design of the study. Appreciation is also expressed to the department head, teachers and students in English, Education and Psychology who's cooperation made this study possible. A great indebtedness is owed the writers wife, Helen who's encouragement and unyielding faith is in large measure responsible for this product.

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THE EFFECTS OF INHIBITION AND TENSION ON FANTASY

CHAPTER I

INTRODUCTION

Several studies in the literature have demonstrated that self imposed inhibition tends to stimulate productivity on specific fantasy criteria. Although previous investigators have viewed inhibition as a stimulus to fantasy production, little attention has been given to the narrowness or generality of the fantasy concept used or to the correlates of the inhibition stimuli used. The subject of this investigation concerns these neglected issues. This study attempts to evaluate the effects of an inhibition state on the production of fantasy when the fantasy media differ from those used in previous investigations. Further, this study attempts to isolate tension from inhibition states and evaluate the independent effects of each on fantasy.

Theoretical Origins of Fantasy

Rappaport (1951b), describes the assumptions underlying the relationship between inhibition and fantasy. Under the label "Primary Model of Action," he assumes that the human infant is born with certain needs, drives, and other tension potentials, for which is sought immediate satisfaction or tension-reduction through direct (primary drive reduction) action. Behavior which reduces tension is assumed to be reinforced by the reduction of tension.

Interaction with the environment leads to the development and continuing modification of social, motor, and language skills as means of drive reduction. Progressing from more immediate and direct goal oriented behavior these skills evolve toward more subtle means requiring delay of gratification. These skills are considered ego functions.

There are many terms referring to ego functions which have a common core of meaning such as: delay, restraint, self-control, inhibition, impulse control, reality principal, and others. Each of these terms has reference to the capacity of the individual to forego direct, immediate reduction of physiological and psychological tensions. The means chosen may be postponement, delay, hallucinatory wish fulfillment, denial of the need, substitution of other activities or symbols, full repression or other means. Thus, it is generally agreed that ego controls interfere with immediate drive reduction.

Rappaport's position is consistent with the psychoanalytic theory of personality development (Fenichal, 1945; Freud, 1938; 1949; 1953; Jones,1953). In fact, Freud contributed the concept of primary (direct) and secondary (non-direct) mental processes of drive reduction. Freud (1951) postulates that the shift from primary to secondary processes makes possible the conservation of tremendous amounts of energy by permitting mental trial-and-error with various means of drive reduction. The shift facilitates avoiding impulsive actions that are nongratifying or self-destructive.

In more recent years, psychoanalytic writers (Federn, 1952; Hartmann, Kris, and Lowenstein, 1947; Hartmann, 1950; Rappaport, 1950; 1951b) have been more explicit on how the shift takes place. Rappaport's (1951b) views on the nature of the shift are not inconsistent with the developmental theories of thinking expressed by other writers (Lewin, 1935; Murphy, 1947;

Piaget, 1932) and are consistent with recent experimental findings (Goldman, 1953; Goldman and Herman, 1952; Krus, Werner, and Wapner, 1953; Levine, Glass, and Meltzoff, 1957; Levine and Meltzoff, 1955; Levine, Spivack, and Wight, 1959; Meltzoff and Litwin, 1956; Meltzoff, Singer, and Kochin, 1953; Singer and Herman, 1954; Singer, Meltzoff, and Goldman, 1952; Singer and Spohn, 1954; Singer, Wilenaky, and McGraven, 1956; Werner, 1945b).

Freud (1951), Fenichel (1945), Rappaport (1950; 1951a; 1951b), Wapner and Werner (1949) and others agree that secondary processes are the foundation of thinking, mental imagery, and other thought processes. Rappaport (1951b) specifically postulated that the nondirect routes for drive reduction do not result in full reduction of the drive; consequently a reduced, but nevertheless existing, state of tension is the out-come of those ego efforts. The residual tension is the energy available to the individual for fantasy and other thinking processes.

Rappaport's position is basically similar to Wapner and Werner's (1949) theory of perception which postulates that different kinds of tension are interchangeable whether their origin be external, internal, physical, sensory, or psychological. Wapner and Werner (1949) clearly state that tension aroused through frustrated action may be expressed through fantasy of action, and experiments on their part are supportive (Goldman, 1953; Krus, Werner, and Wapner, 1953; Werner, 1945b; Werner and Wapner, 1949; Werner and Wapner, 1952; Werner and Wapner, 1956).

In summary, a number of personality theories, probably the most outspoken of which is the psychoanalytic theory, subscribe to the idea that the human infant persistently strives for direct discharge of inner tension. The infant gradually develops a capacity for delay of immediate

gratification, inhibition. The delay process augments the tension level. The infant tolerates the inhibition experience by "mentally" releasing the tension through fantasy. The psychoanalytic theory postulates that this "mental" drive reduction is at first a hallucinatory wish fulfillment. In later development it is supplemented by more conceptualized and verbal fantasies including planning, reasoning, reminiscence, etc. Therefore, any situation demanding inhibition of the individual should result in an impetus to fantasy.

The Relationship Between Inhibition and Fantasy

In a survey of the literature the theoretical relationship between inhibition and fantasy was rejected by only one writer who dealt with the question. Piotrowski (1960) contests the implied effect of inhibition on fantasy. Werner (1945a; 1945b) and Werner and Wapner (1949; 1952; 1956), however, seem to imply that inhibition of motor activity should result in fantasy involving motor activity. Their studies have all involved motor inhibition and measures of fantasy designed to tap fantasy of motion. Most of the earlier studies in this area were outcroppings from the Werner and the Werner and Wapner studies, and followed this same relatively limited approach. The general point of view is expressed by Singer:

> The implication of Rorschach's view of M and of the extensions of these views by Werner . . . is that certain persons by inhibiting direct reaction tendencies tend to develop sensitivities or predilections for imposing motion, either on ambiguous stimuli or on stimuli in what may be called "the mind's eye" (Singer, 1960, p. 231).

The implied relation between motor inhibition and fantasy of motor activity seems to be relatively clear-cut. The problem becomes more com-

plex when a relationship is postulated between motor inhibition and fantasy, the content of which is not motor activity. Predicting relationships between nonmotor inhibition and either motor or nonmotor fantasy is even more complex. If the ego-control theory of relationship between inhibition and fantasy is correct, however, the theoretical predictions should be sustained whether or not the inhibition activity represents inhibition of motor functions and whether the fantasy activity is a fantasy of motor activity or not. The principal interest that Werner and Wapner have shown has been in the relatively narrow concept of motor inhibition yielding motor fantasy. This interest represents only a part of the psychoanalytically derived concept of inhibition in general yielding fantasy activity in general.

Little attention has been given to the relationship of the type of inhibition to the type of fantasy which follows.

Hyperactivity and Fantasy

In the Sensory-Tonic theory of perception (Werner, 1945; Werner and Wapner, 1949) the relationship between inhibition and fantasy is organismic rather than a learned ego-relationship. From this point of view various forms of tension, whether they be of psychological, sensory, or of other origins, are interchangeable and may substitute for one another. Thus, if the subject is required to engage in extensive hyperactivity, productivity in the fantasy sphere should decrease. The Sensory-Tonic theory in which fantasy and motor activity are interchangeable does not seem consistent with the psychoanalytic ego-control theory on this point. On the basis of the ego-control theory, fantasy reduction following hyperactivity would be possible but not predicted. The Sensory-Tonic theory, however, would predict fantasy reduction following hyperactivity.

The Meaning of Inhibition

The concept of inhibition involves some form of delay of tension discharge. To qualify as an ego function, inhibition must be an act of the organism rather than the product of outside controls. Thus inhibition has the quality of being self-imposed and is regarded as roughly equivalent to self-control or self-restraint. Even so defined, the concept is broad and would include inhibition of motor activities, thoughts, affects, or in general, any self-imposed restraint or delay. Inhibition as used in this study would not include inactivity resulting from sleep, exteranl restraint, or lack of stimuli for activity. Several problems arise in evaluating previous research on inhibition and fantasy. In some studies (Goldman, 1953; Neal, 1960; etc.) inhibition consists of what has here been described as restraint or immobility. The criteria for inhibition in most of the correlation studies is so broad as to include much more than simply inhibition. No efforts were made to evaluate the effect of characteristics associated with general inhibited behavior.

In the experimental studies such factors as fatigue, anxiety, tension, frustration, and possibly anger are reasonably expected correlates of the operations employed to arouse a state of inhibition. These facts render the nature of the relationship between inhibition and fantasy unclear. Therefore this research will attempt to evaluate the fantasy producing role of inhibition per se and of some previously neglected correlates of the inhibition tasks used in former studies.

The Meaning of Fantasy

The concept of fantasy appears to be far more complex than inhibition.

Many writers use the concept without defining it. Fenichal (1945) refers to fantasy as wish-fulfilling and nonplanful thinking. The question arises: are fantasy, daydreaming, nightdreaming, symbolic thinking, pictorial imagery, hallucinations, verbal fantasies, artistic symbolism, etc. all to be included under the concept of fantasy? If so, it would seem that fantasy is not a single concept but is rather a generic term referring to a wide variety of activities, some of which appear to be incompatible with each other within the same person at the same time. For example, the schizophrenic is frequently characterized as living in fantasy (Bleuler, 1951). His delusional and hallucinatory experiences are often conceived as wish fulfilling and not planful in the realistic sense. At the same time, however, the schizophrenic is also described as extremely concrete and highly symbolic in his thinking. Symbolism is usually conceded to be an abstract form of thinking. Schizophrenics (characterized as engaging in much fantasy) usually perceive very few human movement responses in the Rorschach, although Rorschach Movement scores are described as reflecting fantasy. There appear to be many variations in descriptions of fantasy.

Some operational definitions. A frequently used index of fantasy activity is the human movement response to the Rorschach (Thetford, 1952). Beck states:

> (M) response, as Rorschach understands it, really reproduces movements or activities that S is carrying on within his mental life. Since these mental activities are those in which we should like to engage in the outer world but cannot, or dare not, they are our wish-fulfilling activities. Thus they are our fantasy life__which means that the associations encased in them actually project the S's intimately personal living (Beck, 1949, p. 92).

Beck clearly associates human movement responses to the Rorschach with inner fantasy life. Rorschach felt that the experience type indicates only how the person experiences, not necessarily how he lives or toward what he strives. "A person with strong introversive traits and less strong extratensive traits may be decidedly extratensive in his behavior" (Rorschach, 1942, p. 87). Rorschach's remarks indicate that human movement responses, one of the two components of the experience type, refer to the inner kinesthetic experience rather than to overt behavior. The Rorschach human movement response has frequently been used as a criterion on fantasy activity in subjects under study. Some of these studies used the human movement response as a criterion specifically for fantasy of movement (Werner, 1945b), and other studies have used it as a criterion for fantasy in general (Levine, Glass, and Meltzoff, 1957; Levine and Meltzoff, 1955; Levine, Spivack, and Wight, 1959; Metzoff and Levine, 1954; Meltzoff and Litwin, 1956; Meltzoff, Singer, and Kochin, 1953; Singer and Herman, 1954; Singer, Meltzoff, and Goldman, 1952; Singer and Spohn, 1954).

Another type of operational criterion for fantasy activity is found in thematic situations such as the Thematic Apperception Test, the Symonds Picture Story Test, The Children's Apperception Test, etc. These tests by definition involve fantasy. In the production of stories to the pictoral stimuli of thematic tests the subject is assumed to reveal aspects of his fantasy life. The subject must consciously experience and verbalize the fantasy in fairly detailed form in order for it to be a thematic production. Although the Thematic Apperception Test is, by definition, a method of inducing fantasy, it may induce the expression of a different kind of fantasy than that usually reflected in the Rorschach human movement response. This

impression is supported by such studies as that of Singer, Wilinsky, and McCraven (1956).

A third frequently used index of fantasy activity involves play activities or dramatic methods in general. One might conceive of the Rorschach human movement response (M), the thematic techniques, and play or dramatic activities as representing different levels on a scale of conscious experience of fantasy. On the other hand, the presumed success of these techniques hinges on the assumption that they reflect unconscious fantasy activity. Play activities represent an overt expression different from the covert qualities of M inasmuch as they require the subject to act out his fantasies. Play activities are generally reserved for use with children, who seldom give M. The use of dramatics makes possible the expression of what might be called body fantasy, an activity probably corresponding relatively closely to the body language often referred to in hysterics, homosexuals, and seductive people. Certainly if not representing a different kind of fantasy from those already described, the dramatic techniques do represent a more concrete expression of fantasy.

Another still different kind of fantasy activity is represented in dreams, hallucinations, delusions, and other symbolic representations. Symbolism is often involved in the art forms and may or may not be conscious to the producing artist. Certainly in dreams, hallucinations, and delusions the symbolism is often unconscious. Since dreams are considered a normal form of hallucination, this category of fantasy activity will be referred to as hallucinatory. Hallucinatory fantasy invariably involves abstraction, concreteness, and symbolism. They are something other than

their manifest content, and they are abstract in representing generalizations, condensations, and symbolism. Again a set of phenomena is called fantasy but is different from other phenomena by the same name.

Free association and daydreaming are generally accepted as reflections of fantasy activity. This kind of fantasy is definitely akin to hallucinatory experiences. In most cases it probably represents a more conscious level of fantasy and is usually under conscious control. In addition, hallucinatory fantasy is generally concrete and pictoral whereas free association or daydreaming is generally verbal or conceptual in nature. This type of fantasy is probably akin to that produced in the Thematic Apperception Test (TAT) or in the dramatic methods. Free association and daydreams probably do not represent the same level or kind of fantasy expressed in M.

The last operationally defined type of fantasy activity to be presented here is that expressed in the graphic arts (paintings, drawings, sketches, etc.). These forms, when embellished by even a modicum of imagination, represent a projection of the artist's inner life and fantasy experiences. Virtually the only kind of art form which would be free from some degree of fantasy projection would be a rigidly controlled tracing of another's production. Much use has been made of drawing techniques as an expression of inner life and fantasy (Machover, 1949; Kinget, 1952).

Although each of the types of fantasy activity described have something in common, they also reveal real differences in the inner activities they presumably reflect. The research on inhibition and fantasy has employed M and response to the TAT as the principal criteria of fantasy. Since fantasy has been shown to be a broader concept that is measured by these two devices, the question arises: does the relationship between inhibition and fantasy

obtain when the criteria of fantasy extends beyond the scope of M or response to the TAT? Would the relationship obtain if the criteria for fantasy were a hallucinatory, free associative, or graphic medium?

Research on Inhibition and Fantasy

Research on inhibition and fantasy has taken several forms. Some studies are correlational: Subjects are selected on the basis of meeting some criteria of inhibition or fantasy then evaluated on a measure of the unknown variable. Other studies are experimental wherein the fantasy activity is conceived to be a direct product of the experimentally induced inhibition situation.

The studies vary in purpose. Some are designed to evaluate or demonstrate principals of the Sensory-Tonic theory, others not. From the various studies information was obtained regarding variables such as effects of different stimuli for inhibition, age, mental status, sex, hyperactivity, and measures of fantasy.

Sensory-Tonic theory. Studies explicitly evaluating Sensory-Tonic theory and those studying the relationship between motor inhibition and fantasy of motion will be considered together. The motor inhibition-motion fantasy relationship is closely related to the Sensory-Tonic theory.

One of the earliest studies was conducted by Werner (1945b). He studied the perceptual behavior of brain injured mentally deficient children. He classified his subjects as endogenously and exogenously retarded and found that the endogenous produced more M to the Rorschach than exogenous. Based on Rorschach's (1942) interpretation of M, the endogenous, subjects (who tend to be hypoactive) would be more inclined to fantasy and imaginative kinesthetic experiences.

Singer and Herman (1954) divided schizophrenic patients into high and low M groups. These patients were inhibited by performing the slow-writing task (a task in which the subject is asked to write the sentence "New Jersey Chamber of Commerce" as slowly as he possibly can without removing his pencil from the paper, retracing his lines, or stopping). The low M groups were more successful in inhibition. These investigators also discovered that subjects rated as immobile and seemingly nonrestless in the waiting room tended to have higher M productivity than the converse. Other investigations had similar results when M was used as the criterion of fantasy and either slow-writing or observed inhibited behavior as the criterion for inhibition (Singer and Spohn, 1954; Singer, Wilensky, and McGraven, 1956; Meltzoff, Singer, and Kochin, 1953).

Singer and Sophn (1954) found that high M patients producing active M were more skilled at inhibition than those producing passive M. Singer, Meltzoff, and Goldman (1952) used subjects as their own control by means of before and after administration of Rorschach cards. Their inhibition condition consisted of having the subject "freeze in his tracks" as he approached the experimenter. They obtained significant differences in productivity of M before and after "freezing."

Not all of the findings relative to motor inhibition and production of M are supportive of the hypothesized inhibition-fantasy relationship. Neither of the studies using adolescents yielded significant findings (Spivack, Levine, Fuschillo, and Tavernier, 1959; Litwin, 1959). These investigators suggest that "the structural relationship between the inhibition of motor acitivity and empathetic motion perception or fantasy

does not take form until maturity is reached" (Spivack, et al, 1959, p. 466). Neel (1960) using college students, a slow-writing task, and M failed to obtain significant results. Her failure to achieve significance may be related to methodological differences from the previous studies. She used a paragraph rather than a sentence in the slow-writing task thus chancing a mental set for greater speed and less inhibition. She also used written instructions for the slow-writing task thus failing to reiterate the instructions to her subjects throughout the assignment as was done in previous studies.

Goldman (1953) demonstrated that the inhibition fantasy relationship may obtain even when the inhibitory situation is not self-imposed. He immobilized subjects by strapping them in a chair for ten minutes prior to exposure to an autokinetic situation. The immobilized subjects had shorter reaction time, greater duration of motion perception, and more complex movement patterns than did the non-immobilized control group. Neel (1960) immobilized one arm of a group of subjects then measured fantasy activity with a screen projected group Rorschach technique. Her negative findings may in part be a function of the incomplete immobilization and in part a function of methodological differences discussed earlier.

In summary, those studies using adult subjects, individually administered ink blots as fantasy stimulus, and self-imposed inhibition as inhibition criteria have supported the hypothesized relationship between inhibition and fantasy and also the Sensory-Tonic theory. Neel's study is an exception to the foregoing though her findings are difficult to evaluate because her methods are different from those used in previous

studies. Studies involving adolescents have consistently failed to achieve significance and the developmental immaturity of the subjects has been offered as an explanation. The two studies employing enforced immobility had inconsistent results. A relationship between the inhibition and fantasy criteria used does seem to exist although question is raised about the generality of the concepts.

Varieties of inhibition studies. The use of the slow-writing task, behavior observation, involuntary immobilization, and "freezing" in one's tracks has already been discussed. In an attempt to broaden the use of the inhibition concept, several investigators studied inhibition outside of the motor context.

Meltzoff and Levine (1954) studied the relationship between cognitive inhibition and motor inhibition. They used a word-association task for cognitive inhibition. The subjects were required to memorize a list of paired stimulus words than requested to respond to the stimulus words with any word other than the learned paired associate. The motor inhibition task consisted of the slow-writing task. The subjects were divided into high and low slow-writing groups and these groups compared for their cognitive inhibition skills. The difference between the high and low motor inhibition groups on the cognitive inhibition task was statistically significant. Levine and Meltzoff (1955) conducted a similar study in which the full Rorschach was used and skill on the cognitive inhibition task compared with various scoring determinants including M. The difference between the high and low M responders on the cognitive inhibition task was highly significant and in the predicted direction.

Neel (1960), using the group Roschach as a fantasy stimulus, obtained

significant differences between productivity of M for subjects who had been instructed to not see sexualized responses to the Rorschach and subjects who had no such instruction. This type of self-imposed inhibition, though having affective components, seems to be fundamentally a cognitive process.

Singer and Herman (1954) required their subjects to perform a letter-cancellation task and compared their findings with productivity of M. The mechanics of the letter-cancellation task require motor activity by the subject, however, the mental task involved is cognitive. Their results did not achieve statistical significance. In terms of Sensory-Tonic theory, motor activity could serve to reduce fantasy productivity and may account for the nonsignificant findings of this investigation.

Spivack, Levine, Fuschillo, and Tavernier (1959) studied the relationship between cognitive inhibition, motor inhibition, and behavior ratings in emotionally disturbed adolescents in a residential treatment center. They report a lack of significant relationship between cognitive inhibition and human movement responses to the Barron Movement Threshold Test. Spivack, Levine, and Sprigle (1959) studied an adolescent population using the Stroop Color-Word Test and the Barron Movement Threshold Test. In their use of the Stroop test, the subjects were required to counteract what the investigators call a "strong interfering habit." Their findings were not significant. As before, an explanation of perceptual, developmental immaturity was offered.

Several studies were planned around the idea that failure to correctly reproduce the inverted letter N in the digit symbol test of the Wechsler Bellevue Intelligence Scale Form I constituted a failure in ability to delay or inhibit. The hypothesis is based on the idea that the subject

must inhibit the habit pattern of reproducing the letter N in its alphabetic form in order to correctly invert it.

Levine, Glass, and Meltzoff (1957) selected from VA psychiatric files a series of subjects who had one or more incorrect reproductions of the inverted-N. The subjects selected also had Rorschach tests in their files. A randomly selected control group with correctly inverted-N reproductions was also selected. In addition another group of subjects who had been given the cognitive inhibition (word association) task were used. Their findings indicate that a significantly greater number of their subjects who fail to invert the N symbol also give less than two M responses. They also found that a significantly greater number of the subjects who failed to invert the N symbol did poorly on the cognitive inhibition task than their controls. Similar findings were obtained by Levine, Spivack, and Wight (1959) using a similar technique. In both studies the control groups had significantly higher mean IQ's than did the experimental groups. In the latter study, one of the groups consisted of adolescents. The inverted-N findings with the adolescents were not statistically significant. Egar (1960) doubted the validity of the inverted-N findings. He replicated the foregoing studies using college students whom he assumed to be of approximately equal intelligence and obtained nonsignificant findings. Therefore he attributes the earlier significant findings to differences in intelligence rather than inhibition.

Meltzoff and Litwin (1956) attempted to determine whether or not inhibition of affect would effect fantasy productivity. In their study the subjects listened to the Jones Laughing Record by Spike Jones and were instructed not to laugh during the playing of the record. Any smile

or sign of laughter was taken as an affective response. Following the listening period, the subjects were given cards III and VII of the Rorschach. There was a significantly greater number of high M producers able to inhibit the affective response than low M producers. The difference was statistically significant. This finding is consistent with the affective component of Neel's (1960) study in which subjects instructed not to see sexualized responses produced more M.

Siipola and Taylor (1952) found that people who tended to respond quickly to all Rorschach blots also tended to give few M. They interpret these findings to support the idea that perception of M is related to capacity to delay or inhibit response and with behavior that is "deliberative, self-reflecting, ego-controlled, and ego-acceptable" (Siipola and Taylor, 1952, p. 36).

The foregoing shows that several attempts have been made to broaden the concept of inhibition as used in the inhibition-fantasy relationship. Some of these attempts have been successful, some unsuccessful and others inconclusive. Several studies using cognitive inhibition tasks with adults have demonstrated a relationship between cognitive inhibition and the types of motor inhibition used in previously discussed studies. Cognitive inhibition has also been related to increased productivity of M. When cognitive inhibition tasks were used with adolescents, the findings were not significant. This lack of significance is consistent with findings on adolescents with motor inhibition tasks. The use of a letter cancellation task as cognitive inhibition was not demonstrated to increase production of M. Conflicting results and hypotheses in studies concerning the correct reproduction of the inverted-N in the Wechsler Digit-Symbol Test render

the implications of this variety of inhibition inconclusive. One study demonstrated a relationship between inhibition of affect and production of M. Another study indicated that people who tend to delay in giving their responses to the Rorschach tend to produce more M.

These findings, combined with those related to the Sensory-Tonic theory, present a powerful argument in support of the inhibition-fantasy relationship. Since most of the inhibition tasks used involved voluntary or self-imposed inhibition, the findings are consistent with the ego-control theory. The inhibition aspect of this relationship apparently may take a variety of forms and still function as a stimulus to behavior serving as criteria for fantasy.

Age as a variable. Werner's early study (1945b) used children as subjects. His findings were statistically significant and, as such, supportive of the Sensory-Tonic position. The fact that he was dealing with a condition rather than a currently self-imposed inhibition prevents his findings from being interpreted in terms of ego-control theory.

The studies using adolescents have failed to achieve significance. In all cases the trends were in the expected directions but not significant (Levine, Spivack, and Wight, 1959; Litwin, 1959; Spivack, Levine, Fuschillo, and Tavernier, 1959; Spivack, Levine, and Sprigle, 1959).

As people reach the college age, they begin the transition from adolescence to adulthood. Survey of the research findings on inhibition and fantasy tend to support the hypothesis by Spivack, et al (1959) that the relationship between inhibition and fantasy does not take place until maturity is reached. Studies using college students have generally yielded significant findings in the predicted directions (Goldman, 1953; Meltzoff

and Litwin, 1956; Meltzoff, Singer, and Korchin, 1953; Neel, 1960; Singer, Meltzoff, and Goldman, 1952). Exceptions are demonstrated in several cases (Egar, 1960; Meltzoff, Singer, and Korchin, 1953; Neel, 1960).

In studies where adults are used, the findings are consistently supportive of the hypothesized relationships (Levine, Glass, and Meltzoff, 1957; Levine, Spivack, and Wight, 1959; Meltzoff, Singer, and Korchin, 1953; Singer and Herman, 1954; Singer and Spohn, 1954; Singer, Wilensky, and McGraven, 1956).

When viewed as a whole, there is considerable support for the notion that the process involved in the inhibition-fantasy relationship is developmental, thus related to age of the subject. Werner's study (1945b), though an exception to this hypothesis, may reflect a different mental process than is used in the inhibition-fantasy relationship as usually conceived. His was the only study that made use of mentally retarded subjects. Since the research findings appear to shift in proportion to the age of the subject until maturity is reached, the question arises: Is the shift related to chronological age, to emotional maturity, or to other variables? The question of mental status will be considered in the next section.

Mental status as a variable. Most of the studies using non-college adults used institutionalized neuropsychiatric patients as subjects (Levine, Glass, and Meltzoff, 1956; Levine, Spivack, and Wight, 1959; Singer and Herman, 1954; Singer and Spohn, 1954; Singer, Wilensky, and McGraven, 1956). All of the adolescent studies except Litwin (1959) used exclusively emotionally disturbed subjects. Obviously Werner's endogenous and exogenous retardates were mentally deviant. Since the results with these mentally

disordered subjects were consistent with those most frequently obtained with mentally normal adults and college students, mental status appears to have little effect on the inhibition-fantasy relationship. Of all the tasks used as criteria for inhibition, only in the inverted-N studies is there evidence of a relationship to intelligence (Egar, 1960).

Although mental status does not seem to affect the presence or absence of a relationship between inhibition and fantasy, it does apparently affect the criterion levels at which the relationship is expressed. The raw data of some of the studies suggest that mentally disturbed subjects are far less able to inhibit themselves and are far less expressive of their fantasy than their normal counterparts.

Sex as a variable. Although most of the studies employed only men as subjects, several employed both men and women. No significant sex differences were noted in any of the studies.

Hyperactivity and fantasy. Via the Sensory-Tonic theory of perception, motor hyperactivity should result in reduction of fantasy activity, and people characteristically hyperactive should engage in a lesser degree of fantasy than people characteristically less hyperactive. Werner's (1945b) study on brain injured children is generally supportive of this position. A study by Singer, Meltzoff, and Goldman (1952) tends to cast doubt on this implication of the Werner study. Their subjects were required to engage in five minutes of very difficult calisthenics in a hot room and under very poor exercise conditions. The subjects were given a pre- and post-exposure to Rorschach inkblots selected for their tendency to stimulate movement responses. The frequency of posthyperactivity M was compared with the M of a pre- and postinhibition group. The differences between the pre- and

posthyperactive M frequencies were not significant. The differences between the posthyperactive and the postinhibition M frequencies were significant but so were those between pre-and postinhibition. The difference between posthyperactive and postinhibition frequencies indicates increase in M following inhibition but does not indicate a decrease in M following hyperactivity. In like manner the higher productivity of M among the lethargic group in Werner's study may have been in response to the general motor inhibition. The difference between the lethargic and hyperactive groups was not clearly related to the hyperactivity of the latter group.

Krus, Werner, and Wapner (1953) required their subjects to push vigorously against a push board and immediately after the pushing activity make judgments about pictures portraying objects and people in motion. The subjects required to perform the pushing task tended to describe the pictures in more static terms than a control group not subjected to the pushing activity. Goldman (1953) compared an immobilized group with a control group and a high motility group in the autokinetic situation. He found that the high motility group was slowest to respond to the autokinetic stimulus, perceived it in motion for the shortest length of time, and perceived the least complex patterns of the three groups of subjects.

Superficially these findings seem inconsistent with the psychoanalytic ego-control theory. Reflection on the procedures used in these studies, however, points out that the two studies in which the hypothesized negative relationship between motor hyperactivity and fantasy is supported are studies in which fantasy per se is not what is measured. The independent variable in both studies is perception of motion. These findings are entirely con-

sistent with the Sensory-Tonic theory of perception and as such are not inconsistent with the psychoanalytic ego-control theory.

Varieties of fantasy studied. Goldman (1953), studying imagined motion perception, used autokinetic movement as his criterion of fantasy. Two investigations (Singer and Herman, 1954; Singer, Wilensky, and McGraven, 1956) employed the Thematic Apperception Test transcendence index. (A technique wherein the Thematic Apperception Test is evaluated on the basis of the extent to which the production transcends the actual stimulus material). Three used the Barron Movement Threshold (Singer, Wilensky, and McGraven, 1956; Spivack, Levine, Fuschillo, and Tavernier, 1959; Spivack, Levine, and Sprigle, 1959). All others that used a criterion for fantasy used M.

As discussed under the meaning of fantasy, the concept of fantasy appears to have multiple inplications. Using the term in the broader sense as implied by the ego-control theory, only the human movement response to ambiguous stimuli and the Thematic Apperception Test transcendence index have been used to study it. Unlike the inhibition concept, the generality of the fantasy concept as applied to the inhibition-fantasy relationship has not been demonstrated.

This study will attempt to evaluate a generalization of the fantasy concept beyond that used in previous research.

Problems Raised by Previous Research

Analyzing the above research and its implications, one of the most outstanding limitations is the criteria used for measuring fantasy. Other than in the specifically motion perception type studies, the criterion for fantasy is either M or the transcendence index to the TAT. Although there

seems to be a common core of agreement that perception of human movement responses to ink blots reflects some form of fantasy activity, there is a diversity of thinking regarding other implications of the human movement response. In the Singer, Wilensky, and McGraven (1956) study, for example, the movement response to the Rorschach gives high loadings to two out of four derived factors. Factor A is described as reflecting a kind of motor restraint, a yielding compliance, and an inhibition of impulses. Factor D which also gets its strong loadings from movement response is described as an ideational or introspective dimension of personality. The Thematic Apperception Test transcendence index contributes to factor D and to factor B, the latter having no contribution from human movement responses. This finding suggests alternative possibilities: first, human movement responses may have different implications for different people, i.e. movement responses may reflect factor A qualities for some people and factor D qualities for others, and, second, that for some people in some situations human movement responses may be closely related to TAT responses whereas in other situations they may mean something quite different.

Rorschach (1942) indicates that M does not provide a basis for prediction of overt behavior but represents a tendency toward covert activity. Piotrowski (1960) takes quite the opposite point of view supporting the traditional position that test behavior is simply a controlled sample of the subject's response tendencies and that if a subject tends to perceive action in an inkblot, this tends "to reflect action tendencies which directly influence the individual's basic attitudes when dealing with others in personally vital matters" (Piotrowaki, 1960, p. 134). Piotrowski contests the relationship between M and inhibited motion pointing out that:

> Although the increase, measured in terms of group averages, is statistically significant, the absolute degree of the increase is quite small. . . the slight increase in the production of M following a period of physical restraint does not imply that the M reveal repressed tendencies, but simply means that some subjects give more complete records when deliberate self-restraint increases their conscious attention to their own mental processes (Piotrowski, 1960, p. 137).

Even if the implication that human movement responses reflect fantasy goes unchallenged, the question still remains whether or not human movement responses represent a specific kind of fantasy or whether they represent fantasy in general. Siipola and Taylor (1952) have shown that the conditions under which Rorschach testing is conducted will influence the productivity of human movement responses. They found that subjects pressured to respond rapidly gave far less human movement responses than subjects allowed to proceed at their own pace. The studies thus far conducted have not adequately answered the question: how far may the relationship between inhibition activity and fantasy activity be generalized.

Since there is unquestionably a relationship between inhibited motor activity and fantasy of motion perception, it would be useful to know whether motor activity serving as a medium for the expression of fantasy would inhibit, facilitate, or not influence this relationship. In view of the frequent clinical use of drawings as an expression of the inner life of clients more knowledge is needed about the relationship between inhibition and fantasy as expressed through drawings.

Another unanswered question in regard to type of fantasy pertains to abstract versus concrete fantasy. Silberer (1951) suggests that fantasy expressed in pictoral or dream symbolism is a highly concrete form of fantasy likely to come about in states of fatigue or other psychological

states of insufficiency. He suggests that the psychological insufficiency may be a lack in development such as in childhood or in preliterates, a temporary weakening due to general decrease in energy available for thinking, such as in sleep, or that it may be due to intervention of affects which make the development of the idea more difficult or divert energy from the thinking processes. On the assumption that inhibition is an active energy-consuming process, it is possible that a psychological fatigue state results from inhibition activity thus resulting in thinking of a more concrete or pictorial form. Under these circumstances it would be possible for the subject to perceive M quite independently of an increase in fantasy activity. In this case the increase would not be in fantasy activity per se but in concrete, or what Silberer calls symbolic fantasy activity. Silberer further suggests that concrete thinking appears to be discrete rather than continuous with verbal and conceptual thinking. He feels that it represents a regression in level of thinking.

The transcendence index for the TAT apparently represents a verbal kind of fantasy not expressed via motoric means.

A second outstanding limitation regarding ease of generalization in the foregoing studies is the criteria, implications of and indefinite meaning of the concept of inhibition. The definition of the concept of inhibition used in the present study is essentially consistent with that of most of the other studies reported herein. Perhaps the most fundamental question is whether or not inhibition is the principal or at least critical function measured by the criterion tasks. Piotrowski (1960) was quoted as doubting that the increased productivity of human movement responses on the Rorschach was a product of inhibition and suggested that it was a

function of the increased self-awareness necessitated by the inhibition task.

Earlier in this paper the question arose of why schizophrenics, who are characterized as "living in fantasy," usually give few or no M to the Rorschach. The popular answer of course is that anxiety tends to dampen perception of M. One of the frequently observed characteristics of the schizophrenic, however, is the lack of overt anxiety. This observation challanges the validity of M as an index of fantasy. If there is legitimate question as to whether or not M reflects fantasy activity, then there is question about the validity of the obtained relationship between inhibition and fantasy as reflected in M.

The slow-writing task certainly involves more than simply inhibition. Among other things, it involves tension variables such as degrees of muscle fatigue, frustration tolerance, tolerance for "test anxiety," tension tolerance or sustenance, and, upon completion of the task, tension release. This task also involves the inhibition functions of resisting deeply entrenched habits of more rapid writing, concentrating intently on the task and sustaining self-restraint. The various cognitive, affective, and motor inhibition tasks previously used involve most of these variables. The use of inhibition tasks designed to regulate the effects of the above types of variables would permit a more accurate test of the inhibition fantasy relationship.

The findings in a study by Eichler (1951) would suggest that the increased productivity of M could be a function of anxiety or stress reaction in spite of the notion that anxiety and M are not compatible. Following Silberer's (1951) reasoning, one might suspect that the fatigue

resulting from the inhibition task would result in an increase in concrete as contrasted with verbal or conceptualized fantasy. The M response is consistent with his description of symbolic fantasy. Thus, it is possible that psychological or physiological fatigue accounts for the increase in M. This position would not, however, account for the higher TAT transcendence index following inhibition activities.

In most tasks which require self-control and inhibition of one's usual response tendency, a degree of frustration with consequent tension is likely to arise. It is likely that, upon release from the inhibition, there would be a surge in tension release or overt energy directed into whatever channels were available for such release. Thus a fuller exploitation of the available channels would occur than had there been no inhibition or tension producing experience. This possibility was discussed with Meltzoff (1960) in a personal conversation, and he agreed that this question needed further exploration. The basic idea is that fantasy increases because the channels available for expression of the pent-up energy are specifically fantasy channels. Distraction studies have shown that cognitive activities sometimes heighten and sharpen under conditions of distraction presumably because greater attention must be given the cognitive activities under conditions of distraction and also possibly because the distraction situation stimulates the release of greater qualities of energy which are directed into ongoing cognitive functions.

If this hypothesis is valid, then virtually any condition which resulted in a build-up, sustenance, then channeled release of energy through cognitive channels should heighten the cognitive activity. If the cognitive activity was expressed through M on the Rorschach or res-

ponse to the TAT, the predicted response would be heightened productivity. By this same line of reasoning, a preliminary activity which tended to drain off rather than build up and sustain energy or tension would be expected to leave the level of cognitive functioning unchanged or even reduced. Such a hypothetical position as the above could be tested by using a situation which tended to build and sustain tension but was not principally an inhibition situation. Such a situation might be one which involves anticipation, fear of failure, or fear of punishment. Contrasting the findings in such a situation with those of a principally inhibition situation should yield evidence which, if significant, would support either the inhibition or the tnesion-release theory but not both. The validity of such support would be contingent upon the degree to which each situation was free of the main variables of the other situation.

CHAPTER II

PROBLEM

Review and discussion of the literature in Chapter I leads to questions of, first, the generality of the fantasy aspect of the inhibition-fantasy relationship and, second, the role of the tension artifect of previously used inhibition conditions in the stimulation of fantasy. Evaluation of these two questions is the purpose of this invesgigation.

The Generality of Fantasy

Most studies reviewed have employed one of three criteria of fantasy: perception of apparent motion, perception of M in inkblots, and level of fantasy production in response to the TAT. Evidence has been found that there may be both qualitative and quantiative differences in the implication of various media of fantasy expression. In order to test the generality of this phenomenon, a part of the problem of this study was designed to evaluate a different medium of fantasy expression than has heretofore been used in inhibition-fantasy studies. The medium selected was the graphic arts.

The graphic arts are often used clinically in the evaluation of fantasy. Therefore, the relationship of inhibition to the expression of fantasy through the graphic arts medium has both clinical and theoretical significance. For purposes of comparison with previous research, the slow-

writing task was used as the inhibition stimulating situation. Frequency of human and human part drawings on the Kinget Drawing Completion Test (1952) was used as the dependent variable.

Inhibition as a Stimulus to Graphic Expression of Fantasy

According to theory, the slow-writing task when compared with a control condition should stimulate greater frequency of fantasy in the Kinget drawings thus the hypothesis is designed to study a unidirectional effect. In null form it is hypothesized that:

1. There is no significantly greater frequency of fantasy production on the Kinget test in an experimental group which has had the slow-writing task immediately before the Kinget than in a control group which has had no preliminary experimental condition.

The Separate Effects of Inhibition and Tension on Fantasy Production

Previous studies have emphasized the role of inhibition in the stimulation of fantasy. Although tension is usually a correlate of inhibition its influence, if any, on fantasy has been considered incidental to the inhibition. In the present investigation the effects of tension on fantasy will be evaluated independently of inhibition.

As used in this context, tension refers to a broad range of feelings including such states as frustration, anxiety, anger, anticipation, threat to self esteem, etc. The term tension is not intended to represent a narrow or specific concept but rather to incorporate that group of usually unpleasant states which might be expected to accompany the kinds of inhibition tasks used in most of the previous studies.

The slow-writing task which has been used in many previous studies of fantasy production has the disadvantage of being characterized by both high tension and high inhibition. In order to separate the effects of tension and inhibition, tasks were used which would produce high tension and low inhibition (tension task) as well as tasks which produce low tension and high inhibition (inhibition task).

On the basis of previous evidence and theory, inhibition is expected to stimulate an increase in fantasy. Thus the hypothesis was designed to study a unidirectional effect: the sufficiency of inhibition to stimulate increases in fantasy. In null form it was hypothesized that:

2. There is no significantly greater frequency of fantasy produced in a group which has had a high-inhibition low-tension task immediately before the fantasy task than in a control group which has had no experimental task prior to the fantasy task.

Discussion in Chapter I suggests that tension may actually have a stimulating effect on fantasy while most theory reviewed relegates tension to the role of an inhibitor of fantasy. Hypothesis three was designed to evaluate tension as either a stimulus or a deterrent to fantasy production. Therefore, no direction was predicted for the hypothesis evaluating the effects of tension on fantasy. In null form it was hypothesized that:

3. There is no significant difference in frequency of fantasy produced between a group which has had a high-tension low-inhibition task immediately before the fantasy task and a control group which has had no experimental condition prior to the fantasy task.

The problem has been formulated in order to test the generality of the fantasy aspect of the inhibition-fantasy theory by extending the

inhibition-fantasy research to include fantasy expressed through the graphic arts and to test the independent effects of inhibition and tension on fantasy production.

CHAPTER III

METHOD

To evaluate the hypotheses concerning inhibition, tension, and fantasy, it was necessary to obtain reliable criteria of each component. Drawings are recognized as projections of the artist (Kinget, 1952; Abt, 1950, Bellak, 1950). One of the complications in using drawings for research is the difficulty in scoring them for purposes of comparison and evaluation. Perhaps the most clearly defined, scorable aspect of drawings is content. Kinget's Drawing Completion Test (1952) is designed in such a way that tendencies toward a given content category are measurable and may be compared from one set of drawings to another.

In Kinget's test the subject is given eight beginnings of drawings and is asked to complete them as he sees fit. Thus each subject has eight opportunities to express any content tendencies he may have. By simple count, specific content tendencies may be numerically compared from one set of productions to another. For the above reasons, Kinget's test will be used as the medium for graphic expression of fantasy.

Some clarification of the use of the term fantasy seems indicated. Previous studies which employed M or thematic responses as a criterion of fantasy operationally defined fantasy in terms of M or thematic responses (Levine, Glass, and Meltzoff, 1950; Levine and Meltzoff, 1955; Levine,

Spivack, and Wight, 1959; Litwin, 1959; Meltzoff and Levine, 1954; Meltzoff and Litwin, 1956; Meltzoff, Singer, and Kochin, 1953; Neal, 1960; Slipola and Taylor, 1952; Singer and Herman, 1954; Singer, Meltzoff, and Goldman, 1952; Singer and Spohn, 1954; Singer, Wilensky, and McGraven, 1956; Spivack, Levine, Fuschillo, and Tavernier, 1959; Werner, 1945b).

Movement responses are variously conceived as reflections of "introspection" (Piotrowski, 1960), "inner life" (Beck, 1949)," a strongly felt wish experience" (Beck, 1951), and "fantasy life" (Beck, 1949; Piotrowski, 1960). Thematic apperception responses consistently involve the testee's self-concept, his identifications and his role relations with others. Operational equation of movement and thematic responses with fantasy clearly indicates that the term "fantasy" is used in the broad sense. In previous studies, fantasy apparently included one's wishes, introspection, self-concept, objects of identification, role relations, etc. The broad definition does not limit the concept of fantasy to "the fantastic" but rather seems to include all that is not a part of the objective stimulus. Thus the "fantasy" is that part of the response which the testee adds to the stimulus. Henry (1956) equates fantasy with what others have called apperception.

In the Rorschach, a more conservative approach is used. Traditionally, only responses involving human or human-like movement are formally labeled fantasy. In clinical usage, however, a highly imaginative response not involving human movement is usually regarded as a fantasy production: The more a response deviates from the stimulus, the more a fantasy it is considered to be. Human responses, particularly those with which the testee has identified, are likely to have more personal meaning to the subject than nonhuman responses (Beck, 1949). Human content is

more likely to represent the unique characteristics of the subject, hence his fantasy, than the nonhuman content (Beck, 1949). Because some aspects of the Rorschach blots have an objective resemblance to human forms, poor-form responses would be more reflective of fantasy than good-form responses.

The TAT transcendence index was used in several studies (Singer and Herman, 1954; Singer, et al, 1956) as a refinement in evaluating fantasy. The transcendence index takes into account those associations which transcend the objective stimuli. Again, it is the departure from the objective stimuli that is regarded as fantasy. The subject's identification with the stimuli tends to enhance the fantasy qualities of the production.

Kinget, in her drawing completion test, operationally defines fantasy in terms of "fancy, phantasm, and symbolism" (Kinget, 1952, p. 42). Her use of the concept is far more narrow than the definitions described above. To use her criteria of fantasy would have been to evaluate a more limited dimension of personality than was being studied in the previous research. Since the purpose of using a drawing task was to study the effects of specific treatments on a medium of expression, i.e. graphic expression, rather than study the scoring system of the Kinget test, Kinget's criteria of fantasy were not used. Kinget, though not including human portrayals (other than fanciful or phantom like) under the concept of fantasy, states:

> The specific value of the self-portraits lies in the expressions which they exhibit and which are a highly reliable indicator of the subject's feelings and attitudes. As a portrayal of the inner self, the concept of self-portrait may be extended far beyond the literal portrait. In a very broad yet very substantial sense, every drawing, regardless of its content, may be considered a self-portrait (Kinget, 1952, p. 55).

In the more limited sense, Kinget regards as self-portrait a drawing

of a figure of the same sex with either physical resemblance or psychological likeness to the artist. The quotation above, however, indicates that Kinget, too, recognizes the broader concept of fantasy though she uses the more limited concept.

To render the fantasy aspect of the drawing completions comparable to the fantasy aspects of the movement responses and thematic responses, only the drawing of human or parts of humans was considered a fantasy response. The responses were scored as fantasy if they met the criteria of human or human detail for the Rorschach test as scored by Beck (1949).

Subjects

The subjects consisted of 511 University of Oklahoma male and female undergraduate students enrolled in low number English, Psychology and Education classes. Only whole classes were used. Students in low number courses represent a broad cross section of university students representing varied interests and scholastic aptitudes and a low level of technical sophistication. Because intact classes were used, the sample may not be considered as truly random.

Education English and Psychology classes were used for the slow writing condition, Education and English classes for the tension and control conditions, and Education classes for the inhibition condition. Thus there is some possibility of bias particularly in the inhibition condition. The likelyhood of such bias, however, is remote in view of the apparent insensitivity of the inhibition-fantasy relationship to the wide variety of variables discussed in chapter I.

Students in these classes are assigned on the basis of times open in

their schedule rather than on the basis of their specific skills or pre-requisites. Thus the probability of bias from one English class to another or from one Education class to another is low.

Therefore, it is assumed that the classes from which the subjects were used are an essentially representative sample of low course number classes in a large state university population.

The sample used consisted of three experimental and one control group. The slow-writing group had 140, the inhibition group 128, the tension group 104, and the control group 139 subjects.

Inhibition Task

The criteria for inhibition were operationally defined by the task. To evaluate inhibition per se (self-restraint) as a stimulus to fantasy, the task must be low in arousal and sustenance of tension. Relatively few inhibitions are low in tension arousal. Most inhibition also involves frustration. The task selected required the cooperation of the subject. The subjects were asked to close their eyes and mentally form a picture of a blackboard on which was printed the phrase, "DON'T THINK." They were urged to suppress all other thoughts or mental images and keep only the suggested picture in mind. The requirements of the task were reiterated throughout a six minute inhibition period. (See Appendix E for specific instructions).

Tension Task

The criteria for the tension task were also operationally defined by the task. Evaluation of tension arousal and sustenance per se as a stimulus to fantasy required that the task have low requirements for self-restraint.

The tension task used exploits a failure experience induced by poor performance on a task purported to be highschool intelligence test. The task required the subject to unscramble six scrambled sentences four of which were relatively simple and two of which were insoluable.

The use of pseudo-intellectual tests with built in failure components has been successfully used in other studies as a means of inducing stress, tension, or anxiety (Hahn, 1955; Lowe, 1961). The use of pseudo-intellectual tests for tension arousal in this investigation thus seemed warranted.

The front page of the test booklet, in addition to standard identification data asked for highschool grade average to the nearest letter grade and last semester college grade average to the nearest letter grade. These questions were calculated to strengthen the subjects' sensitivity to their comparison with highschool students and to the "intelligence test" nature of the tasks. (See Appendix E for specific instructions).

Slow-writing Task

The inhibition and the tension tasks represented a deviation from the type of situations used as "inhibition" in most previous studies. Separation of previously used criteria of inhibition into component parts may rob the tasks of combinations of factors necessary for the stimulation of fantasy. For the effective evaluation of graphic expression as a medium of fantasy expression an established fantasy stimulus was deemed necessary. Therefore a third experimental condition was used: the slow-writing task used in numerous previously cited investigations (Litwin, 1959; Meltzoff and Levine, 1954; Meltzoff, et al, 1953; Neel, 1960; Singer, and Herman, 1954; Singer and Spohn, 1954; Singer, et al, 1956; Spivack, Levine, Fuchillo and Tavernier, 1959) was used as the established fantasy stimulus.

The slow-writing task was presented on a mimeographed paper on which were the instructions, the sentence to be copies and two horizontal parallel lines one-half inch apart. Below the instructions was the sentence: New Jersey Chamber of Commerce. Below the sentence were the parallel lines. The instructions were reiterated throughout the six minute time limit. (See Appendix E for specific instructions).

Control Group

The control group was given the Kinget Drawing-Completion Test without any preliminary experimental conditions. This group established a base-line from which to determine whether the drawings elicited under the experimental conditions were a product of chance or of the treatments. See Appendix E for specific instructions).

Drawing-Completion Test

Immediately following each of the experimental conditions, the subjects were given the Kinget Drawing Completion Test. They were instructed that they would be given eight beginnings of drawings. Their job was to complete them as they saw fit. There being no right or wrong answers or completions they could complete them in any way or order they chose. They were to number the drawings in the order in which they did them. After completing all drawings they were to write the numbers one through eight at the bottom of the page, identify what they had drawn, and give a title for each of the eight drawings. (See Appendix E for specific instructions).

Criteria for Scoring Fantasy

The Kinget drawings were scored in accordance with specific written

criteria designed to adapt the Beck (1949) system of Rorschach scoring of human and human detail content to the Kinget test. (See Appendix B). Three judges independently scored each Kinget form for total number of human and human detail drawings and recorded their judgments on different tally sheets. With this form of scoring, no judge was able to influence the scoring of any other judge. The Kinget drawings from each of the four conditions were given a coded identification number. The Kinget forms were placed in numerical order which represented a systematic mixing of the forms from each of the four conditions. The judges were thus not aware of the research condition from which any specific drawing came.

One judge was preselected as the criterion judge and the scores of the other two judges compared with his as a check on the reliability of the scoring system. Since there were eight beginnings of drawings on the Kinget test, the subjects' scores ranged from zero to eight.

CHAPTER IV

RESULTS

The score for each subject was that given by the criterion judge (a). The reliability of the scoring system was determined by Product-Moment Correlation (Guilford, 1942, pp 202f) between judges (a), (b), and (c) on 100 randomly selected cases. The r between judges (a) and (b) was .99; between judges (a) and (c), .99; and between judges (b) and (c), .97. In spite of the limited variability of the scores, inspection of the distributions and the high correlations between judges lend confidence in the reliability of the scoring system. Only judge (a)'s scores were used.

Since the distribution of scores was highly skewed, thus inappropriate for test by parametric statistics, the data were dichotomized into high and low fantasy production and tested by Chi Square. A test of the differences between proportions using a correction for discontinuity (Edwards, 1962) was applied to appropriate pairs of conditions for testing the hypotheses. A probability of .05 or less was accepted as the criterion of statistical significance.

The criterion level for Kinget productions high in fantasy (fantasy) or low in fantasy (no fantasy) was the median score for human or human part drawings for the entire sample, rounded to the nearest whole number. Scores above the median were classified as fantasy. The median score for the entire sample, using the criterion judge's scores, was .98 human or

human part drawings. When rounded to the nearest whole number, the median fantasy score became 1.0.

Table 1 presents the Chi Square analysis of the four conditions used in this investigation.

Table 1

Chi Square Analysis of Frequency of Fantasy Under Four Experimental Conditions

	Tension	Control	Inhibition	Slow Writing	Total	%
No Fantasy	65 (52)	78 (70)	57 (65)	60 (71)	260	50.4
Fantasy	39 (52)	61 (69)	71 (63)	80 (69)	251	49.6
Total	104	139	128	140	511	

Note--Numbers in parentheses represent theoretical frequencies
Chi Square equals 13.801
df equals 3
P equals .01

Since a Chi Square of this magnitude would be expected to occur less than one in 100 times in chance data, it is assumed that the difference between observed and theoretical frequencies is due to exprimental treatments.

Table 2 presents the sample size, and percentage of subjects exceeding the fantasy criterion for each of the four conditions and the sample as a whole.

Inspection of Table 2 reveals smaller percentages of high fantasy production for tension and control than for inhibition and slow-writing. These observations suggest that inhibition and slow-writing have similar

stimulating effects on fantasy production and that these values tend to be higher than those of either the tension or the control condition. The tension and control conditions seem to function similarly in relation to fantasy production.

The tests of hypotheses will follow the order in which the hypotheses were presented in Chapter II. The criterion of significance will be the five percent level of confidence.

Table 2

Descriptive Statistics for the Four Conditions and the Total

Research Condition	n	% Fantasy
Tension	104	37.5
Control	139	43.9
Inhibition	128	55.5
Slow-writing	140	57.2
Total	511	48.5

Hypothesis 1

The first hypothesis concerns the generality of the fantasy concept in the inhibition-fantasy relationship. Human and human part productions on the Kinget Drawing Completion Test were used as graphic expression of fantasy to represent a generalization of the previously used fantasy tasks. The slow-writing task was used as an inhibition task to stimulate fantasy. Significantly lower frequencies of fantasy production for control subjects having no prior condition when compared with experimental subjects having the slow-writing task prior to the fantasy task would support the theoretical hypothesis and reject the null hypothesis. Results are shown in Table 3.

A z of 2.21 is highly significant thus rejecting the null hypothesis and supporting the hypothesis that the fantasy stimulating effects of such an inhibition task as slow-writing are applicable to a broader interpretation of fantasy than has heretofore been demonstrated. Since a z of this magnitude would be expected to occur less than one in 100 times in chance data, the obtained differences between proportions are assumed to be due to the experimental treatments.

Table 3

Test for Proportions [a] Between Control and Slow-writing Groups with Correction for Discontinuity

(N-279)

Research Condition	n	Proportion	SE Difference
Slow-writing	140	.568	.057
Control	139	.442	

z = 2.21
p = .014 (one tailed test)

[a] Edwards (1962, p. 51).

Hypothesis 2

The second hypothesis was designed to evaluate the sufficiency of inhibition per se as a stimulus to fantasy. A condition calculated to be high in inhibition and low in tension arousal was used. On the basis of theory, level of fantasy production in an inhibition group would be expected to be significantly higher than in a control group with no prior experimental condition. Table 4 presents the findings of the test for proportions between the control and inhibition groups.

Table 4

Test for proportions Between Control and Inhibition Groups with Correction for Discontinuity

(N-267)

Research Condition	n	Proportion	SE Difference
Control	139	.442	.061
Inhibition	128	.551	

z = 1.79
P - .037 (one tailed test)

As shown in Table 4, a z of 1.79 is significant thus the null hypothesis is rejected. The hypothesis that inhibition per se is a sufficient condition for the stimulation of fantasy is supported. A z of this magnitude would be expected to occur in chance data less than four in 100 times. Thus the obtained differences between groups are assumed to be due to the experimental treatments.

Hypothesis 3

The third hypothesis was designed to evaluate the effects of a high-tension low-inhibition situation on the stimulation of fantasy production. On the basis of the theory and reasoning presented in Chapter 1, a difference was expected between the frequencies of fantasy produced by the experimental group having a tension task prior to the Kinget and a control group having no experimental condition prior to the Kinget. The direction that the differences could be expected to take was not predicted. Table 5 represents the findings of the test for proportions between groups.

A z of .92 is not significant thus the null hypothesis is accepted and the hypothesis of a difference in fantasy production between the ten-

sion and control groups is rejected. The obtained differences between the groups may reasonably be expected to be a function of chance.

Table 5

Test for Proportions Between Control and Tension Groups with Correction for Discontinuity

(N-243)

Research Condition	n	Proportion	SE Difference
Control	139	.435	.064
Tension	104	.376	

z = .92
P = .358 (two tailed test)

Summary

All hypotheses were evaluated by a test for proportions with the following results:

1. There was a significantly greater frequency of fantasy production of the Kinget test in an experimental group which had the slow-writing task immediately before the Kinget than in a control group which had no preliminary experimental condition.

Therefore hypothesis 1 was rejected thus supporting the generality of the fantasy aspects of the inhibition fantasy relationships.

2. There was a significantly greater frequency of fantasy produced in a group which had a high-inhibition low-tension task immediately before the fantasy task than in a control group which had no experimental task prior to the fantasy task.

Therefore hypothesis 2 was rejected, confirming the sufficiency of inhibition per se as a stimulus to fantasy. Rejection of this hypothesis supports the idea that interaction of tension with fantasy is not a

necessary condition for stimulation of fantasy in the inhibition-fantasy relationship.

3. There was no significant difference in frequency of fantasy produced between a group which had a high-tension low-inhibition task immediately before the fantasy task and a control group which had no experimental condition prior to the fantasy task.

Therefore hypothesis 3 was accepted thus failing to demonstrate a relationship between tension per se and fantasy in the inhibition-fantasy relationship.

The findings of this study are entirely consistent with what would have been predicted on the basis of the psychoanalytic theory that inhibition stimulates increases in fantasy. The lack of significant differences between the tension condition and the control condition is also consistent with the psychoanalytic theory.

CHAPTER V

DISCUSSION

In the last chapter results were presented confirming a hypothesis that fantasy, as used in inhibition-fantasy theory, may be generalized beyond the perception of apparent motion, M to inkblots, and projections to the TAT. A second hypothesis, proposing that low-tension high-inhibition situations were a sufficient condition for the stimulation of increased production of fantasy, was also confirmed. A third hypothesis, dealing with the effects of a high-tension low-inhibition situation on fantasy productivity was not confirmed. The results for the third hypothesis were interpreted as reflecting an absence of demonstrated effect of the tension condition on productivity of fantasy. A discussion of these results and the methods employed in this research follows.

Subjects

Since the subjects used in this study were all enrolled in low number English, Education, and Psychology classes and whole classes were used, the assumption of lack of technical sophistication seems reasonable. In the introduction evidence was presented to indicate that sex and mental status do not affect the relationship between inhibition and fantasy. Intelligence was suggested as a possible variable in previous research relating to the reverse-N of the Digit-Symbol Test but in no other of the reviewed

investigations. Since the subjects used in the current research were all college students, it is reasonable to assume that intelligence was not a major variable. Age has been clearly identified as a variable of importance in the proposed effect of inhibition on fantasy. Most of the studies employing children and adolescents have failed to achieve significant findings. The results of previous investigators, however, have demonstrated that college students are of sufficient age or maturity to manifest the purported effects of inhibition on fantasy productions. Thus, age is not regarded as a variable of significance in the present study. In general, the sample used seems to reasonably represent a population of lower classmen in a large state university. On the basis of the relative insensitivity of the inhibition-fantasy relationship to a wide range of variables in adults, the sample may well be representative of a much larger, less restricted population.

The Generality of Fantasy

The results of this experiment support the hypothesis that the fantasy concept in the inhibition-fantasy relationship may be extended to include fantasy expressed through the graphic arts. Although these findings may not be generalized to imply that all forms of fantasy would be similarly effected by inhibition, the findings lend support to that generalization.

The expression of fantasy in the graphic arts is by no means limited to the drawing of human parts, the criterion used in this study. Human and human part drawings were used to provide a basis of comparison with previous research. A useful question for research centers around the

specific effects of inhibition on fantasy expressed in other graphic art forms.

The effects of inhibition on completely spontaneous drawings (drawings with no "beginning" to stimulate the subject of the experiment), on drawings of an architectural sort, drawings in which the content is specified such as in the Draw A Person Test, and others are to some degree a matter of conjecture. Although it is probably reasonable to assume that inhibition would stimulate the expression of fantasy in these related graphic forms there remains no certainty.

The findings of this study permit new hypotheses to be raised. Since fantasy is sometimes regarded as an extension beyond objective reality and a manifestation of subjectivity, what would be the effects of inhibition on accuracy of reproduction. For example, could a person recently subjected to an inhibition situation be expected to be less accurate in his reproductions to the Bender-Gestalt Test? If so, would this principle apply to the literary, the dramatic, and other areas of fantasy expression?

In the Introduction fantasy was described as a poorly defined concept sometimes implicitly defined by the operations involved in its manifestation. The hypothesis under discussion was designed to extend the applicability of the fantasy concept in the inhibition-fantasy relationship beyond that which previous findings have justified. Confirmation of this hypothesis lends credence to generalization of the fantasy concept as it applies to the inhibition-fantasy relationship. Keeping in mind the limitations discussed in the above paragraphs, one wonders how frequently clinical drawings are affected by immediately preceding experiences of the client. Since previously discussed studies have demonstrated that persons

with generally inhibited behavior tend to score high in fantasy production tasks, one wonders to what extent these characteristics are manifested in clinical drawings, particularly those of people. Perhaps future research will demonstrate fantasy production to be of predictive value in estimating degree of generalized inhibition in clients. This last speculation in particular needs further scientific investigation.

As discussed in preceding chapters, the psychoanalytic ego-control theory clearly implies that any kind of inhibition can stimulate production of any kind of fantasy. In contrast, the Sensory-Tonic theory clearly implies that the fantasy stimulated by inhibition is a substitute for the inhibited activity. Sensory-Tonic research has employed only situations in which the fantasy content could represent the content of the inhibited activity, e.g., fantasy of motion as a substitute for motor inhibition. The findings of this study do not offer support for a narrow interpretation of the "substitution" aspect of the Sensory-Tonic theory. These findings do unquestionably support the "generality" aspect of the psychoanalytic theory. Thus the confirmation of hypothesis one, the "generality of fantasy" hypothesis, supports the psychoanalytic and does not support a narrow interpretation of substitution theory regarding the role of fantasy in the inhibition-fantasy relationship.

Inhibition Per Se and Fantasy

Hypothesis two was designed to test the sufficiency of inhibition per se as a stimulus to fantasy production. Review and examination of the literature had revealed that in previous investigations the conditions used for inhibition did not take into account the tension involved in

most inhibition situations. An attempt was made to construct an inhibition condition in which tension was minimal and inhibition was predominant. A relaxation, thought-inhibition situation was used. The statistical test of this hypothesis yielded significant results in the expected direction.

The significance of the findings depends on the degree to which the inhibition condition did, in fact, generate a state of inhibition relatively free of tension. The nature of the task is by definition inhibition. Freedom from tension is the issue. Anticipating this issue, a questionnaire was administered after the inhibition condition. Evaluation of the questionnaire revealed that not all of the subjects understood its intent. Some few subjects responded to the questionnaire in terms of the fantasy task rather than the inhibition task. One subject did not answer the questionnaire at all. Reactions were obtained for 128 of the 129 subjects used in this condition.

Of the 128 respondents, 95, or 74% answered "no," to the question: While attempting to suppress all thoughts but the words "DON'T THINK," did you find yourself getting tense or wound up? "Yes" responses were given by 29, or 22%, and write-in responses were given by 4, or 3%, of the subjects. Many of the subjects wrote apologies to the investigator for not being successful in suppressing all thoughts but the one suggested. These apologies were frequent both among subjects reporting that they were tense and those reporting that they were not tense. Many of the subjects in the "tense" group stated that they had difficulty staying awake. In view of these subjective reports it seems reasonable to assume that 74% of the subjects in the inhibition condition were relatively free from tension and that an additional, undetermined number in the "tense" group were

relaxed to the point of nearly falling asleep but apprehensive about not being able to comply with the investigator's request. These subjective reports are interpreted as supportive of the low-tension quality of the inhibition condition.

Frustration at being unable to comply with instructions or conform to request seemed to be present to a limited degree in the inhibition condition. Although frustration of any form would be included in the broad definition of tension used in this study, the degree manifested in this condition seems to be sufficiently low to justify the conclusion that inhibition was the dominant variable and that tension was very limited.

Tension and Fantasy

Hypothesis three was designed to test for effects of tension on fantasy. Since previous investigations provided no clear indication of the direction the effects of tension might take, no direction was predicted in the hypothesis. Review of the works of other investigators and theorists revealed support both for the prediction that tension would stimulate increases and the prediction that it would stimulate decreases in fantasy. Most investigators failed to regard tension as a significant variable thus made no attempt to evaluate its effects.

As used in this investigation, tension was described as, "a broad range of feelings including such states as frustration, anxiety, anger, anticipation, threat to self esteem, etc." It was further stated that "the term tension is not intended to represent a narrow or specific concept but rather to incorporate that group of usually unpleasant states which might be expected to accompany the kinds of inhibition tasks used in most of the previous studies."

The statistical test in hypothesis three failed to support the notion that there is a difference in fantasy production between subjects who have submitted to a high-tension low-inhibition condition and subjects who have had no experimental condition prior to the fantasy task.

The validity of these findings depends in part on the degree to which the subjects in the tension condition were in fact tense, and not inhibited. The nature of the experimental task was such that, by definition, the subjects were not experimentally inhibited. Anticipating this issue, a questionnaire was administered after the tension condition. As with the inhibition questionnaire, not all subjects understood that the questionnaire referred to the tension condition thus some responses were obviously a references to the fantasy task. Answers to the questionnaire, however, do indicate that most subjects were tense.

The tension subjects were asked to "check the adjective best describing how you felt at the end of the time limit on this task." The adjectives were: Confident, Tense, Depressed, Relexed, Frustrated, other (write in). In addition they were asked to indicate whether they felt they had done: excellent, fair, or poor. They were asked for their written subjective reactions during and after the task. Of a total of 104 subjects, 53 checked tense, depressed or frustrated. Fifteen of those writing in for other gave negative comments such as "rushed," disappointed in myself," "I did poorly," etc. Of the 28 checking relaxed, three wrote in negative comments and 15 indicated that they felt they had done poorly. Thus 83% of the subjects taking the tension condition indicated to some degree the presence of tension as it was defined in this investigation. This finding is taken to confirm the arousal of tension in the ten-

sion condition.

Since the frequency of fantasy production in the tension group was slightly lower than that in the control group, the question is raised, how much unpredicted tension was present in the control group? The design of the tension condition and the investigator's observation of subjects' response while participating in each condition, supports the assumption that real differences in degree of tension did exist between the two groups. Thus, as small a difference in fantasy production as was observed between the tension and control groups cannot safely be interpreted as anything but chance.

According to psychoanalytic theory (Rappaport, 1951b) delay of gratification (inhibition) results in a conservation of energy the excess of which is discharged through fantasy channels in the form of thinking, planning, daydreaming, hallucinatory wishfulfillment, etc. On the basis of psychoanalytic theory, tension not accompanied by inhibition would have no expected effect on fantasy. Thus the findings relevant to hypothesis three tend to be supportive of the psychoanalytic theory of inhibition and fantasy.

Silberer (1951) indicated that under conditions of psychological fatigue or insufficiency the mental processes would become more concrete and pictorial. On the basis of his position, tension would have been expected to increase the production of graphically expressed fantasy. Such was not the case. This research fails to demonstrate a stimulating effect of tension on productivity of graphic fantasy. Therefore Silberer's position is not supported if human and human part drawings in an unstructured drawing task are a reflection of productivity of graphic fantasy.

Piotrowski stated that subjects "conscious attention to their own mental processes" (1960, p. 137) stimulates some subjects to give more complete Rorschach records including production of M. Translating his remarks to the present experiment one might expect an increase in productivity in drawings, including those of humans and human parts, under conditions of increased self awareness. The experimental conditions in this study were composed of stimuli consistent with those of the previous studies to which Piotrowski referred. Increase in self awareness, as used by Piotrowski, would be stimulated by all three of the experimental conditions used in this study and porbably most by the tension condition. The findings of this study indicate, however, that increased self awareness if it did accompany the tension condition, did not increase productivity in drawings. Piotrowski's position, therefore, is not supported by these findings.

The lack of significant differences between the tension and control conditions has been reviewed and interpreted as generally supportive of the psychoanalytic theory of inhibition and fantasy. The lack of differences has been interpreted as failing to support the Sensory-Tonic theory, Silberer's theories, or Piotrowski's theories. In addition, the finding fails to support the tension-release theory developed in Chapter 1 of this paper.

Implications for Further Research

In the foregoing paragraphs, a number of implications for further research have been pointed out. In regard to the generality of fantasy, further research is needed for confirmation of the probable stimulating

effects of inhibition on productivity of fantasy in spontaneous drawings, specific content drawings such as architecture or the Draw A Person Test, and other graphic forms such as painting.

Research on the effects of inhibition on accuracy of reproduction is indicated. Exploration of the effects of inhibition of fantasy expressed through such media as the dramatic, the literary, and other areas of self-expression and creativity would further clarify the generality of the fantasy aspect of the inhibition-fantasy relationship. Such research could conceivably make possible the development of scientifically supported theories of stimulation of creativity and productivity. The implications of these findings weigh heavily on the interpretation of clinically obtained drawings interpreted as reflections of long range personality characteristics.

In the interpretation of the second and third hypotheses questions were raised regarding differing implications for different qualities of tension. Is tension reflected in anger equivalent to tension reflecting frustration at an external object or to that generated in guilt or sense of failure? If there are meaningful differences in kinds of tension, perhaps there are differences in its effects on production of fantasy.

In this chapter, the findings of the tests of hypotheses have been discussed in relation to theory and methodology. In general the findings have been supportive of the psychoanalytic ego-control theory of the inhibition-fantasy relationship. Sensory-Tonic theory, Silberer's theory of stress yielding pictorial and concrete mental imagery, and Piotrowski's theory of increased self awareness stimulating increases in productivity were not supported although not clearly rejected.

CHAPTER VI

SUMMARY

In recent years, numerous studies have been undertaken in an effort to evaluate and demonstrate a hypothesized stimulating effect of inhibition on productivity of fantasy. Previous studies have demonstrated beyond a reasonable doubt that certain conditions of inhibition stimulate productivity of fantasy through at least a limited number of different fantasy media. The criteria of fantasy used in previous studies were of sufficiently narrow range as to render broad interpretation of the phenomenon unsafe.

In the present study an attempt was made to extend the interpretive significance of the inhibition fantasy relationship by employing a criterion of fantasy representing a different medium than those used in previous studies of the hypothesized relationship. The medium of fantasy selected was the graphic arts. Within this medium, the drawing of more than the median number of human part drawings in a projective drawing completion test was used as the criterion of fantasy.

In addition to the question of the generality of the fantasy aspect of the inhibition-fantasy relationship, a second question was raised for study. The second question dealt with an evaluation of two of the component parts of the conditions previously used to induce inhibition. Review of previous research revealed that substantial components of both

inhibition and tension were involved in the conditions employed for arousal of inhibition. No attempt had been made to separately evaluate the effects of these component parts in the inhibition-fantasy context. In the present investigation two conditions, one characterized by high-inhibition low-tension and the other characterized by high-tension low-inhibition, were used. Each of these conditions was evaluated separately for its effect on the stimulation of productivity of fantasy.

A total of 511 college students were assigned by intact classes to one of four research conditions. In the first condition, the control condition, the subjects were given a fantasy task with no prior experimental condition. In the second condition, the slow-writing condition, the subjects were given the fantasy task after having been required to write a short sentence as slowly as possible while under repeated urging to "slow down." In the third condition, the inhibition condition, the subjects were given the fantasy task after a period of physical relaxation accompanied by instruction and urging to keep all thoughts from their mind but the words "DON'T THINK." In the fourth condition, the tension condition, the subjects were given the fantasy task after having been subjected to an impossible intellectual task administered under conditions of high pressure.

The suitability of the fantasy aspect of the inhibition-fantasy relationship for more general interpretation, particularly in the area of the graphic arts, was evaluated through the use of the slow-writing task. The slow-writing task is an inhibition condition frequently used in previous studies of inhibition and fantasy. The findings of this investigation indicate that inhibition as reflected in the slow-writing task does stimulate productivity of fantasy as reflected in human and human part drawings in the drawing com-

pletion task used. Therefore, it is concluded that the interpretation of the fantasy aspect of the inhibition-fantasy relationship may be generalized beyond the limited media of fantasy previously employed. More specifically, interpretation may be generalized to include the graphic arts at least insofar as human and human part drawings are representative of fantasy expression in the graphic arts.

The effect of inhibition per se on productivity of fantasy was evaluated through the use of a high-inhibition low-tension condition. The findings of this investigation indicate that inhibition as reflected in the high-inhibition low-tension condition does stimulate productivity of fantasy as reflected in human and human part drawings in the drawing completion task used. The effect of tension, on productivity of fantasy was evaluated through the use of a high-tension low-inhibition condition. The findings of this experiment fail to demonstrate that the effects of tension as reflected in the tension task differ significantly from those of a control group. Therefore, it is concluded that inhibition is a sufficient condition for stimulation of increase in productivity of fantasy and tension is not.

The findings of this study are interpreted to be supportive of the psychoanalytic ego-control theory regarding the effects of inhibition on stimulation of fantasy production. Reasoning from this analytic theory leads to the prediction that inhibition stimulates productivity of fantasy and that tension would not be predicted to influence productivity of fantasy.

The findings herein reported do not support aspects of the Sensory-

Tonic theory of inhibition and fantasy. In the Sensory-Tonic theory the tnesion condition would have been expected to have an effect on productivity of fantasy. Reasoning based on Silberer's theories and those of Piotrowski would lead to the prediction that the tension condition should stimulate increases in production of fantasy. The Sensory-Tonic, Silberer, and Piotrowski theories fail to find support in the results of this experiment.

In conclusion, this study has demonstrated a greater generality in the fantasy aspect of the inhibition fantasy relationship than has heretofore been justified. Inhibition per se has been demonstrated to be a sufficient condition for the stimulation of increases in fantasy production. Tension has not been demonstrated to be a sufficient condition for the stimulation of increases in fantasy production. And the psychoanalytic ego-control theory of the relationship between inhibition and fantasy has been supported.

REFERENCES

Abt, L.E. A theory of projective psychology. In Abt, L. E., and Bellak, L. (Ed) Projective psychology. New York: Alfred A. Knopp, Inc., 1950.

Beck, S. J. Rorschach's Test I: Basic processes. New York: Grune & Stratton, 1949.

Beck, S. J. The Rorschach Test: a multi-dimentional test of personality. In Anderson, H. H., & Anderson, Gladys L. (Ed) An introduction to projective techniques. Englewood Cliffe, N. J.: Prentice-Hall, 1951.

Bleuler, E. Austistic thinking. In Rappaport, D. Organization and pathology of thought. New York: Columbia University Press, 1951.

Bellak, L. On the problems of the concept of projection. In Abt, L. E., & Bellak, L. (Ed) Projective psychology. New York: Alfred A.

Edwards, A. L. Experimental design in psychological research: Holt, Rinehart and Winston, New York, 1960.

Egar, R. E. Relation of Rorschack movement and color responses to cognitive inhibition. J. consult. Psychol., 1960, 24, 276.

Eichler, R. M. Experimental stress and alleged Rorschach indexes of anxiety. J. abnorm. soc. Psychol. 1951, 46, 344-355.

Fenichal, O. The psychoanalytic theory of neurosis. New York: W. W. Norton & Co., 1945.

Federn, P. Ego psychology and the psychosis. New York: Basic Books, 1952.

Freud S. The interpretation of dreams. In Brill, A. A. (Ed) The basic writings of Sigmund Freud. New York: Randon House, 1938.

Freud, S. A general introduction to psychoanalysis. New York: Perma Giants, 1949.

Freud, S. Formulations regarding the two principles of mental functioning. In Rappaport, D. Organization and pathology of thought. New York:

Columbia Univ. Press, 1951.

Freud, S. Collected papers. Vol. 4. London: Hogarth Press, 1953, 13-21.

Goldman, A. Studies in vicariousness: degree of motor activity and the autokinetic phenomenon. J. Psychol., 1953, 66, 613-17.

Goldman, A., & Herman, J. The effect of prolonged immobilization upon the perception of human and animal movement in the Behn-Rorschach plates. 1950. Cited by Singer, J., Meltzoff, J., & Goldman, A. Rorschach movement responses following motor inhibition and hyperactivity. J. consult. Psychol., 1952, 16, 306 ff.

Guilford, J. P. Fundamental statistics in psychology and education. New York: McGraw-Hill, 1942.

Hahn, I.N. The effects of success and failure experiences on chronic schizophrenic patients. Unpublished doctoral dissertation, University of Oklahoma, 1955.

Hartmann, H. Comments on the psychoanalytic theory of the ego. In Psychoanalytic study of the child. Vol. 5. New York: International University Press, 1950, 74-96.

Hartmann, H., Kris, E., & Lowenstein, R. Comment on the formation of psychic structure. In Psychoanalytic study of the child. Vol. 2. New York: International University Press, 1947, 11-38.

Henry, W. E. The analysis of fantasy. New York: John Wiley & Sons, 1956.

Jones, E. The life and work of Sigmund Freud. Vol. 1. New York: Basic Books, 1953.

Kinget, Marian, The Drawing Completion Test: A projective technique for the investigation of personality. New York: Grune & Stratton, 1952.

Krus, D.M., Werner, H., & Wapner, S. Studies in vicariousness: motor activity and perceived movement. Amer. J. Psychol., 1953, 66, 603-608.

Levine, M., Glass, H., & Meltzoff, J. Inhibition process, movement response and intelligence. J. consult. Psychol., 1957, 21, 41-45.

Levine, M., & Meltzoff, J. Cognitive inhibition and Rorachach human movement responses. J. consult. Psychol., 1955, 20, 119-112.

Levine, M., Spivack, G., & Wight, B. The inhibition process, Rorschach human movement responses and intelligence: some further data. J. consult. Psychol., 1959, 23, 306-312.

Lewin, K. A dynamic theory of personality. New York: McGraw-Hill, 1935.

Litwin, Dorothy. Sensory Tonic theory as related to the development of inhibition and social maturation. 1957. Cited by Spivack, G., Levine, M., Fuschillo, Jean., and Tavernier, Ann. Rorschach movement responses and inhibition processes in adolescents. J. proj. Tech., 1959, 23, 466.

Lowe, A. Individual differences in reaction to failure. J. abnorm. soc. Psychol., 1961, 62, 303-308.

Machover, Karen. Personality projection in the drawing of the human Figure. Springfield, Ill.: Charles C. Thomas, 1949.

Meltzoff, J. Personal communication, March, 1960.

Meltzoff, J., & Levine, M. The relationship between motor and cognitive inhibition. J. consult. Psychol., 1954, 18, 355-358.

Meltzoff, J., & Litwin, Dorothy. Affective control and Rorschach human Movement responses. J. consult. Psychol., 1956, 20, 463-465.

Meltzoff, J. Singer, J., & Kochin, S. Motor inhibition and Rorschach movement responses; A test of the sensory tonic theory. J. Pers., 1953, 21, 400-410.

Murphy, G. Personality: A biosocial approach to origins and structure. New York: Harper & Brothers, 1947.

Neel, Ann F. Inhibition and perceptionoof movement on the Rorschach. J. consult. Psychol., 1960, 24, 224-230.

Piaget, J. The language and thought of the child. New York: Harcourt & Brace, 1932.

Piotrowski, Z.A. The movement score. In Rickers-Ovsiankina, Maria A. (Ed) Rorschach psychology. New York: John Wiley & Sons, 1960.

Rappaport, D. On the psychoanalytic theory of thinking. Int. J. Psychoanal., 1950, 31, 161-170.

Rappaport, D. A conceptual model of psychoanalysis. J. Per., 1951, 20, 56-81. (a)

Rappaport, D. Organization and pathology of thought. New York: Columbia University Press, 1951. (b)

Rorschach, H. Psychodiagnostics. New York: Grune & Stratton, 1942.

Siipola, Klsa, & Taylor, Vivian. Reaction to inkblots under free and pressure conditions. J. Pers., 1952, 21, 22-47.

Silberer, H. On symbol formation. In Rappaport, D. (Ed) Organization and pathology of thought. New York: Columbia University Press, 1951.

Singer, J. The experience type: Some behavioral correlates and their theoretical implications. In Rickers-Ovsiankina, Maria A. (Ed.) Rorschach psychology. New York: John Wiley & Sons, 1960.

Singer, J., & Herman, J. Motor and fantasy correlates of Rorschach human movement responses. J. consult. Psychol., 1954, 18, 325-331.

Singer, J., Meltzoff, J., & Goldman, A. Rorschach movement responses following motor inhibition and hyperactivity. J. consult. Psychol., 1952, 16, 359-364.

Singer, J., & Spohn, H. Some behavioral correlates of Rorschach experience type. J. consult. Psychol., 1954, 18, 1-9.

Singer, J., Wilensky, H., & McGraven, Vivian G. Delaying capacity fantasy and planning ability: A factorial study of some basic ego funtions. J. consult. Psychol., 1956, 20, 375-383.

Spivack, G., Levine, M., Fuschillo, Jean, & Taverier, Ann. Rorschach movement responses and inhibition processes in adolescents. J. proj. Tech., 1959, 23, 462-466.

Spivack, G., Levine, M., & Sprigle, H. Intelligence test performance and the delay function of the ego. J. consult. Psychol., 1959, 23, 428-431.

Thetford, W. N. Fantasy perception in the personality development of normal and deviant children. Amer. J. Orthopsychist., 1952, 22, 542-550.

Werner, H. Motion and motion perception: a theory of vicarious functioning. J. Psychol., 1945, 19, 317-327. (a)

Werner, H. Perceptual behavior of brain-injured mentally deficient children. Genetic Psychol. Monographs. 1945, 31, 51-110. (b)

Werner, M., & Wapner, S. Sensory-tonic field theory of perception. J. Pers., 1949, 18, 88-107.

Werner, H., & Wapner, S. Toward a general theory of perception. Psychol. Rev., 1952, 59, 324-338.

Werner, H., & Wapner, S. The non-projective aspects of the Rorschach experiment II: Organismic theory and perceptual response. J. soc. Psychol., 1956, 44, 193-198.

APPENDIX A. DISTRIBUTION OF FANTASY SCORES

Percent Distribution of Subject's Scores for Each Condition and the Total

Judge (a)

Score	Tension	Control	Inhibition	Slow-Writ.	Total
0	17.3	16.3	16.4	12.7	15.5
1	45.1	39.6	28.1	30.5	35.5
2	22.1	24.5	35.9	29.1	28.2
3	10.6	10.8	12.5	14.9	12.3
4	3.8	7.2	2.3	5.7	4.9
5	.0	1.4	3.9	5.0	2.7
6	1.0	.0	.0	.7	.4
7	.0	.0	.0	1.4	.4
8	.0	.0	.8	.0	.2
N	104	139	128	140	511

APPENDIX B. COMPARISONS OF JUDGES (a), (b), and (c)

Scores on 100 Randomly Selected Subjects By Judges (a), (b), and (c)

Subj.	(a)	(b)	(c)	Subj.	(a)	(b)	(c)
2	0	1	0	285	2	2	2
21	3	2	2	289	2	2	2
22	1	1	1	290	2	2	2
29	2	2	2	292	1	1	1
31	2	3	3	298	0	0	0
40	2	2	2	302	0	0	0
43	5	5	5	314	1	2	2
56	2	2	2	328	2	2	2
57	5	5	3	332	1	1	0
60	3	3	3	336	0	0	0
66	2	2	2	341	3	4	3
73	1	1	1	342	2	2	2
77	2	2	2	343	1	1	1
85	3	3	3	344	1	1	1
101	2	3	2	351	1	1	1
103	1	1	1	354	0	2	0
106	1	1	1	355	1	1	1
125	1	1	1	359	1	1	1
132	5	4	4	361	0	0	0
134	4	4	4	365	0	0	0
145	5	5	5	366	2	2	2
148	3	3	3	370	1	1	1
153	2	2	2	378	2	3	3
154	2	3	2	380	1	1	1
161	2	2	2	388	1	1	2
169	4	4	4	401	2	2	2
180	1	1	1	403	2	2	2
182	1	1	1	408	4	4	4
184	1	1	1	416	2	2	2
188	3	3	3	417	4	4	3
190	2	2	2	420	3	3	3
192	2	2	2	423	3	3	3
198	1	1	1	424	1	1	1
200	2	2	2	431	4	4	4
203	2	1	1	434	1	1	1
207	1	1	1	435	1	1	0
209	2	2	2	439	7	7	7
219	0	0	0	450	2	2	2
223	1	1	1	460	2	2	2
228	3	3	3	466	2	2	2
230	1	1	1	468	1	1	1
242	2	2	2	476	1	1	1
251	1	1	1	483	1	2	2
256	3	3	3	484	1	1	1
263	2	2	2	487	1	1	1
270	4	4	4	497	2	2	2
273	5	5	5	498	1	1	1
274	1	1	1	501	1	1	1
281	1	1	1	506	1	1	1
283	2	2	2	516	3	3	3

Product Moment Correlations Between Judges (a), (b), and (c) on 100 Randomly Selected Subjects

Judges		Sum					r_{XY}
X	Y	X	Y	X^2	X^2	XY	
(a)	(b)	190	196	534	550	538	.99
(a)	(c)	190	186	534	511	519	.99
(b)	(c)	196	186	550	511	526	.97

APPENDIX C. INDIVIDUAL SCORES (RAW DATA)

Raw Scores For All Subjects: Judge (a)

Subj.	Score	Subj.	Score	Subj.	Score	Subj.	Score	Subj.	Score
1	2	51	2	101	2	151	2	201	2
2	0	52	1	102	2	152	1	202	1
3	3	53	0	103	1	153	2	203	2
4	2	54	1	104	0	154	2	204	1
5	1	55	2	105	0	155	0	205	3
6	5	56	2	106	1	156	4	206	0
7	0	57	5	107	1	157	1	207	1
8	4	58	0	108	2	158	2	208	0
9	4	59	3	109	0	159	2	209	2
10	1	60	3	110	1	160	1	210	1
11	1	61	3	111	2	161	2	211	3
12	2	62	1	112	1	162	2	212	1
13	2	63	1	113	2	163	0	213	0
14	1	64	1	114	1	164	3	214	1
15	3	65	1	115	1	165	2	215	2
16	4	66	2	116	1	166	2	216	2
17	2	67	0	117	0	167	4	217	2
18	2	68	2	118	1	168	1	218	1
19	3	69	3	119	3	169	4	219	0
20	2	70	2	120	4	170	1	220	2
21	3	71	3	121	-	171	1	221	1
22	1	72	2	122	2	172	3	222	1
23	1	73	1	123	3	173	2	223	1
24	1	74	1	124	2	174	2	224	1
25	1	75	2	125	1	175	2	225	0
26	1	76	1	126	0	176	0	226	2
27	1	77	2	127	1	177	2	227	2
28	1	78	3	128	1	178	1	228	3
29	2	79	2	129	2	179	5	229	1
30	1	80	4	130	3	180	1	230	1
31	2	81	2	131	2	181	1	231	1
32	2	82	3	132	5	182	1	232	4
33	2	83	0	133	1	183	2	233	0
34	2	84	0	134	4	184	1	234	0
35	2	85	3	135	1	185	2	235	1
36	3	86	0	136	0	186	1	236	1
37	1	87	2	137	1	187	2	237	0
38	0	88	4	138	2	188	3	238	1
39	0	89	3	139	0	189	1	239	0
40	2	90	0	140	0	190	2	240	1
41	5	91	2	141	2	191	3	241	1
42	3	92	0	142	1	192	2	242	2
43	5	93	2	143	1	193	2	243	2
44	0	94	0	144	0	194	0	244	0
45	0	95	1	145	5	195	2	245	2
46	4	96	1	146	1	196	2	246	1
47	2	97	3	147	0	197	0	247	1
48	0	98	1	148	3	198	1	248	1
49	1	99	8	149	0	199	2	249	1
50	1	100	1	150	3	200	2	250	2

Raw Scores - Cont. 2

Subj.	Score	Subj.	Score	Subj.	Score	Subj.	Score	Subj.	Score	Subj.	Score
251	1	301	4	351	1	401	2	451	3	501	1
252	2	302	0	352	2	402	1	452	0	502	3
253	1	303	3	353	1	403	2	453	0	503	1
254	2	304	3	354	2	404	1	454	0	504	1
255	0	305	0	355	1	405	3	455	0	505	1
256	3	306	1	356	2	406	2	456	1	506	1
257	2	307	1	357	0	407	2	457	2	507	3
258	1	308	1	358	0	408	4	458	1	508	0
259	5	309	1	359	1	409	2	459	1	509	0
260	1	310	1	360	1	410	3	460	2	510	2
261	5	311	1	361	0	411	3	461	4	511	3
262	3	312	0	362	0	412	2	462	1	512	0
263	2	313	1	363	0	413	2	463	0	513	2
264	2	314	1	364	1	414	0	464	0	514	1
265	3	315	1	365	0	415	2	465	1	515	2
266	0	316	1	366	2	416	2	466	2	516	3
267	3	317	2	367	-	417	4	467	2	517	2
268	3	318	1	368	0	418	1	468	1		
269	4	319	2	369	0	419	3	469	2		
270	4	320	0	370	1	420	3	470	0		
271	4	321	2	371	0	421	4	471	2		
272	1	322	1	372	3	422	2	472	0		
273	5	323	2	373	0	423	3	473	2		
274	1	324	1	374	1	424	1	474	2		
275	1	325	2	375	1	425	3	475	0		
276	0	326	3	376	2	426	1	476	1		
277	1	327	1	377	1	427	5	477	3		
278	1	328	2	378	2	428	0	478	1		
279	2	329	2	379	2	429	4	479	2		
280	2	330	1	380	1	430	1	480	1		
281	1	331	2	381	2	431	4	481	3		
282	3	332	1	382	1	432	3	482	0		
283	2	333	1	383	2	433	3	483	1		
284	1	334	1	384	1	434	1	484	1		
285	2	335	2	385	1	435	1	485	6		
286	3	336	0	386	1	436	3	486	1		
287	2	337	3	387	1	437	1	487	2		
288	2	338	1	388	1	438	2	488	1		
289	2	339	3	389	1	439	7	489	-		
290	2	340	1	390	1	440	3	490	6		
291	2	341	3	391	1	441	2	491	-		
292	1	342	2	392	1	442	0	492	1		
293	3	343	1	393	1	443	5	493	3		
294	-	344	1	394	3	444	0	494	2		
295	0	345	1	395	2	445	5	495	1		
296	1	346	1	396	4	446	2	496	2		
297	7	347	-	397	2	447	1	497	1		
298	0	348	1	398	1	448	2	498	0		
299	5	349	1	399	2	449	2	499	1		
300	4	350	1	400	4	450	2	500			

APPENDIX D. INSTRUCTIONS TO JUDGES

GENERAL INSTRUCTIONS TO THE JUDGES:

Each Kinget has an identification number on the back of the Kinget sheet. The sheets are arranged in numerical order.

Start with Kinget sheet #1 and determine how many Human (H) or Human part (Hd) drawings are present, (make your judgments only on the basis of the criteria given on the sheet titled "Instructions for scoring the Kinget Test). If no H or Hd drawings are present, enter the number "0" in the space next to the ID number 1, on the Tally sheet. If one H and one Hd drawing was made on Kinget sheet #1, the score of "2" would be entered next to ID #1, on the Tally sheet.

Following #51 on the Tally sheet, only every fifth number has been entered. Proceed as though the numbers were there.

In the event that a number in the identification system is missing, leave the corresponding space on the Tally sheet blank.

If you absolutely cannot make up your mind whether or not to score a given drawing, mark down the number on a separate sheet and explain the difficulty. Do not make an entry on the Tally sheet for such undecided cases. There should be no more than a very few, if any such undecided drawings.

Do not show your Tally sheet, share your judgments, or consult with anyone else. I should be the first person to see or hear your judgments.

Do not mark the Kinget forms in any way.

Please use dark #2 pencil.

INSTRUCTIONS FOR SCORING KINGET TEST

Score 1st on the basis of the drawing. If the drawing leaves doubt, use the written comment as verification. Be sure to check the written comment on all drawings.

I. Score 1 for each drawing the content or intent of which includes humans as defined below.

A. Men, women, children.
B. Humans defined by nationality (e.g., a Russian), Historical period (e.g., an ancient); vocation (e.g., a farmer); religion (e.g., a Jew); proper names (e.g., Kennedy); or other similar categories.
C. Human-like forms, e.g., devil, angel, ghosts, witches, goblins, moon-men, etc.
D. Caricatures, cartoons, masks, statues and likenesses of humans, if human in appearance, or behavior, e.g., Donald Duck, Yogi Bear; theatrical masks; Jack-o-lantern, wolf-man.

II. Score 1 for each drawing the content on intent of which includes human parts as defined below.

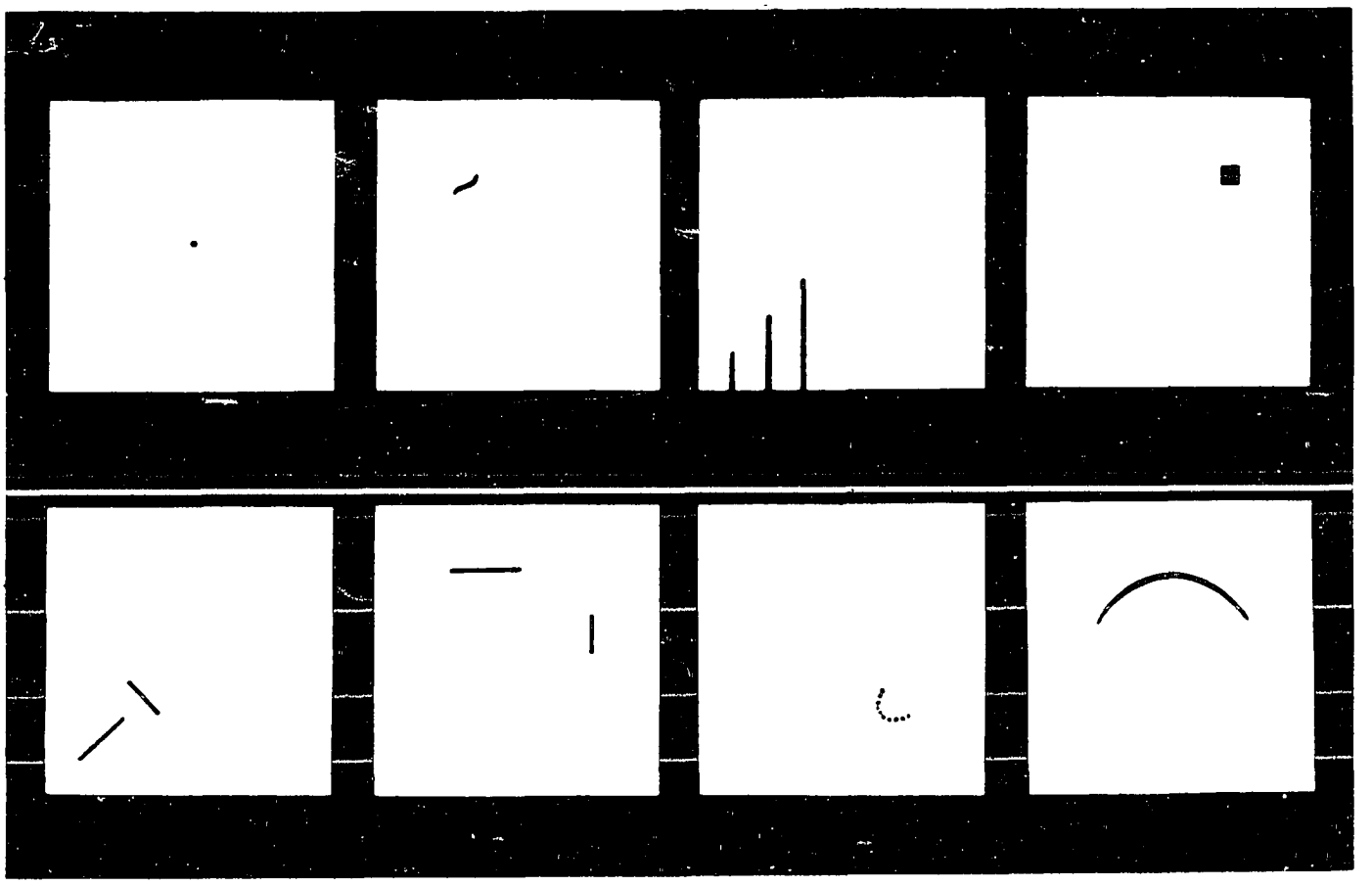
A. Any externally observable part of a human, e.g., human eye, finger, breast, ear, teeth (including dentures), head, face, feet, etc.
B. Clothing being worn by a human, even if the human is not shown, e.g., "a man under a blanket", " a man from top view, only his hat can be seen". Do not include clothing not being worn, e.g., a shoe.
C. Score anatomy responses only if they are clearly drawn or desdribed as being a part of a living or once living human, e.g., a man's heart, stomach, etc. Do not score if they are illustrations, e.g., "pictures from an anatomy book", etc.

III. Score 1 for each drawing that clearly intimates the presence or representation of a human, even if the human is not shown, e.g., "man, an abstraction"; "sexual intercourse, an abstraction", "romantic love", etc.

APPENDIX E. INSTRUCTIONS AND FORMS FOR SUBJECTS

Verbal Instructions: Fantasy Task

"Turn to the sheet that contains eight squares, each with the beginnings of a drawing on it. Your job is to complete them as you see fit. There are no right or wrong completions or answers. You may complete them in any order that you choose but number the drawings in the order that you do them. After completing all drawings write the numbers one through eight at the bottom of the page, identify what you have drawn and give a title for each of the eight completions. For example: (drawing on blackboard) if your first drawing was in the third square and your second drawing in the first square, the drawing in the third square would correspond to the number 1 at the bottom of the page and the first square would correspond to the number 2 at the bottom of the page. Are there any questions? (All questions should be answered in terms of the foregoing instructions). If you have a question during the taking of the task, raise your hand and I will come to you. When you have completed the drawings, numbered them, identified what you have drawn and given a title to each of them, raise your hand and I will pick up your papers. Remember! Use pencils only! Go ahead with the drawings. (Before picking up a paper, check all pages to see that instructions have been carried out completely. Do not dismiss any students until at least half of the papers have been turned in)."



Verbal Instructions: Control Condition

"This is a part of a research project in psychology and education. We are trying to develop some standards or norms for a normal college population. We will use our findings with this group as the normal findings then compare findings in other groups, with special circumstances, with them to find the influence of the special circumstances."

"Please use pencil only! If you do not have a pencil raise your hand and I will give you one, but please return them after the task. (Pass out pencils and Kinget forms, face down). Leave your papers face down for now! Are there any questions so far" (Answer all questions in terms of the instructions given). (The instructions for the Fantasy task are then read to the subjects)."

Verbal Instructions: Tension Condition

"You are participating in a research project in psychology and education. You will be given two tasks to perform: both tasks have to do with the speed, originality and flexibility of your thinking. On both tasks it is important that you use pencils, not pen. If you do not have a pencil, raise your hand, and I will give you one but please return it when we are finished. I am also going to pass out booklets with the tasks in them. Please lay them face down and do not look in them or read them until I instruct you to do so. Who needs a pencil? (Pass out booklets and pencils)."

"We have used these tests with junior and senior highschool students and found them to be reliable measures of learning ability. We are now trying to prove that they may also reliably be used at the college level."

"The first task consists of jumbled or scrambled sentences which you must unscramble. According to our senior highschool studies, these sentences are of about equal difficulty. Each sentence has a correct solution. Capital letters have been purposely omitted. Above each sentence is a title which serves as a clue to the meaning of the completed sentence. Below each scrambled sentence is a blank space in which you are to write the unscrambled sentence as you figure it out."

"Now you should turn your booklets face up and start filling out the information on the front of the sheet. Do not open the booklet! We failed to include this on the first page, but after your name, write in the word male or female, whichever applies."

"At the bottom of the second page is an example: The title for this sentence is, The Cook's Day Off, which suggests that the sentence has to do with something out of the ordinary, perhaps the subject of the sentence doing something ordinarily done by an employee or a person of lesser station. The scrambled sentence reads, stenographer his mister for typing big was. Correctly arranged it reads: mister big was typing for his stenographer. The sentence could also read: his stenographer was typing for mister big. This arrangement, however, would be incorrect in that it is not the best sentence from the standpoint of grammar and does not fit the clue given above."

"In each case, make sure that your unscrambled sentence is a full sentence. Some of the highschool youngsters gave incomplete sentences and this of course was counted wrong. The average student in our highschool population completed the task in nine minutes. The upper third of the class completed it in five and one-half minutes. You will be allowed six minutes. Before you begin, make sure that the information on the front page is correctly and completely filled out. (Pause). Are there any questions before we begin? (All questions are to be answered in terms of the instructions or in a noncommittal way). Ready? Begin!"

"(After three minutes). You should have at least three of the sentences completed by now, you have three minutes left. (After six minutes). Stop! Turn your paper over. Most of you will have had time to recheck your answers, but that's all right. It's the ones that didn't finish that we're worried about (laughing). We will now proceed to the second task."

SCRAMBLED SENTENCES TASK

NAME_____

GROUP_____DATE_____AGE_____

NUMBER OF SEMESTERS IN COLLEGE (TOTAL)_____

LAST SEMESTER COLLEGE GRADE AVERAGE (to nearest letter grade)_____

HIGHSCHOOL GRADE AVERAGE (To nearest letter grade)_____

INSTRUCTIONS: Use all words. Omit no words. Unscramble the example below.

THE COOK'S DAY OFF

EXAMPLE: Stenographer his mister for typing big was

Correctly arranged the sentence reads: mister big was typing for his stenographer.

The sentence could also be written: his stenographer was typing for mister big. This arrangement, however would be incorrect in that it is not the best sentence from the standpoint of grammar and does not fit the clue given above.

STOP!

DO NOT TURN THIS PAGE UNTIL YOU ARE INSTRUCTED TO.

RELAXED PASTIME

listening is many for classical pastime relaxing to a music

THE TIME TO VISIT

summer is bahamas lovely visit to a the particularly time

MODERN DILEMMA

venetians shall often if venice modern city be a museum a or

WHO'S ON TRIAL

attorney the rapidly frightened after at aggressive another the witness question one

ALL IS NOT SEEN WITH THE EYES

experiments that humans obstructions like bats sense can echoes by have proven

LITTLE MEN WEAR BIG HATS

the and with in staggered briefcase little of man traffic oversized the out

Verbal Instructions: Inhibition Condition

"This is a part of a research project in psychology and education. You will have two tasks to perform. The first task is called the inhibition task. I will pass out some forms to you which will be used later. Please lay these forms aside for now and do not look in them. In these later tasks you will be required to use a pencil. Ink will not be satisfactory. If you do not have a pencil raise your hand now and I will give you one, but please return it after the tasks. (Pass out booklets and pencils). Lay the form so that the staple is in the upper right hand corner: Make sure it is in the right hand corner. Now, first write your first and last name. Below it write today's date, below that put your course, name and number, the days and hours that the class meets and your instructor's name. Under course, give your age, then the word male or female, whichever applies. Are there any questions so far? (Answer all questions in terms of the above instructions).

"Now set your forms aside. The first task will require your cooperation and concentration so please pay close attention. Your job is to close your eyes and mentally picture a blackborad with only the words DON'T THINK printed on it. The main idea is to shut out all other thoughts. It is important that you relax, get yourself comfortable and close your eyes so that you can get a clear mental picture. Do not vary your thinking such as by adding trim to the mental blackboard, changing the style of printing of the words or in any other manner. Try to shut out all sounds in the room except my instructions to you. Keep your complete attention on the mental picture. This task will last for six minutes. Try to shut out everything else for the full six minute time period. We will begin now, close your eyes, relax and concentrate. (Every 30 to 60 seconds, remind the group of the instructions and urge relaxation in a quiet soothing voice. After exactly six minutes:) All right, stop now. We will now go to the second task."

(Give instructions for the Fantasy Task).

Verbal Instructions: Slow-writing Condition

"This is a part of a research project in psychology and education. You will have two tasks to perform. The first task is called the slow-writing task. Essentially, your job is to write as slowly as you possibly can. On the form being passed out to you (pass out forms), you will find a place for your name, group and the date. Do not look on the next page until you are told to do so later.

"Write in your name and on the same line indicate your age and the word male or female, whichever is appropriate. Where the form asks for group, indicate your course, name and number along with the days and hours it meets and the instructor's name. Under date put today's date.

"Now read the instructions along with me but do not start until I tell you to. First, write the phrase given below. Second, write it in the space between the two parallel lines below. Third, do not remove your pencil from the paper once you have started. (Illustrate on blackboard). Fourth, write absolutely as slowly as you possibly can. Fifth, do not stop or pause, once you have started, but write painfully slowly and do not retrace your lines. Sixth, remember the purpose of this task is to see how slowly you can write. You should not be finished with this sentence before the six minute time period. See how little you can get done. Use pencil only and do not erase. (Pass out pencils if needed). The sentence is NEW JERSEY CHAMBER OF COMMERCE. Are there any questions about what you are to do? (Answer all questions in terms of the foregoing). Each letter you write should take a minimum of 14 seconds, so you will have to hold yourself back. Are you ready? Proceed! (Throughout the task E should repeatedly, at 15 to 30 second intervals, urge the subjects to "slow down", "as slow as you can", "write so slow it hurts", "keep your pencil on the paper at all times", "do not pause", "put on the brakes," etc.). (After exactly six minutes): Stop! We are ready to begin the next task now."

(Give instructions for the Fantasy Condition).

SLOW WRITING TASK

NAME_____

GROUP_____DATE_____

INSTRUCTIONS:

1. Write the phrase given below.
2. Write it in the space between the two parallel lines below.
3. Do not remove your pencil from the paper once you have started.
4. Write absolutely as slowly as you possibly can.
5. Do not stop writing or pause, once you have started, but write painfully slowly and do not retrace your lines.
6. Remember, the purpose of this task is to see how slowly you can write. You should not be finished with this sentence before the six minutes time period. See how little you can get done.

NEW JERSEY CHAMBER OF COMMERCE
