This dissertation has been microfilmed exactly as received

GORE, Pearl Mayo, 1930—
INDIVIDUAL DIFFERENCES IN THE PREDICTION OF SUBJECT COMPLIANCE TO EXPERIMENTER BIAS.

The Ohio State University, Ph.D., 1962
Psychology, clinical

University Microfilms, Inc., Ann Arbor, Michigan
subject variables. On the "subject effect" side, an important point to cite
is that a great many of the experiments described in the literature use a
population of students in Introductory Psychology courses who are required
to take part in psychological experiments.

Brower (5) reported strikingly different results in productivity of
subjects taking part in experiments on a voluntary basis as opposed to
those who are required to do so. He concluded,

It has not yet been verified (that) the extent to which academic
prestige appeals from anxious graduate students who are work-
ing on theses or morbid curiosity on the part of certain volun-
teering students may all contribute to produce a situation in
which a large body of psychological data derived from the uni-
versity laboratory represent widely heterogeneous and skewed
groups (p. 146).

The laboratory experiment is often referred to as "artificial" and
is criticized as being unlike the "real world." Any and all who ascribe to
a unity of personality theory would agree that the individual brings to any
situation what is actually an individually limited amount of response po-
tentials. An individual's behavior in the new or "artificial" situation will
not represent the emergence of a new set of behaviors. His behavior will
be simply a reflection in part, in miniature, or in disguise of his charac-
teristic modes of interacting with other individuals and situations in his
"real" world.

Among psychologists there are differences in degree of emphasis
upon generalization from previous to new situations. The approach of this
paper rests on the tenet that new experiences have significance only in the
context of previously acquired meanings (38). Human functioning would be
extremely difficult and inefficient if a person had to learn appropriate be-
havior for every specific situation to be encountered.
### RAW DATA

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I, Pearl Mayo Gore, was born in Nashville, Tennessee, August 4, 1930. I received my secondary-school education in the public schools of Nashville, Tennessee and my undergraduate training at Tennessee Agricultural and Industrial State University, which granted me the Bachelor of Arts degree in 1949. From The Ohio State University, I received the Master of Arts degree in 1951.


While in residence at The Ohio State University, I served as research assistant to Dr. Sidney L. Pressey and to other members of the staff of the Psychological Clinic.

I have accepted a position as guest assistant professor in Psychology at the University of Illinois, Champaign-Urbana.
Most individuals, when brought into a new situation and asked to respond, are likely to exercise certain controls on their overt behavior. These controls will be only quantitatively different from the type of controls they characteristically utilize. There will be a generalization from their behavior in other interpersonal situations to the situation of interaction with the experimenter. The more the subject is called upon to react to the experimenter on a personal basis, the greater will be the generalization from other interpersonal interactions.

Another underlying theoretical assumption of the present paper is that all behavior is goal directed. The motivations and goals of the experimenter are generally stated quite explicitly. One must address himself to the question "What goals do individual subjects bring with them to the experiment over and above, for example, fulfilling a course requirement?" Two of the most obvious goals seem to be gaining the experimenter's approval and achieving at a high level on a task. In the latter instance, the interaction with the experimenter has less of an effect as the highly achievement motivated individual may reinforce himself.

Where achievement cues are minimal or absent and the experimenters communicate bias at some level towards certain types of responses, one can infer that the manifestation of such responses possibly stems from the need to please the experimenter and/or win his approval.

It is felt that there are individuals who by virtue of their unique need values and the generalized expectancies that they bring to the experimental situation make for "good" (helps the experimenter achieve his goals) or "bad" (hinders the experimenter from achieving his goals) subjects.
The isolation of such personality characteristics as predictor variables in the success of an experiment would be of significant theoretical import to the entire field of experimentation.

The individuals who would most prominently show behavior designed to gain the experimenter's approval would be those who manifested similar goal directed behaviors and high need value in this area in other types of situations.

Moreover, there would be an expected differentiation of responses between individuals who expected their behavior could lead to desired reinforcements; for example, experimenter approval and those who had need of such approval but low expectancy of attainment.

Measures of needs pertinent to the present research interest are readily available. Examples are: The Heyns-Veroff Measure of Need Affiliation, The Marlowe-Crowne Measure of Social Desirability, and The Goal Preference Inventory Measure of Need for Love and Affection.

The present study will deal with these variables as they pertain to a face-to-face experimental situation where the experimenter either states explicitly or implies his bias. The subjects in this present experimentation have the measurable opportunity to agree or not to agree; to comply or not to comply with the experimenter's biases.

The research to be discussed in the next section will be concerned with establishing the appropriateness of possible criterion measures for predicting individual differences in "subject bias" behavior in the experimental situation.
CHAPTER II

REVIEW OF RELEVANT LITERATURE

Historical background of work on Experimenter Bias

Interest in the problems of subject cooperation in the task set by the experimenter has its origin in part in the work of Orne (30), Reicken (33), and particularly that of Rosenthal (36) alluded to in the introductory chapter.

Orne (30), in his research in the area of hypnosis, discusses some very interesting phenomena of experimenter bias and variations in compliance of different subjects. He writes,

Increased motivation (to be hypnotized) is by no means a phenomenon unique to hypnosis but can be seen to operate in other experimental and life situations with equal force (p. 277).

... Since the experimenter is perceived as knowing what he is doing, furthering "progress in science" may well be equated with making the experiment work or in more sophisticated terms, having his individual performance support the hypothesis of the experiment. Thus, when the subject is motivated to comply with the wishes of the experimenter, his responses are readily influenced by what he perceives to be the basic hypothesis of the experiment (p. 281).

Reicken(33) has also had something to say on this problem in his "Program for Research on Experiments in Social Psychology."

Rosenthal (37) deemed it most appropriate to look rather closely at this particularly interesting dyadic social situation; for example, he studied experimenter and subject. To elaborate in more detail concerning his research, one would first have to spell out the underlying hypothesis of his
experimentation: experimenters obtain from their subjects the data they want, expect, or need to obtain. This is accomplished, of course, without conscious manipulation of the data.

The basic paradigm of the research of Rosenthal and others involved in obtaining a group of experimenters varied as to the expectations which each group of experimenters held in regard to the outcome of the experiment. The data revealed that experimenters obtained results significantly closer to what they had been led to expect than what could occur by chance.

One of Rosenthal's colleagues, Fode (13), studied the question of the relative importance of mediating cues in bias. He placed a group of experimenters who remained silent throughout the experiment to eliminate verbal cues. Results showed that restriction of visual cues accounted for about 80 per cent of the variance of bias magnitude.

Of particular pertinence to the present research was Rosenthal's exploration of some personal characteristics of the experimenters and the subjects (37). Using the Marlowe-Crowne Social Desirability Scale, he was able to predict experimenter bias. He found that the higher the measured social desirability, the greater was the experimenter bias.

As measured by the Taylor Manifest Anxiety Scale, medium anxiety experimenters bias their subjects most, and medium anxiety subjects are most readily biased by experimenters (37). There was a significant tendency in one study (which did not hold in further studies) for female subjects to be more easily biased than male subjects. Unfortunately, neither the Marlowe-Crowne S-D Scale, nor any other test measures other than the Taylor Anxiety Scale, were given to subjects to clarify our under
standing of biasable subjects referred to in the present study as "Good Subjects."

**Acquiescence-test taking Style or Personality Variable**

The personality characteristics that make for a "good" subject may be similar qualitatively to the characteristics that make for an "acquiscent" test taker (23). There has been an abundance of literature on the "acquiscent-test taker" in recent years.

Acquiescence as a personality variable reflected in test taking behavior stems historically from interest in response sets, first systematically explored by Cronbach (7). It is to be noted that Cronbach's first concern was focused on the "error variance" or "invalidity" of test findings due to response sets of individuals taking the tests. Later, Cronbach (7) stated that some of this variance, "might be valid for certain predictive purposes."

Cronbach was not the first, however, to observe and report this phenomenon. As far back as 1936, Lentz (22) pointed out a tendency on the part of some subjects to agree to test items and he labeled such a tendency "acquiescence."

The acquiescence set first attracted major attention in the form of serious empirical investigation in connection with its influence on the California F Scale. Since that time, acquiescence has been linked with authoritarianism by some writers. For example, Leavitt, Hax and Roche (21) suggested that the confounding of acquiescence and authoritarianism in the F Scale was a lucky accident which increased the discriminating power of the instrument; for example, a personality component of authoritarianism is acquiescence. Their view shared by many
others is that the tendency to agree with things said in an authoritative
manner is in itself a facet of the authoritarian personality.

Bass (3) showed that 75 per cent of the reliable variance on the
F Scale was associated with acquiescence, but he was subsequently criti-
cized for his statistical treatment of the data by Messick and Jackson (28).
However, using different methods, the latter researchers ultimately
reached the same conclusions.

Jackson and Messick (17) later wrote,
In the light of the accumulating evidence it seems likely that the
major common factors in personality inventories of the true-false or agree-disagree type such as the MMPI and the Cali-
ifornia Psychological Inventory are interpretable primarily in
terms of style rather than specific item content (p. 291).

Bass (2) developed a scale for measuring social acquiescence;
this instrument consists of 56 familiar proverbs, aphorisms, adages and
other generally stereotyped statements. Bass's hypothesis on the basis
of data collected from his social scale was that persons high in social ac-
quiescence are outwardly oriented, non-intellectual- "a Babitt;" an un-
questioning conformer to social demands placed upon him (2).

Another way of elaborating upon the same construct is Jackson's
(17) description of acquiescent people as lacking the ability to resist
"field forces" (presented by the test items) and low in cognitive energy.

Keuthe (20) did an interesting study relating the PRS test (positive
response set) to task performance. In the experimental condition in which
the experimenter simply directed that the task be performed, there was a
positive correlation between PRS score and task performance (r = .42).
In the experimental condition in which a positive reward was offered for
quality of performance, PRS scores could no longer predict task perform-
ance quality. A significant correlation was found between F Scale scores and PRS scores. Yet, F Scale scores did not predict task performance even in the low incentive condition. The author proceeded to explore possibilities that would account for these findings. The implications the author drew from these findings are of particular significance to the present interest.

Keuthe writes,

An explanation of the absence of a significant correlation between the F Scales and performance in the low incentive condition is that the acquiescence to the experimenter shown by the high performance is not a general response bias which manifests itself in all situations. Acquiescence to the experimenter's suggestion which was correlated with acquiescence to the same experimenter's instructions to perform a task may represent a very specific phenomenon such as an effort to please the experimenter. . (p. 93).

Couch and Keniston (6) have done extensive investigation in this area with the underlying assumption that acquiescence as a response style springs directly from a deep seated personality syndrome. Their two personality types are "yeasayers" and "naysayers." This was empirically dichotomized on the basis of a 360 item agreement scale (O. A. S.). Couch and Keniston found correlations between O. A. S. and other scales where a high proportion of the items were keyed true.

A thorough clinical study of the extreme responders in the yeasayers and naysayers groups was undertaken. Ratings were made on five separate scales, each oriented towards a different criterion of the theoretical personality. Ratings were made blindly and the subjects assigned to interviewers randomly. The results showed marked personality differences between yeasayers and naysayers.
Yeasayers were found to be extroverted, outgoing, impulsive with low psychological inertia. They were described psychoanalytically as possessing "passive egos." Naysayers were found to be guarded, defended, constricted, internally oriented and with high psychological inertia.

Couch and Keniston's construct is conceptualized on a single dimension. It is similar to Jackson's continuum which covers the range from resisting to yielding to field forces. Yeasayers accept stimuli as presented irrespective of the stimuli and naysayers tend to reject stimuli as presented.

Edwards (12) author of a social desirability scale, sees agreement tendencies as measured by Couch and Keniston's tests as manifesting the social desirability variable. He is using this term here almost in the sense of faking or dissimulation. Edwards feels that individuals agree with the statements because it is socially desirable to do so. Couch and Keniston (6) present factorial analysis data which tends to refute this contention.

McGee (27) did a study designed to more vigorously test the hypothesis that individuals with high acquiescence tendencies are socially oriented individuals who will (a) shift their own position in response to social pressure; (b) withhold negative attitudes in order to gain social acceptance more than individuals with low acquiescence tendencies.

Seven different measures of response acquiescence and two behavioral tasks were administered to undergraduate psychology students. The behavioral tasks were the Autokinetic Conformity Task (4) and the Spool Packing Task (1).

The results indicated that although each of the seven acquiescence measures was reliably measuring something, they were not measuring a
common trait. In addition, the two behavioral tasks were unrelated to one another and to the various acquiescence measures. The general hypothesis that subjects high in measured acquiescence were more socially oriented than those low in measured acquiescence was not supported.

McGee finally concluded that there may be two unrelated types of acquiescence; namely, characteristics of test items which elicit response acquiescence and characteristics with personality syndromes which elicit behavior included under the construct of "social acquiescence."

Bass (3) in later writings suggests that various forms of acquiescence are relatively independent of one another. He reports a zero correlation between scores on his acquiescence scale and the tendency to respond "true" in an ambiguous situation in the mode of Berg and Rapaport's unstructured questionnaire.

Nunnally and Husek (29) measured response bias by placing subjects unfamiliar with German in a situation in which they were to agree or disagree with German phrases. They measured the subjects' tendency to choose certain kinds of alternatives over others because of their length, serial position, and so forth. The major finding was that persons with more education tend to disagree with causal explanations of all kinds. None had an opportunity from the German words inserted to assess the correctness or incorrectness of the statements.

Theoretical Framework of the Current Research

As the psychological experiment is not regarded as identical for all subjects, a social learning theory model seems to best fit the concep-
INDIVIDUAL DIFFERENCES IN THE PREDICTION
OF
SUBJECT COMPLIANCE TO EXPERIMENTER BIAS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree
Doctor of Philosophy in the Graduate School of the Ohio
State University

By
Pearl Mayo Gore, A. B., M. A.

The Ohio State University
1962

Approved by:
Julius B. Rotter
Adviser
Department of Psychology
tual framework of the current research (38). A major premise of this theory is that all behavior is goal directed and depends upon the subject's unique expectancies regarding his behavior. Rather than seeing the psychological experiment as an artificial situation, social learning theory helps to focus on the inter-individual differences in values and goals. These are the differences which the subjects bring to the situation, which are felt to account for inter-individual differences in subjects compliance to experimenter bias.

Social learning theory uses six basic variables: Behavior, Potential Expectancy, Reinforcement Value, Freedom of Movement, Need Potential and Need Value and the psychological situation.

Behavior potential may be defined as the potential for any behavior's occurring in any given situation as calculated in relation to any single reinforcement or set of reinforcements.

The formula is as follows:

\[ B_P = f(E \& RV) \]

(Expectancy and Reinforcement Value)

Expectancy may be defined as the probability held by the individual that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation or situations.

The reinforcement value of any external reinforcement may be ideally defined as the degree of preference for any reinforcement to occur if the possibilities of their occurring were all equal.

Freedom of movement is the mean expectancy of obtaining positive satisfactions as a result of a set of related behaviors directed toward the accomplishment of a group of functionally related reinforcements.
Need potential is the mean potentiality of a group of functionally related behaviors occurring in any segment of the individual's life. Such behaviors would be functionally related in that they lead to (or are directed toward) the accomplishment of the same or similar reinforcements.

The formula for need potential is:

\[ N \ P \ = \ f \ ( F \ M \ & \ N \ V ) \]

(Need Potential) \quad (Freedom of Movement and Need Value)

Need value is the mean preference of a set of functionally related reinforcements. It has been hypothesized to be less subject to immediate environmental influence than need potential.

Rotter (38) delineates six general need areas, namely: recognition-status, protection-dependency, dominance, independence, love and affection and physical comfort. The position of the need in the hierarchical system of need areas is efficacious for behavioral predictive purposes. Each of these need categories represent a functional unity. To say that behaviors are functionally related or organized means, in this case, that they change concomitantly. The notion of concomitant variation is based on functional relationships (needs) as compared to the set or sets with which it was contrasted. The rest of the chapter will be concerned with specific scales to be used in the current research.

The Goal Preference Inventory

One attempt to measure some of these need values has been forced choice inventory devised by Liverant (23). Each item of the inventory consists of a pair of behavioral referents from which the subject chooses
one. In any given item, the two behavioral referents always represent two different need categories, so that each makes possible a choice of need referents from the subject.

Each choice is presented with the instructions:

"Select the one you most prefer to do if you had an equal opportunity to do either one (23)."

The original test had four need categories: Recognition in Academic Situations, Recognition in Social Situations, Love and Affection in Academic Situations and Love and Affection in Social Situations.

The current revision contains only three need categories: Social Recognition, Academic Recognition and Love and Affection. The latter two seemed applicable to our current research.

Marlowe-Crowne Social Desirability Scale

The construct of need for approval has been operationalized by the Marlowe-Crowne Social Desirability Scale (18). Originally, social desirability was considered to be a characteristic of test items. This scale has been seen as measuring the degree to which individuals need to be thought well of by others and have a generalized expectancy that approval satisfactions can be attained by means of behavior which is culturally sanctioned and approved. Recent studies have shown that persons who rate themselves very favorably on such a scale tend in a variety of situations to be more influencable, conforming and compliant. Crowne (9), in his most recent writing, characterized high scorers on his Social Desirability Scale as fitting, in part, Reisman's (35) description of the other directed individual.
Marlowe and Crowne (24) did a study in which subjects were given a monotonous boring task to perform. Afterwards they were asked questions concerning their enjoyment of the task, its relevance, and so forth. High S-D's spoke significantly more favorably of the task than did low S-D's.

Another illustrative study is one in the area of verbal conditioning wherein Crowne and Strickland (11) found that approval motivated individuals (high S-D's) increased the rate of those responses followed by verbal comment and approval to a greater degree than subjects to whom approval was of less consequence.

From the foregoing, a logical assumption would be that subjects with high need for social approval and an expectancy that approval satisfaction can be gained in conventionally conforming ways would make for "good subjects" or subjects "biased" toward the preferred responses either stated or implied of the experimenter.

However, more recently, other parameters have been added to the construct of need for social approval. Enhancement of self is implied by the very nature of the items: "No matter who I am talking to, I am a good listener;" "I am always courteous even to people who are disagreeable," and so forth. Test takers scoring high on this scale are engaging in self-enhancing behavior. Further investigation seems to indicate that the personal enhancement displayed by approval-motivated individuals is a means by which they protect a vulnerable self-image. High S-D's, then, are not only approval approachers but avoiders of rejection or confrontation with the negative self-picture one holds of himself. Strickland and Crowne (44) found that high S-D's in an out-
patient mental hygiene clinic failed to keep appointments and broke off therapeutic contacts more than did low S-D's, despite there being no differences in initial diagnoses of both groups. To place approval motivated individuals in a psychotherapeutic situation is conceptualized by the authors as creating an intense conflict between the strong need to maintain and defend their vulnerable self-esteem and to win the approval and help of the therapist.

To the extent that defensiveness is a significant thread in the constructual network of need for approval, it weakens our case for subjects with high need for social approval being more biasable. Consequently, it is felt that the measure of need for affiliation may be more directly predictive of subject biasability.

**Need for Affiliation Measure**

The need for affiliation can be operationally defined only after the distinction has been made as to what researchers are using the construct.

Schachter (40) in a recent book describes the basic characteristics of affiliation as a need to associate with others as the major goal in itself. Ambiguous situations or feelings are felt to lead to a desire to be with others as a means of socially evaluating and determining the appropriate and proper reaction. A large majority of his work has been concerned with the relationship between anxiety and need for affiliation.

McClelland, Atkinson, and others (26) developed their interests in studying the affiliation need from the older and more longstanding
problem of attempting to study the need for security. Implicit in the approach of the Michigan group is McClelland's two-factor theory of motivation, for example, approach and avoidance behavior (through the dichotomization of these antithetical behaviors hardly originated with him). The two motives for affiliation follow from the foregoing, namely: (a) seeking affiliation because of the pleasant stimulus and reward value of the affiliative relationship; (b) seeking affiliation because of the painful stimulus value of rejection.

Various measures of need strengths in the literature, most notably measures of "need for achievement" have borne little relationship to each other in terms of predictiveness or meaningfulness. McClelland and Atkinson (26) warn against the assumption that other types of test devices can be taken as equivalent of, for example, a thematic apperception measure (which is their principal tool).

McClelland (26) reviewed various methods that psychologists have employed to assess individual differences in motivation in light of a number of meaningful criteria. He argues that most methods (for example, self-descriptions, judges' ratings, and so forth) are influenced in complex ways by many variables other than the kind of motivational variable that they purport to measure. His contention is that the measure of motive should have "relational fertility" in that the relationships should be more than valid but tied into a general system of behavior theory in some logically consistent way. The various empirical relationships must make sense in terms of such a theory.

Pepinsky (31) in her research on leadership productivity and morale makes a distinction of need measures in terms of her emphasis on
stressing always the "phenotypic" definition of the world. She used a structured interview to measure need affiliation strength of her subjects and operationally defined the behavior to be identified as manifesting need for affiliation.

Reitman (34) attempted to predict behavioral correlates of need achievement and need for affiliation. He gave one group of subjects a performance task under the condition of achievement instructions. Another group was given the task in the absence of achievement instructions and appreciation was expressed for helping the experimenter, "get the kinks out of the design," and so forth. The prediction was that high need affiliators (using the Atkinson, and others scoring system) would perform maximally under this condition. Instead, a reversal occurred for which the author could not account, namely, the highest correlation between need for affiliation and performance occurred during the condition of group administered achievement orientation. The authors felt their results served primarily to demonstrate the urgent need for standardized and more precisely controlled techniques in the area.

**Internal-External Scale**

Another psychological dimension upon which individuals may be measured and which would possibly add to the predictiveness of the "good" or "bad" subject is that of internal versus external control of the locus of reinforcement. In social learning theory it is viewed as a generalized expectancy relating behavior to reinforcement in a large number of situations cutting across specific need areas (38). It has hypothesized that individuals differ in a general characteristic of
whether they expect reinforcement in a variety of situations to be a function of external forces or their own behavior or characteristics. The first attempt to measure such a general characteristic was made by Phares (32). An adaptation of this test has been developed by Liverant, and others, and is a forced-choice test called the Internal-External Scale. An illustrative item is as follows: "I more strongly believe that (a) many of the unhappy things in people's lives are partly due to bad luck; (b) people's misfortunes result from the mistakes they make.

Research by Phares (32), James and Rotter (19), Rotter, Liverant and Crowne (39) and others has shown that the growth and extinction of expectancies for reward vary considerably in different laboratory tasks if the tasks are perceived by the subject as chance, luck or experimenter controlled versus those which are seen as being skill tasks with reinforcement dependent upon the individual's skill.

Two recent pieces of research using the I-E Scale as a predictor variable to subject behavior in response to the experimenter are particularly germane to the present study.

Strickland (43) reports in an experiment on verbal conditioning that subjects with a generalized orientation towards the internal end of the dimension of locus of reinforcement were more resistant to verbal conditioning when they were aware of the experimenter's manipulation.

Getter (15) found interesting differences between subjects internally and externally oriented in three differing groups of respondents to attempted verbal conditioning. He found that "straight conditioners"
were significantly more external in orientation; that latent conditioners were significantly more internal in orientation; that the group of non-conditioners fell around the mean of the I-E Scale.

Both studies highlight a marked degree of independence from experimenter control or influence on the part of internally oriented individuals. Other studies have shown the internally oriented to be more task oriented and less responsive to peripheral cues (1) (32).
CHAPTER III

STATEMENT OF THE PROBLEM

A major problem in the prediction of behavior is the lack of isomorphism between the experimental situation and the situation in real life to be predicted. The present situation makes for less of a theoretical leap. The experimental research deals with the subject in the experimental situation and it requires far less generalizability, in that it is prediction to subsequent psychological experiments. A limitation imposed upon its generalizability is that the sample is composed of college students required to take part in psychological experiments. However, this is a requirement that is quite widespread throughout the major colleges and universities in this country and this is the type population from which a significant body of data is obtained.

It seems logical that most individuals when brought into a novel situation with a strange person, most notably an authority figure, are likely to manifest the same or similar types of adaptive behavior utilized in other similar situations.

It is further reasonable to expect that those unique and inter-individually varying modes of interacting with the experimenter would be heightened under circumstances so designed as to stimulate and maximize cooperation and mutual interaction of subject and experimenter. More specifically, the setting should allow the subject to cooperate or not co-
DEDICATION

To my father, Dr. George W. Gore, Jr., whose love, interest, and scholarly attainments were a constant inspiration and challenge; and to my mother, Mrs. Pearl W. Gore, whose devoted and untiring assistance in the organization and typing of this manuscript were invaluable.
operate, to please or not please the experimenter with the personality
needs of the subject being the major variable. A major basis of predic-
ting behavior in a given situation is in terms of the potential satisfactions
such behaviors may gratify.

It would appear that in a situation of minimal achievement cues,
the satisfactions would come from winning the approval and/or pleasing
the one who is invested in the psychological experiment. This would no
doubt be true whether the subject gained satisfaction from self or ex-
ternally applied reinforcement.

The predictor measures deemed appropriate were introduced in
the preceding chapter. Once having established what appear to be suitable
predictor measures, the type of dependent variables to make operational
the meaning of a "good" or "bad" subject are needed.

Two major criterion measures were devised. In both instances,
there is an opportunity to please, for example, respond positively to the
experimenter's bias or to not do so. One of the criteria has two levels of
bias communication; an overtly stated bias and an implied bias. This
criterion measure deals with the subjects' productivity to the Thematic
Apperception Test card of the experimenter's bias relative to the produc-
tivity of the other cards presented. In one experimental condition, the
experimenter states which card she thinks is potentially most productive
and in the other it is implied. In the implied condition, the examiner
will emit a subtle standard cue as to which card she thinks is potentially
most productive to each subject.
The other criterion measure is a straightforward measure of agreement with the experimenter. A list of "innocuous" statements that could be true of any college student was prepared. This list was presented as the experimenter's hypotheses about the subject on the basis of the Thematic Apperception Test stories given with the goal of eliciting a rate of agreement measure for each. The statements must be presented as the experimenter's hypotheses to help insure agreement with the items as being a function of agreement with the experimenter. The above discussion suggests the hypotheses which follow.

**Hypotheses about the Experimental Conditions**

The first hypotheses have to do with the experimental conditions themselves.

**Hypothesis I**

In an experimental situation where the experimenter presents five Thematic Apperception Test cards (hereafter referred to as T. A. T. cards) and explicitly states which card will stimulate the greatest productivity, there will be a measurable effect upon subject response to that card as compared to the subject response in a condition of implied bias and in a control group situation.

**Hypothesis II**

In an experimental situation where the experimenter presents five T. A. T. cards and gives a subtle clue as to which card she thinks will stimulate the greatest productivity there will be (a) a communication of this bias to the subject; (b) a measurable effect upon sub-
ject response to that card as compared to subjects in a control group.

**Hypotheses of the Current Experiment**

**Hypothesis III** The need for social approval as inferred from the Marlowe-Crowne Social Desirability Scale will differentially predict subjects' response to experimenter bias. Subjects higher in measured need for social approval will respond more positively to experimenter bias on the two previously named criterion measures. In other words, these subjects will produce relatively longer stories to the T. A. T. card of the experimenter's stated or implied bias and will manifest quantitatively more agreement on the Agreement Test. More of these subjects will be aware of the communication of implied bias.

**Hypothesis IV** The need for affiliation as inferred from the Heyns, Veroff, and others (16)Need Affiliation Measure will differentially predict subjects' response to experimenter bias. Subjects higher in measured need for affiliation will respond more positively to experimenter bias on the two criterion measures. These subjects will produce relatively longer stories to the T. A. T. card of the experimenter's stated or implied bias and will manifest quantitatively more agreement on the Agreement Test. More of these subjects will be aware of the communication of implied bias.
Hypothesis V  Need for love and affection as inferred from the Goal Preference Inventory will differentially predict subjects' response to experimenter bias. Subjects higher in measured need for love and affection will respond more positively to experimenter bias. These subjects will produce relatively longer stories to the T. A. T. card of the experimenter's stated or implied bias and will manifest quantitatively more agreement on the Agreement Test. More of these subjects will be aware of the communication of implied bias.

Hypothesis VI  With academic cues minimal or absent in the experiment, the need for academic recognition as inferred from the Goal Preference Inventory will be a significantly poorer predictor of subjects' response to experimenter bias than the other measures.

Hypothesis VII  An internal vs. external orientation towards the locus of reinforcement as inferred from the Internal-External Scale will differentially predict subjects' response to experimenter bias. The more internally oriented subjects will be more resistant to experimenter influence. They will produce relatively shorter stories to the T. A. T. cards of the experimenter's stated or implied bias and will manifest quantitatively less agreement on the Agreement Test. More of the externally oriented subjects will be aware of the communication of implied bias.
CHAPTER IV

METHODOLOGY

Establishment of Criterion Measures

Productivity to Card of Experimenter's Bias.

Although other cards have been used by the Michigan group for the measure of need for affiliation, the present study utilized the more commonly used of the standard set of T. A. T. pictures. One of the limitations of earlier cards used to measure need for affiliation was their "pull" towards themes of rejection (39). Since the sample to be used was composed of males and females, it was felt that pictures with two of the same sex and two of the opposite sex should be included. Another criterion was variety of ages in the pictures with which to identify. Cards, also structured toward need for affiliation were not desired. With less structure, the more inter-individual differences were expected to be obtained.

The following five cards were sampled:

6 BM - man and older woman
7 BM - man and older man
6 GF - man and woman
2 - man and two women
12 F - two women
Pretesting showed the following relative productivity to each of the five T. A. T. cards presented as seen in Table 1.

**TABLE 1**
RELATIVE PER CENT OF PRODUCTIVITY OF EACH OF THE FIVE SELECTED T. A. T. CARDS (N 30)

<table>
<thead>
<tr>
<th>TAT Cards</th>
<th>Male</th>
<th>Female</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 BM</td>
<td>14%</td>
<td>22%</td>
<td>17.7%</td>
</tr>
<tr>
<td>7 BM</td>
<td>18%</td>
<td>17%</td>
<td>17.4%</td>
</tr>
<tr>
<td>2</td>
<td>24%</td>
<td>25%</td>
<td>24.1%</td>
</tr>
<tr>
<td>*6GF</td>
<td>22%</td>
<td>18%</td>
<td>19.9%</td>
</tr>
<tr>
<td>12F</td>
<td>23%</td>
<td>18%</td>
<td>20.8%</td>
</tr>
</tbody>
</table>

As card 6 GF represented the card of median productivity for both sexes it seemed optimal for use as the card of experimental bias. The cards were presented in a different order for males and females, the order was from the card of the highest to lowest pretest productivity. Interjudge reliability in terms of percentage of identically scored stories was 75 per cent.

**Agreement Test**

For the Agreement Test it was necessary to pick items that would be neutral to slightly positive in tone and to be true of everyone (at least of college students). A series of statements were composed and pretested on introductory psychology students. Thirty were asked to rank their degree of agreement with the statements as they pertained to themselves. Thirty others were asked to rank the same statements as to the degree of favorableness of the statements. A seven point Likert Scale was used with both groups. As would be predicted, the items
receiving the lowest mean agreement score were also the ones receiving the lowest mean favorability score (for examples, see Appendix). These items were either eliminated or altered in form. For example, a qualifying phrase was deleted or strengthened depending upon the direction in which it deviated from the average agreement scores of the other items.

The final pretest norms were established starting from an original sample of approximately 50 items to 32 items of the revised test. Forty-eight additional Psychology 401 students were asked to rank the Agreement Test in its present form. As a group, they scored each item for degree of agreement. The ranking of the items in terms of favorableness of "pull to agreement" are given in Table 2.

**TABLE 2**

**RANK RESULTS OF ITEMS ON AGREEMENT TEST**

<table>
<thead>
<tr>
<th>Octant</th>
<th>Items (See Appendix)</th>
</tr>
</thead>
<tbody>
<tr>
<td>From highest to lowest in agreement score</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>4 18 28 29</td>
</tr>
<tr>
<td>II</td>
<td>3 5 26 30</td>
</tr>
<tr>
<td>III</td>
<td>9 10 11 14</td>
</tr>
<tr>
<td>IV</td>
<td>21 25 27 32</td>
</tr>
<tr>
<td>V</td>
<td>1 12 15 24</td>
</tr>
<tr>
<td>VI</td>
<td>13 17 22 31</td>
</tr>
<tr>
<td>VII</td>
<td>2 8 20 23</td>
</tr>
<tr>
<td>VIII</td>
<td>6 7 16 19</td>
</tr>
</tbody>
</table>

In order that all subjects would receive items relatively equal in degree of favorableness, one item was randomly selected from each octant.
to make up an eight item agreement test which was given each subject.

One hundred Psychology 401 subjects, 50 males and 50 females, were used for this experiment. Each student was required to participate as a subject in four hours of experiments. Prospective subjects signed up for the experiment allowing two hours of credit. The only label on the experiment was the rather ambiguous terminology "Personality Experiment".

Sixty-five per cent of the subjects had been given the Crowne-Marlowe Social Desirability Scale and the Internal-External Control of Reinforcement Scale the first day of class and independent of the crucial experiment.

The Social Desirability Scale was given immediately following the experiment itself, to the remaining subjects who had not taken the test on the first day of class.

The Social Desirability Scale scores obtained from group testing and those obtained from individual testing were not separated as previous research has shown no significant differences in scores obtained under the two conditions.

As a result S-D scores were available on all subjects but I-E scores were available on only 65 of the 100 subjects.

Every other male and every other female was assigned to one of two experimental conditions.
The two experimental conditions which follow reveal one involving an attempt to make experimenter bias clear; the other more subtle.

**Experimental Condition I -- Overtly Stated Bias**

The subject was taken to a small room and given the following directions:

Do you know the Thematic Apperception Personality Test? I have selected five of the pictures from the Thematic Apperception Test picture series. I will present them one at a time and you are to tell me a story about each picture. Tell me what you think is going on in the picture, what led up to it and how the story will end. One of the purposes of this study is to determine which picture stimulates the longest story in the largest number of subjects."

Males: "Here is the first one"
Present T. A. T. Card 2
Present T. A. T. Card 12F

"This is the card I think has the longest story pull, I want to see if I am right".
Present T. A. T. Card 6 GF
Present T. A. T. Card 7 BM
Present T. A. T. Card 6 BM

Females: (Same directions as above with the following order of presentation).

T. A. T. Card 2
T. A. T. Card 6 BM
T. A. T. Card 6 GF
T. A. T. Card 12 F
T. A. T. Card 7 BM

If a subject remains silent for more than 30 seconds and does not give an ending to a story, the experimenter will say: "How does the story end?" With this exception there will be no encouragement or interruption from the experimenter.
At the end of the story telling sessions, the experimenter says, "Now that you have told me these stories, the other purpose of the study is to see what type of inferences I can make about your personality on the basis of the stories told. I will go to my office and write a few statements about you and I will want you to tell me how accurate or inaccurate I am".

Ten minutes later the experimenter returns with eight handwritten statements from a pretested list of 32 statements. (See Appendix). One statement from each octant of ranked degree of agreement of the original group pretested 32 items. These are neutral to slightly positive and represent statements that could be true of anyone. She hands the statements to the subject together with a mimeographed sheet upon which the subject is to rank the degree of agreement or disagreement with each statement as follows: (the form allows for twelve statements although there are only eight statements to rank.)

1     2     3     4     5     6     7
Strongly Moderately Slightly Neutral Slightly Moderately Strongly
disagree disagree disagree agree agree agree

This agreement test is followed by the Goal Preference Inventory and the S-D Scale in the case of those subjects that had not taken the S-D Scale at the first meeting of their class.

At the termination of the experiment, the subject was asked, "Did my telling you the card I thought had the longest story pull bias you in any way?"
ACKNOWLEDGMENTS

The sources from which assistance has come in the preparation of this study have been so numerous that adequate expression of appreciation is impossible.

The writer is especially indebted to Dr. Julian B. Rotter, adviser, whose constant guidance, sympathetic understanding, and constructive criticisms have caused the writer to learn much concerning Clinical Psychology; to the members of the Dissertation Committee; Dr. Douglas P. Crowne, who gave liberally of his time and whose interest and encouragement were very meaningful; The late Dr. Shephard Liverant, who was most helpful in assisting in the planning and development of the study.

To the members of the Ohio State University Clinical Staff, to Dr. Delos D. Wickens, and to all who helped in any way by kindly thought or deed, the writer is deeply and sincerely grateful.
A need for affiliation score is derived from the stories told to
the five T. A. T. pictures (using the Heyns, Veroff, Atkinson Scoring
Manual) (16). The Social Desirability, Need for Affiliation, Goal Pre-
ference Inventory for Love and Affection and I-E scores will be used as
predictors and are to be intercorrelated with each other and correlated
with the degree of cooperation with the experimenter. The two criteria
are:

1. The degree of agreement with the experimenter's
   statements regarding the subject.

2. The relative amount of productivity to the T. A. T.
   card overtly preferred by the experimenter.

Experimental Condition II -- Implied Experimenter Bias

The subject will be taken to a small room and given the following
directions:

Do you know the Thematic Apperception Personality
Test? I have selected five of the pictures from the
Thematic Apperception Test picture series. I will
present them one at a time and you are to tell me a
story about the picture. Tell me what you think is
going on in the picture, what led up to it and how the
story will end".

One of the purposes of this study is to determine what
picture stimulates the longest story in the largest num-
ber of subjects. I have an hypothesis as to which
picture I think stimulates the longest story but I won't
tell you which one that is. I want to see if I am right." Males:  "Here is the first one."
Present card 2
Present card 12F  (nothing further said)
Pick up card 6 GF, look and smile at it;
then hand card to subject saying, "Tell
me a story about this one."
Present card 7 BM
Present card 6 BM

Females: (Same directions and manner of presentation as above with the following order of presentation)

T. A. T. card 2
T. A. T. card 6 BM
T. A. T. card GF
T. A. T. card 12F
T. A. T. card 7 BM

From this point Experimental Condition Number II follows the same procedure as Experimental Condition Number I with the exception of the post experimental questioning which in this instance is, "Which card do you think had the longest story pull?" and "Which card do you think I thought had the longest story pull?"

Intercorrelations of predictor variables with each other and with the two criteria will also be applied here. An additional analysis of data in Experimental Condition Number II will be the comparison of subjects high and low in measured Social Desirability, Need for Affiliation, I-E, and Love and Affection with the dichotomous variable of "Aware", "Not Aware" of the implied bias of the experimenter. Special attention will be given to whether the subject spontaneously identifies the correct card or has to be asked to pick the correct one. A Chi square statistic was used here.
CHAPTER V

RESULTS

Before directing attention to the results of the main body of the study, a check of the hypotheses of the methodological design seems in order.

The design called for two experimental conditions. The first check is on the presence or absence of differential effect between the two conditions.

Hypothesis I - In an experimental situation where the experimenter presents five T. A. T. cards and explicitly states which card will stimulate the greatest productivity, there will be a measurable effect upon subject response to that card as compared to the subject response in a condition of implied bias and in a control group situation.

Inasmuch as relative productivity to the card of the experimenter's bias was the criterion measure, it will be used to test for differences
in experimental conditions. There should be differences in productivity between the stated bias condition, the implied bias condition and a control condition run without any attempted bias. The magnitude should differ from highest to lowest in the order just named.

A "t" test was computed between productivity of subjects run in the condition of stated bias and the condition of implied bias. These results are interesting in light of the fact that most subjects denied that the experimenter's statement of her own hypothesis influenced them or declared that they had "tried" to see more in that particular card but disagreed that this card had the longest story pull.

**TABLE 3**

**COMPARISON OF PRODUCTIVITY OF SUBJECTS IN THE TWO EXPERIMENTAL CONDITIONS**

<table>
<thead>
<tr>
<th>Experimental Condition</th>
<th>Number</th>
<th>Mean Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stated</td>
<td>50</td>
<td>21.7</td>
</tr>
<tr>
<td>Implied</td>
<td>50</td>
<td>19.0</td>
</tr>
</tbody>
</table>

\[ t = -2.55 \quad p = .02 \]

It is obvious from the results that there was significant difference in the two experimental conditions in the hypothesized direction.
Hypothesis II - In an experimental situation where the experimenter presents five T. A. T. cards and gives a subtle clue as to which card she thinks will stimulate the greatest productivity there will be (a) a communication of this bias to the subject; (b) a measurable effect upon subject response to that card as compared to subjects in a control group.

This hypothesis about the effect of the experimental design itself, held only in part. As there was obviously no difference between the productivity of subjects in the implied group and the control group to the crucial card, no "t" test was computed. The percentages of productivity to key card relative to total productivity is shown in Table 4.

TABLE 4
COMPARISON OF PRODUCTIVITY OF SUBJECTS IN IMPLIED AND CONTROL CONDITIONS

<table>
<thead>
<tr>
<th>Sex</th>
<th>Experimental Condition</th>
<th>Number</th>
<th>Mean Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Control</td>
<td>19</td>
<td>22%</td>
</tr>
<tr>
<td>Female</td>
<td>Control</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>Male</td>
<td>Implied</td>
<td>25</td>
<td>20%</td>
</tr>
<tr>
<td>Female</td>
<td>Implied</td>
<td>25</td>
<td>18%</td>
</tr>
</tbody>
</table>
Two alternative possibilities may be considered. The first and most damaging is that the attempted implied bias condition was not effective or more specifically did not exist.

One method of establishing the actuality of communication of bias is the post questioning of the subject. Forty-six per cent of the subjects when asked to identify the card they thought the experimenter hypothesized as having the longest story pull were able to make a correct identification.

The difference in productivity between "awares" and "not aware" is shown in Table 5.

**TABLE 5**

**COMPARISON AND PRODUCTIVITY OF "AWARES" VS. "NOT AWARES"**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Awares</th>
<th>N</th>
<th>Not Awares</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>21.7</td>
<td>11</td>
<td>18.6</td>
<td>14</td>
</tr>
<tr>
<td>Female</td>
<td>19.7</td>
<td>12</td>
<td>16.6</td>
<td>13</td>
</tr>
</tbody>
</table>

\[ t = 2.11 \quad p = .05 \]

It is interesting to note that in the case of the "aware" males (with a small N of 11) the group mean productivity level to the T. A. T. card of the experimenter's implied bias is as great as the mean productivity level of the group in which the experimenter's bias was directly stated. Furthermore, while there is a significant difference between
productivity of the entire stated bias condition group vs. implied bias
condition group, there is no appreciable difference: between the produc-
tivity to the key card of the stated group as opposed to the aware sub-
jects in the implied bias condition.

Perhaps, from one point of view our study has three conditions; a
condition in which the experimenter overtly states her bias; a con-
dition in which the experimenter implies her bias; and a control group,
for example, those 27 subjects who in the post interview questioning were
not able to identify the experimenter's preference. It should be noted that
this latter group is a control in only a very special sense as we will
want to look at the possible differences in personality characteristics
between those who were not aware of the attempted bias and those who
were.

Another question which precedes the analysis of results of ex-
perimental hypotheses is the homogeneity of the sample from experi-
mental condition to experimental condition. (See Table 6)

This table shows sex differences but no appreciable difference
in means from one condition to the next condition. Let us again opera-
tionally define what we mean by the "good" subject. He will respond
more positively to the experimenter's biases. As mentioned before,
two different behavioral situations have been devised to elicit such sub-
ject behavior. The assumption, then, is that the two criteria should
<table>
<thead>
<tr>
<th>Predictor Means</th>
<th>Stated Condition</th>
<th></th>
<th>Implied Condition</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>Mn</td>
<td>S D</td>
</tr>
<tr>
<td>Need for Affiliation</td>
<td>25 4.4 1.88</td>
<td>25 3.7 2.60</td>
<td>25 4.2 2.88</td>
<td>25 3.5 2.44</td>
</tr>
<tr>
<td>Social Desirability</td>
<td>25 14.3 5.89</td>
<td>25 13.9 4.48</td>
<td>25 14.0 4.68</td>
<td>25 15.2 5.68</td>
</tr>
<tr>
<td>Academic Recognition</td>
<td>25 22.0 4.96</td>
<td>25 20.6 5.68</td>
<td>25 22.7 5.67</td>
<td>25 21.6 4.68</td>
</tr>
<tr>
<td>Love and Affection</td>
<td>25 22.4 5.12</td>
<td>25 24.3 5.44</td>
<td>25 24.0 4.88</td>
<td>25 24.1 6.32</td>
</tr>
<tr>
<td>I-E</td>
<td>15 8.9 4.47</td>
<td>23 9.6 4.43</td>
<td>12 7.9 4.28</td>
<td>15 8.7 3.60</td>
</tr>
</tbody>
</table>
achieve the same or similar goals. A "good subject" should respond positively to the experimenter's wishes in both situations.

Another initial step is to correlate the results of the two criteria and see if they are related. This correlation will be found in Table 7.

Obviously the two criteria are not related and behavior in one means something quite different qualitatively than behavior in the other.

Thus each criteria will have to be examined separately and in relation to the established predictor variables.

**TABLE 7**

**CORRELATION OF THE TWO CRITERION MEASURES: PRODUCTIVITY TO KEY CARD AND SCORE ON AGREEMENT TEST**

<table>
<thead>
<tr>
<th>Relative Productivity to key card (stated) and Agreement Score</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.04</td>
<td>.33</td>
<td>.17</td>
</tr>
<tr>
<td>Relative Productivity to key card (implied) and Agreement Score</td>
<td>-.12</td>
<td>-.02</td>
<td>-.08</td>
</tr>
</tbody>
</table>

Another general question that is pertinent at this point is, Is there overlap in predictor variables or could they possibly separately or in conjunction be measuring the same thing? This is obviously not the case as Table 8 presents the intercorrelations of the independent variables.
The I-E Scale and the S-D Scale are significantly negatively correlated in the case of female subjects. This is particularly interesting in that our initial hypotheses about the predictability of the relationship of those measures to our criteria are in the same rather than opposite directions. Two other predictor variables that are at all related are need for academic recognition and need for affiliation. A striking finding is that they are significantly interrelated in opposite directions for the two sexes. For females, one can predict need for affiliation from need for academic recognition status, in that the higher the need in one area, the higher the need in the other area is likely to be. For males, the converse is true. The higher the need for academic recognition status, the lower the affiliation need. Previous literature has already made many allusions to the fact that affiliation and achievement needs mean quite different things to the two sexes or at the very least the same type measurements will not be applicable to the prediction of behavior labeled "affiliation seeking" or "achievement seeking" from male to female (26). A low negative but significant correlation between two predictor variables should not detract from the usefulness of each. A positive significant correlation suggests a possible overlap of function between two predictor variables. In the present case, it is a positive relationship between need for affiliation and need for academic recognition in women. (The correlations of need for academic recognition and need for love and affection were not justifiably computable as they stem from a mutually exclusive
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>II.</td>
<td>REVIEW OF RELEVANT LITERATURE.</td>
<td>6</td>
</tr>
<tr>
<td>III.</td>
<td>STATEMENT OF THE PROBLEM</td>
<td>22</td>
</tr>
<tr>
<td>IV.</td>
<td>METHODOLOGY</td>
<td>27</td>
</tr>
<tr>
<td>V.</td>
<td>RESULTS</td>
<td>35</td>
</tr>
<tr>
<td>VI.</td>
<td>DISCUSSION</td>
<td>58</td>
</tr>
<tr>
<td>VII.</td>
<td>SUMMARY</td>
<td>67</td>
</tr>
<tr>
<td>APPENDICES</td>
<td></td>
<td>74</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td></td>
<td>94</td>
</tr>
<tr>
<td>AUTOBIOGRAPHY</td>
<td></td>
<td>98</td>
</tr>
<tr>
<td>Predictors</td>
<td>MALE</td>
<td>FEMALE</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------</td>
<td>----------------</td>
</tr>
<tr>
<td></td>
<td>A R L &amp; A S D N A f I - E</td>
<td>A R L &amp; A S D N A f I - E</td>
</tr>
<tr>
<td>Academic Recognition</td>
<td>From same scale</td>
<td>From same scale</td>
</tr>
<tr>
<td></td>
<td>- .14 - .28* - .10</td>
<td>+ .25 + .34* + .04</td>
</tr>
<tr>
<td>Love and Affection</td>
<td>+ .24 - .06 + .18</td>
<td>+ .03 + .24 - .21</td>
</tr>
<tr>
<td>Social Desirability</td>
<td>- .19 - .23</td>
<td>+ .18 - .42</td>
</tr>
<tr>
<td>Need Affiliation</td>
<td>- .12</td>
<td>+ .18</td>
</tr>
</tbody>
</table>

* Significant at the .05 level
** Significant at the .01 level
forced choice scale -- the G. P. I.) The point has been made by the Michigan group in a different type of measurement design that it is operationally difficult to separate clearly need for achievement and need for affiliation in women as can be done for men (26).

In general then, it can be said that our five major predictor variables are serving different and unique functions of the evaluation of various facets of subjects' personalities.

Let us now turn to the hypotheses of the study having to do with the separate predictor variables and their relationship to the first behavioral criterion.

Hypothesis III - The need for social approval as inferred from the Marlowe-Crowne Social Desirability Scale will differentially predict subjects' response to experimenter bias. Subjects higher in measured need for social approval will respond more positively to experimenter bias on the two previously named criterion measures. In other words, these subjects will produce relatively longer stories to the T. A. T. card of the experimenter's stated or implied bias and will manifest quantitatively more agreement
on the Agreement Test. More of these subjects will be aware of the communication of implied bias.

The need for social approval did not predict subject response to the criterion of relative productivity to the T. A. T. card of experimenter's bias either in the implied or the stated conditions. In the instance of the relationship between need for social approval and agreement score, there was actually a significant reversal of the original prediction. No relationship to subject awareness of experimenter bias could be made from this measure as indicated in Table 9.

**TABLE 9**

**COMPARISON OF S-D SCORES AND AWARENESS OF EXPERIMENTER BIAS**

<table>
<thead>
<tr>
<th></th>
<th>Aware</th>
<th>Not Aware</th>
</tr>
</thead>
<tbody>
<tr>
<td>High S-D</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Low S-D</td>
<td>12</td>
<td>14</td>
</tr>
</tbody>
</table>

\[ p = N S \]
### TABLE 10

**CORRELATION OF NEED FOR SOCIAL APPROVAL**

**WITH TWO CRITERION MEASURES**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Relative Productivity to Card of Experimenter Bias</th>
<th>Agreement Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Implied Condition</td>
<td>Stated Condition</td>
</tr>
<tr>
<td></td>
<td>P N</td>
<td>P N</td>
</tr>
<tr>
<td>Male</td>
<td>+ .04</td>
<td>NS 25</td>
</tr>
<tr>
<td>Female</td>
<td>+ .18</td>
<td>NS 25</td>
</tr>
<tr>
<td>Total</td>
<td>+ .11</td>
<td>NS 50</td>
</tr>
</tbody>
</table>

The first two most obvious alternatives to these unexpected findings are that either (1) the Social Desirability Scale is not measuring need for social approval or (2) to agree with items on the agreement tests is not construed as pleasing the experimenter. The latter seems unlikely as sample statements of subjects after taking the test were, "You sure were right most of the time," "You're good at this", "I hated to go against you on that one but it just doesn't fit me", and so forth. As to the construct need for social approval, some of the parameters were discussed in an earlier chapter and will be discussed further in the following chapter in light of these findings.

Upon discovering negative correlations between responding in a socially desirable manner to test items on one test and an agreement
test, a further break down of the items on the agreement test seemed called for.

As was described in the chapter on methodology, the items were pretested for degree of favorableness about the respondent and divided into octants from highest to lowest. Each subject received an item from each of the octants.

New agreement scores were then derived on the basis of the subject's score on items taken from the four favorable octants and a separate agreement score on the response to the four items taken from the bottom four octants. A third set of scores was taken from the subjects' agreement score on the two items taken from the top two octants and the agreement score on the two items taken from the bottom two octants. The results are found in Table 11.

Table 11

CORRELATIONS OF FAVORABLENESS OF AGREEMENT ITEMS AND S-D SCORES

<table>
<thead>
<tr>
<th></th>
<th>r</th>
<th>N</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation of scores of items from upper four octants and S-D</td>
<td>-29</td>
<td>100</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Correlation of scores of items of bottom four octants and S-D</td>
<td>-13</td>
<td>100</td>
<td>N.S.</td>
</tr>
<tr>
<td>Correlation of scores on items from the upper two octants</td>
<td>-27</td>
<td>100</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Correlation of scores on items from the bottom two octants</td>
<td>-.08</td>
<td>100</td>
<td>N.S.</td>
</tr>
</tbody>
</table>
It would appear from the foregoing that it is not the unfavorableness of the items that is causing the high S-D's to agree less. Indeed, the less favorable the items, the less differentiation of subjects in terms of the social desirability measure. This does not imply, however, that high S-D's do not possess high need for social approval but that in this situation, this need conflicts with the need to protect a vulnerable self-image.

Hypothesis IV - The need for affiliation as inferred from the Heyns, Veroff, and others, (16), Need for Affiliation Measure will differentially predict subjects' response to experimenter bias. Subjects higher in measured need for affiliation will respond more positively to experimenter bias on the two criterion measures. These subjects will produce relatively longer stories to the T. A. T. card of the experimenter's stated or implied bias and will manifest quantita­tively more agreement on the Agreement Test. More of these subjects will be aware of the communication of implied bias.
Only one aspect of this hypothesis was borne out to a statistically significant degree. There was a definite positive relationship between need for affiliation and degree of agreement with the experimenter on the Agreement Test in the case of females. There was a trend not reaching statistical significance for females to produce relatively longer stories to the T. A. T. card of the experimenter's stated bias. There was no differentiation in terms of awareness.

**TABLE 12**

**COMPARISON OF NEED FOR AFFILIATION AND AWARENESS TO EXPERIMENTER BIAS**

<table>
<thead>
<tr>
<th></th>
<th>Aware</th>
<th>Not Aware</th>
</tr>
</thead>
<tbody>
<tr>
<td>High need affiliation</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Low need affiliation</td>
<td>11</td>
<td>13</td>
</tr>
</tbody>
</table>

\[ p = NS \]
TABLE 13

CORRELATION OF NEED FOR AFFILIATION WITH THE
TWO CRITERION MEASURES

<table>
<thead>
<tr>
<th>Sex</th>
<th>Relative Productivity to Card of Experimenter Bias</th>
<th>Agreement Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Implied Condition</td>
<td>Stated Condition</td>
</tr>
<tr>
<td></td>
<td>r</td>
<td>P</td>
</tr>
<tr>
<td>Male</td>
<td>-.06</td>
<td>NS</td>
</tr>
<tr>
<td>Female</td>
<td>-.37</td>
<td>.10</td>
</tr>
<tr>
<td>Total</td>
<td>-.14</td>
<td>NS</td>
</tr>
</tbody>
</table>

Hypothesis V - Need for love and affection as inferred from the Goal Preference Inventory will differentially predict subjects' response to experimenter bias. Subjects higher in measured need for love and affection will respond more positively to experimenter bias. These subjects will produce relatively longer stories to the T. A. T. card of the experimenter's stated or implied bias and will manifest quantitatively more agreement on the Agreement Test. More of these subjects will be aware of the communication of implied bias.
This hypothesis was not borne out in any respect.

**TABLE 14**

CORRELATION BETWEEN NEED FOR LOVE AND AFFECTION AND THE TWO CRITERION MEASURES

<table>
<thead>
<tr>
<th>Sex</th>
<th>Relative Productivity to Card of Experimenter Bias</th>
<th>Agreement Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Implied Condition Stated Condition Implied Condition Stated Condition Implied Condition Stated Condition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P N</td>
<td>P N</td>
</tr>
<tr>
<td>Male</td>
<td>+.18</td>
<td>NS 25</td>
</tr>
<tr>
<td>Female</td>
<td>+.005</td>
<td>NS 25</td>
</tr>
<tr>
<td>Total</td>
<td>+.07</td>
<td>NS 50</td>
</tr>
</tbody>
</table>

**TABLE 15**

RELATIONSHIP OF AWARENESS TO EXPERIMENTER BIAS AND NEED FOR LOVE AND AFFECTION

<table>
<thead>
<tr>
<th></th>
<th>Aware</th>
<th>Not Aware</th>
</tr>
</thead>
<tbody>
<tr>
<td>High love and affection</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>Low love and affection</td>
<td>12</td>
<td>11</td>
</tr>
</tbody>
</table>

p = NS
Hypothesis VI -- With academic cues minimal or absent in the experiment, the Need for Academic Recognition as inferred from the Goal Preference Inventory will be a significantly poorer predictor of subjects' response to experimenter bias than the other measures.

The need for academic recognition measure was a poor predictor of subject response to experimenter's bias; however, here, females high in academic recognition showed a trend to respond less to experimenter's bias. Interestingly enough, the need for affiliation and need for academic recognition had been shown to be positively related. In a situation of response to experimenter bias, it is the affiliative need separated from a concomitant need for academic recognition that is paramount in the case of females.
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Relative Per Cent of Productivity of Each of the Five Selected T. A. T. Cards (N 30)</td>
<td>28</td>
</tr>
<tr>
<td>2.</td>
<td>Rank Results of Items on Agreement Test</td>
<td>29</td>
</tr>
<tr>
<td>3.</td>
<td>Comparison of Productivity of Subjects in the Two Experimental Conditions</td>
<td>36</td>
</tr>
<tr>
<td>4.</td>
<td>Comparison of Productivity of Subjects in Implied and Control Conditions</td>
<td>37</td>
</tr>
<tr>
<td>5.</td>
<td>Comparison and Productivity of &quot;Awares&quot; vs. &quot;Not Awares&quot;</td>
<td>38</td>
</tr>
<tr>
<td>6.</td>
<td>Group Means and Standard Deviations of Predictor Measures of the Two Experimental Conditions</td>
<td>40</td>
</tr>
<tr>
<td>7.</td>
<td>Correlation of the Two Criterion Measures: Productivity to Key Card and Score on Agreement Test</td>
<td>41</td>
</tr>
<tr>
<td>8.</td>
<td>Intercorrelations of Predictor Variables</td>
<td>43</td>
</tr>
<tr>
<td>9.</td>
<td>Comparison of S-D Scores and Awareness of Experimenter Bias</td>
<td>45</td>
</tr>
<tr>
<td>10.</td>
<td>Correlation of Need for Social Approval with Two Criterion Measures</td>
<td>46</td>
</tr>
<tr>
<td>11.</td>
<td>Correlations of Favorableness of Agreement Items and S-D Scores</td>
<td>47</td>
</tr>
<tr>
<td>12.</td>
<td>Comparison of Need for Affiliation and Awareness to Experimenter Bias</td>
<td>49</td>
</tr>
<tr>
<td>13.</td>
<td>Correlation of Need for Affiliation with the Two Criterion Measures</td>
<td>50</td>
</tr>
</tbody>
</table>
TABLE 16

CORRELATION BETWEEN NEED FOR ACADEMIC RECOGNITION AND
THE TWO CRITERION MEASURES

<table>
<thead>
<tr>
<th>Sex</th>
<th>Relative Productivity to Card of Experimenter Bias</th>
<th>Agreement Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Implied Condition</td>
<td>Stated Condition</td>
</tr>
<tr>
<td>P</td>
<td>N</td>
<td>P</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.08</td>
<td>NS</td>
<td>25</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+.005 NS</td>
<td>25</td>
<td>-.33</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-.03</td>
<td>NS</td>
<td>50</td>
</tr>
</tbody>
</table>

Hypothesis VII - Internal vs. External Orientation towards the locus of reinforcement as inferred from the Internal-External Scale will differentially predict subjects' response to experimenter bias. The more internally oriented subjects will be more resistant to experimenter influence. They will produce relatively shorter stories to the T. A. T. cards of the experimenter's stated or implied bias and will manifest quantitatively less agreement on the Agreement Test. More of the externally oriented
subjects will be aware of the communication of implied bias.

In the implied condition, more externally oriented subjects produced significantly longer stories to the card of the experimenter's bias. In the present research not only did the internally oriented subjects produce significantly shorter stories to the card of the experimenter's implied bias but also produced slightly shorter stories than the control group.

TABLE 17

COMPARISON OF PRODUCTIVITY OF "INTERNALS-EXTERNALS"

IMPLIED CONDITION AND THE CONTROL GROUP

<table>
<thead>
<tr>
<th>Sex</th>
<th>Subjects</th>
<th>Number</th>
<th>Average Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Control</td>
<td>19</td>
<td>22%</td>
</tr>
<tr>
<td>Female</td>
<td>Control</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>Male</td>
<td>&quot;External&quot;</td>
<td>3</td>
<td>22.5%</td>
</tr>
<tr>
<td>Female</td>
<td>&quot;External&quot;</td>
<td>9</td>
<td>21.0%</td>
</tr>
<tr>
<td>Male</td>
<td>&quot;Internal&quot;</td>
<td>9</td>
<td>16.4%</td>
</tr>
<tr>
<td>Female</td>
<td>&quot;Internal&quot;</td>
<td>6</td>
<td>17.3%</td>
</tr>
</tbody>
</table>

The externally oriented subjects manifested this same trend in the stated condition, but not to a statistically significant degree. There was a trend for externals to have a higher mean agreement score.
TABLE 18

COMPARISON OF DEGREE OF AGREEMENT OF INTERNALS AND EXTERNALS

<table>
<thead>
<tr>
<th>Sex</th>
<th>Subjects</th>
<th>Number</th>
<th>Average Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>&quot;Externals&quot;</td>
<td>12</td>
<td>44.8%</td>
</tr>
<tr>
<td>Female</td>
<td>&quot;Externals&quot;</td>
<td>20</td>
<td>45.9%</td>
</tr>
<tr>
<td>Male</td>
<td>&quot;Internals&quot;</td>
<td>15</td>
<td>42.3%</td>
</tr>
<tr>
<td>Female</td>
<td>&quot;Internals&quot;</td>
<td>18</td>
<td>43.5%</td>
</tr>
</tbody>
</table>

The measure of internal vs. external orientation predicted subjects' degree of agreement on the Agreement Test in the expected direction. This correlation was statistically significant for women, with a weak trend in the same direction for men. A trend for externals to be more aware was noted.

TABLE 19

CORRELATION OF INTERNAL VS. EXTERNAL CONTROL ORIENTATION WITH THE TWO CRITERION MEASURES

<table>
<thead>
<tr>
<th>Sex</th>
<th>Relative Productivity to Card of Experimenter Bias</th>
<th>Agreement Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Impaired Implied Condition</td>
<td>Stated Condition</td>
</tr>
<tr>
<td></td>
<td>P N</td>
<td>P N</td>
</tr>
<tr>
<td>Male</td>
<td>+.72</td>
<td>.01</td>
</tr>
<tr>
<td>Female</td>
<td>+.45</td>
<td>.10</td>
</tr>
<tr>
<td>Total</td>
<td>+.58</td>
<td>.01</td>
</tr>
</tbody>
</table>
The Internal-External Scale was the only measure that manifested even a trend towards prediction of subject awareness to experimenter as shown in Table 18.

**TABLE 20**

RELATIONSHIP OF I-E TO AWARENESS OF EXPERIMENTER BIAS

<table>
<thead>
<tr>
<th></th>
<th>Aware</th>
<th>Not Aware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Externals</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Internals</td>
<td>4</td>
<td>9</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 3.03 \quad p = < .10 \]

Inasmuch as the implied condition effected two differing situations, for example, slightly less than half of the subjects were aware of the experimenter's implied bias, further correlations seemed in order. It was deemed appropriate to correlate (within the implied condition) the productivity of the "aware" subjects only with the other variables. The results are indicated in Table 21.
TABLE 21
CORRELATION OF PRODUCTIVITY OF "AWARE SUBJECTS" WITH THE OTHER VARIABLES

<table>
<thead>
<tr>
<th>Test Measures</th>
<th>Correlation</th>
<th>P</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Desirability</td>
<td>-.17</td>
<td>NS</td>
<td>23</td>
</tr>
<tr>
<td>Academic Recognition</td>
<td>-.35</td>
<td>.10</td>
<td>23</td>
</tr>
<tr>
<td>Love and affection</td>
<td>+.37</td>
<td>.10</td>
<td>23</td>
</tr>
<tr>
<td>Need for affiliation</td>
<td>+.07</td>
<td>NS</td>
<td>23</td>
</tr>
<tr>
<td>Agreement Score</td>
<td>-.18</td>
<td>NS</td>
<td>23</td>
</tr>
<tr>
<td>I-E Scale</td>
<td>+.10</td>
<td>NS</td>
<td>13</td>
</tr>
</tbody>
</table>
CHAPTER VI

DISCUSSION

This study has attempted to explore subject-experimenter interaction and some of the factors entering in to make for "good" or "bad" subjects. Several predictor variables were used because of their apparent pertinence to the personality characteristics we had tentatively construed the "good subject" to have.

We shall now re-examine our experimental conditions, criteria and predictor variables in light of the results we have just reported.

Of paramount importance is the fact that the experimental conditions themselves seemed to differentiate according to the criterion. In the first experimental condition, the subjects were exposed to an overtly stated bias as to which of five cards the experimenter felt would produce the longest story. Here, subjects produced significantly longer stories relative to their total productivity than did a control group. These results do not indicate complete acquiescence in "sheep like" conformity actually, for the majority of subjects when questioned after the experiment about possible bias effects, disagreed with the experimenter that this particular card had the longest story pull. As mentioned in the chapter on methodology, the key card did in fact not have the longest story pull but represented the card of median relative productivity of the five cards for both males and females. Most subjects correctly per-
ceiving that this card, in fact, does not stimulate the longest story of the five did neither change from their own reasoning to pick the card the experimenter chose nor did the card of the experimenter's bias "pull in" the longest story. The phenomenon that did occur can best be described by saying that subjects tried harder to see more of a story in card 6 GF because the experimenter stated this as her bias and an effort to please her can be inferred. An alternative hypothesis could be that the subjects saw productivity to 6 GF as an academic challenge since this card was stated to be the one with the longest story pull. If this were the case, it would appear that the subjects would have accepted the fact a priori that this card had the longest story pull and not selected another in post questioning. (Card 2 which demonstrated, in pretesting, the greatest relative productivity was picked 60 per cent of the time as the card with the longest story pull by the experimental subjects). Furthermore, the need for academic recognition did not predict subject productivity to the key card.

The largest number of subjects both in the stated and implied group picked the card that had been empirically established as having the longest story pull when asked which one they thought it was. The subjects in the implied condition who were able in post-questioning to correctly identify the card of the experimenter's bias showed a similar rise in relative productivity for the key card as those in the stated condition. Only 20 out of 73 subjects (who were either aware of implied bias or were in the stated condition) produced less to the key card than did the control group. Of this 20, only 8 deviated as much as one sigma below the mean productivity of the control group.
On the basis of this study one would infer from this that there are very few "bad subjects", for example, who are affected by experimenter's bias by reacting in the exactly opposite direction. Most subjects are amenable and fairly cooperative. It is the degree of cooperativeness and behavior manifested towards pleasing the experimenter in which we are interested.

Those subjects who took the time to develop long and detailed stories could be thought of as having greater need to please the experimenter. But here, the variables of intelligence, and achievement needs, could easily contaminate such a criterion. Relative productivity of the crucial card to the subject's productivity to all five cards seems to be the cleanest criterion.

However, even here one cannot be absolutely certain that each and every subject saw productivity of a longer story to the card the experimenter has stated or implied that she hypothesized had the longest story pull, would please her. One could see optimal cooperation as being completely objective towards each card. This runs counter to common sense in that it would be generally agreed that you please another person or win their approval more by validating their ideas, for example, proving them to be right, than by being objective.

Another argument against the criterion might be that a certain card, perhaps even the key card might have personal significance for a given subject causing blocking, lengthening of response or some other such phenomenon. It is felt, however, that whatever pictures might have particular unique significance to a given subject would randomize out over 100 subjects.
The major objection to the criterion of productivity in the condition of implied bias is simply that this condition of implied bias is simply that this condition did not hold across all subjects, for example, slightly over half of them were not aware of the experimenter's implied bias.

While this differentiation in itself led to interesting findings, one did not have a "pure" condition of implied experimenter bias.

The two criterion measures should have both highlighted the "good subject." Theoretically, they were attempts at samples of similar type subject behavior in relation to the experimenter's needs. However, the criteria of relative productivity to examiner's preferred card and agreement score with experimenter's hypotheses were not demonstrated to be related. Only one test measure used predicted subject behavior in the instance of the first criterion (I-E and productivity to key card). Three different scales showed some significant degree of predictiveness with the second criterion (S-D, I-E, and Need for Affiliation with Agreement score).

On this basis, the agreement test seems to be the more stable of the two criteria. Let us start first with the I-E scale which significantly predicts behavior on both criterion measures. As has been shown in previously cited literature, individuals who are highly internally oriented tend to be relatively less influenced by biases, appeals, and so forth, of the other person. Internally oriented subjects were less responsive to experimenter bias. A slight trend in the condition of implied experimenter bias for internals to produce even less than control group of subjects suggests possible negativism. At the very least it underscores the resistiveness to outside influence of the internally oriented individual.
An alternative explanation of this phenomenon is on the basis of data showing the internally oriented subject to be more task oriented than the externally oriented (18). The potential behavior towards pleasing the experimenter may be counteracted on the part of the internally oriented subjects by greater preoccupation with the task per se.

Moreover, Bahrick, and others (1) have demonstrated that the greater the task orientation, the less attention to peripheral cues in the situation. This would help to clarify the results which indicate that the externally oriented subjects showed a tendency to be more aware of experimenter bias (non-task cues).

None of the measures of need values predicted behavior in the first criterion. As was mentioned previously, need value along can not satisfactorily predict behavior direct toward eliciting satisfaction of a particular need. In social learning theory terms (described in Chapter III), the potentiality of occurrence of a set of behaviors that lead to the satisfaction of some need (need potential) is a function of the expectances that these behaviors will lead to these reinforcements (freedom of movement) and the strength or value of these reinforcements (need value).

The need for affiliation measure did predict subject biasability in the agreement situation. One way of attempting to elicit expectancy of reinforcement in the instance of need for affiliation was to return to the separate scores that go to make up the need affiliation score and give special attention to those scores that contained credits for both instrumentality (the hero or heroine in the story behaves in a manner designed to gain satisfaction of affiliative needs) and Positive Goal Attainment (as a result of instrumental behavior in one's own behalf the positive goal
LIST OF TABLES (Continued)

<table>
<thead>
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<th>Table</th>
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<tbody>
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<td>Correlation between Need for Love and Affection and the Two Criterion Measures</td>
<td>51</td>
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<td>Relationship of Awareness to Experimenter Bias and Need for Love and Affection</td>
<td>51</td>
</tr>
<tr>
<td>16.</td>
<td>Correlation between Need for Academic Recognition and the Two Criterion Measures</td>
<td>53</td>
</tr>
<tr>
<td>17.</td>
<td>Comparison of Productivity of &quot;Internals-Externals&quot; Implied Condition and the Control Group</td>
<td>54</td>
</tr>
<tr>
<td>18.</td>
<td>Comparison of Degree of Agreement of Internals and Externals</td>
<td>55</td>
</tr>
<tr>
<td>19.</td>
<td>Correlation of Internal VS. External Control Orientation with the Two Criterion Measures</td>
<td>55</td>
</tr>
<tr>
<td>20.</td>
<td>Relationship of I-E to Awareness of Experimenter Bias</td>
<td>56</td>
</tr>
<tr>
<td>21.</td>
<td>Correlation of Productivity of &quot;Aware Subjects&quot; with the Other Variables</td>
<td>57</td>
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</tbody>
</table>
state is achieved), thus implying expectancy of positive reinforcement.

However, when scores of Instrumentality and Positive Goal Attainment were compared alone to the two behavioral criteria, there was found no significant relationship other than the relationship the need for affiliation measure had already contributed. There was a positive relationship between need for affiliation and tendency to agree with the examiner on the part of the female subjects. The high scores on the need for affiliation measure very commonly contained more of the Instrumentality and Positive Goal Attainment scores augmenting the total score and thus accounting for the fact that Instrumentality scores and Goal Attainment scores alone did not add to the predictiveness of the measure.

The measure of need value for love and affection failed to predict subject behavior in either of the two criterion situations. This measure having been taken from a forced choice scale, the Goal Preference Inventory allowed the subject to choose gratification of need with expectancy held constant. This afforded a measure of need preference but gave no inkling as to what expectancies the individuals held as to the gratification of their needs as a result of their behavior. Hence, this could be viewed as the weakest of our measures of need strength as predictor of subject response to experimenter bias.

The S-D scale is constructed to measure need strength (in this case, need for social approval) in a different way. Test-taking behavior per se, the way one responds to items, is an inference that the subject is seeking social approval by the way he pictures himself. An additional inference is that he is seeking self-enhancement. All statements keyed for social desirability are statements that are conventionally and morally acceptable but
unlikely of occurrence, human frailty being what it is.

The social desirability measure showed a significant relationship to the extent of agreement with the experimenter but in the reverse direction from the one predicted. Consequently, it would appear that it is the need of the high S-D for self-enhancement and protection of a very vulnerable self-image that affected most greatly the correlation with extent of agreement with the examiner. If the Social Desirability scale were measuring only need for social approval, then *prima facie*, the more one agrees with the experimenter, the more approval he receives. Our breakdown of S-D scores shows that it is not the items ranked least favorable about an individual (as ranked by a control group) that differentiated high S-D's from low S-D's in relationship to agreement score. In the case of the least favorable items, all subjects showed a decline of agreement from the magnitude manifested on the more favorable items.

Instead of differentiation upon a favorableness-unfavorableness dimension it seems more likely to be one of degree of ambiguity. Let us look at the statements ranked higher up in degree of favorableness. Many are by their very innocuousness somewhat ambiguous. A guarded, defensive individual is not prone to take seemingly innocuous, possibly ambiguous statements lightly. Examples of statements in the upper octants of favorability are:

"You sometimes do not produce at as high a level as that of which you are capable." (True of everyone) ... "You are more at ease among your friends." (Who wouldn't be?) "While there are times when everything about you seems interesting, there are times when things seem markedly less so." (Again true of every-
one but the very defensive person might ask, "What's behind this?"

Like the psychotherapy situation reported in the review of the literature, the high S-D subject is again put in a conflict situation between pleasing the experimenter (agreeing) and protecting a vulnerable self-image (being cautious about accepting statements at face value).

This is unlike the spool packing study described in Chapter II where the high S-D may agree with the experimenter that the monotonous task is worthwhile. In the latter situation, he can please the experimenter without any threat to his vulnerable self-image. However, this does not account for the high S-D's failure to product longer stories to the card of the experimenter's bias than low S-D's.

The current findings would seem to lend weight to the behavior of responding "aye" to unrealistically, socially desirable items as a self-protective, defensive maneuver with as much or greater avoidant component than the hitherto stressed approach component (for example, approach towards social approval).

Our behavioral criteria of the "good subject" were not as definitive as we would have liked them to be, particularly in the case of the TAT card productivity criterion. However, we feel that we have added clarification to several predictor variables and the constructs underlying particularly in the case of the I-E and S-D constructs.

In a less threatening situation than the agreement test we would again hypothesize that the "good subject", for example, most compliant to and aware of experimenter bias would be the subjects scoring highest on the Internal-External Scale, the Marlowe-Crowne Social Desirability
Scale and the Heyns, Veroff and others, Need for Affiliation Measure.

To some extent, while the measures in themselves require more refinement in terms of their underlying constructs, in a situation of threat these predictors are not as efficient for they do not take adequately into account the need value or the freedom of movement of the individual in the situation.
CHAPTER VII

SUMMARY

This study was designed to assess the effects upon the experiment of experimenter communicated bias, particularly as it related to subjects' response. Recent studies have brought forth dramatic evidence that psychological experimenters can obtain from their subjects the data they want or expect. These recent developments could well have far reaching implications for the applicability of research findings to new situations.

A crucial assumption that has been implicit throughout the design and execution of this research is that there are interindividual differences in subject response to experimenter bias and that these differences lie in differing need potentials of the subjects taking part in the experiment.

The most arduous task which this research has set for itself stems from the further assumption "if they (differing need potentials) exist, they can be measured."

We operationally defined the "good subject" as one who cooperates maximally with the experimenter, is sensitive to his biases and responds accordingly. Maximal cooperation can be more empirically established on the basis of the particular experiment involved, for example, productivity rates in incentive versus no incentive conditions.
Many psychologists would welcome measurements that would identify personality variables that are relevant to subject compliance which tend to interfere with experimental conditions. Others would be disheartened to acknowledge that such a dimension as "good versus bad" subjects cuts across, for example, adds variance to what they expect to be their rigorously controlled experimental methods.

For both camps the present research has both encouragement and disappointments.

The subjects of the present experiment were taken from introductory psychology classes in which students are required to take part in a specified number of experiments. This practice is quite widespread, so that our findings should have rather wide applicability.

Five tests were used as predictor measures of the "good subject" in the psychological experiment. Each was thought in some way or in some combination with another measure to predict subject behavior and isolate those characteristics that make for a "good subject".

The measures used were Need for Academic Recognition and Need for Love and Affection from the Goal Preference Inventory, Need for Social Approval as measured by the Crowne-Marlowe Social Desirability Scale, Need for Affiliation (using the Atkinson and others, thematic apperception method) and Internal versus External orientation towards the locus of reinforcement, using the I-E Scale by Liverant and others.

This multiplicity and diversity of test measures may suggest a "shot gun", atheoretical approach. However, all the variables presumably measured by the current test instruments have a place within
the framework of Social Learning Theory in which the current research is grounded.

Four of the measures (Academic Recognition, Love and Affection, Need for Social Approval and Internal versus External control of Reinforcement) were devised from a social learning theory viewpoint. The need for affiliation measure qua measure is borrowed from another theoretical school of thought. However, it lends an additional predictor for behavior in the situation that is basic to the present theoretical orientation. In addition to getting a measure of the need value of, in this case, affiliation of the subject, you attain a measure of his fantasied instrumentality in his own behalf and his expectancy of positive goal attainment. The tests taken together complete the basis of prediction from a basic social learning theory formula:

\[ N. P. = F(FM & NV) \]

for example, the potentiality of occurrence of a set of behaviors that lead to the satisfaction of some need (need potential) is a function of the expectancies that these behaviors will lead to these reinforcements (freedom of movement) and the strength or value of these reinforcements (need value).

Two behavioral criteria (originally thought to be ingeniously devised) were established as a means of determining what was meant to be the "good" or "bad" subject.

One criterion was the relative productivity to a TAT card which the experimenter either stated (Experimental Condition I) or implied (Experimental Condition II) that she thought "pulled in" the longest story of the five TAT cards presented.
The criterion of subject biasibility was the increment in productivity to the card of the experimenter's bias over the mean productivity to this card of a control group. Productivity was always measured relative to each subject's total productivity to the five cards to control for longer stories by some subjects on the basis of creativity, intelligence, and so forth.

The condition of implied bias was not a clearcut behavioral criterion, in that slightly less than half of the subjects manifested awareness of the experimenter's implied bias in the post interview questioning. However, the dichotomous variable aware of experimenter-bias versus not aware became an interesting criterion in its own right.

The second behavioral criterion was an agreement test. After the subjects were administered the TAT cards, they were told that the experimenter would make hypotheses about their personality on the basis of the stories they had told. She left the room ostensibly to pore over the stories to make her hypotheses. The experimenter then presented each subject with a list of eight innocuous statements ranging from neutral to slightly positive which could be true of anyone. They were introduced as hypotheses the experimenter made on the basis of wanting to see how "right" she was. Agreement was then inferred to be agreement with the experimenter. A degree of agreement (using a Likert type scale) score was obtained from each subject.

In both criterion situations, achievement goals and tangible rewards were absent. (As a check on the former, the need for academic recognition measure was taken).
The overall hypothesis was that subjects high in need potential for social approval, affiliation, love and affection, and external in orientation towards the locus of reinforcement, will respond in the direction of the desires or biases of the experimenter.

Many of the hypotheses taken singly either did not hold or showed slight trends.

A considerable number of subjects showed cooperation as measured by increased productivity where experimenter bias was known and by relatively high agreement scores. "Bad subjects", as inferred by marked deviation in the opposite direction of the experimenter's bias were very few in number. If this current group of one hundred is a fair sample, "bad subjects" should account for little in the way of variance of experimental results.

There are, however, fairly valid indicators of personality facets that differentiate degree of cooperativeness of "good subjects!"

The overall main significant findings are as follows:

1. Subjects that are internally oriented are less responsive to the experimenter's bias than are subjects external in orientation.

2. Female subjects high in need affiliation are more responsive to the experimenter's bias in terms of the criterion of agreement (test score) with the experimenter.

3. Subjects high in need for social approval respond less to the experimenter's bias in terms of the criterion of agreement (test score) with the experimenter.

The last of the three general findings is a reversal of the pre-experimental hypotheses. The finding lends substantiation to the newer
hypotheses of the construct need for social approval, namely, the marked
defensiveness of the high S-D. Innocuous or ambiguous statements would
tend to make a tightly constricted and guarded individual less accepting
than one not so defensive. This would be true even though he had a high
need for social approval which he might jeopardize, at one level, by not
agreeing with the experimenter. An item analysis of the high S-D pat-
tern of agreement to degree of positiveness showed that they were dif-
ferentiated more from low S-D's on relatively positive items than on
items that had a more clear cut, possibly unfavorable component. How-
ever an examination of the items by the experimenter suggested that high
S-D's agreed significantly less than low S-D's on items seemingly more
ambiguous and innocuous.

Further experimental situations which place the high S-D in a
conflict situation between approval in the immediate situation versus
protection of a vulnerable self-image should help to clarify this construct.

Present findings also add further data and information to the con-
struct of internal versus external control of the locus of reinforcement.
Indeed, I-E scores lent more predictiveness to the current research than
any other single measure. Externally oriented subjects show a trend
towards being more aware of implied experimenter bias and in two out of
three situations are significantly more biasable than internally oriented
subjects.

At the end of our present research we have some ideas about
"good subjects." Firstly, most subjects even when required to take part
in experiments are "good subjects." Secondly, subjects showing high need
for affiliation, and are external in orientation make "very good subjects."
CHAPTER 1

INTRODUCTION

The keystone of the advancement of a body of psychological knowledge is the psychological experiment. With the ever-increasing rigor of experimentation in the area of personality it is clearly indicated that the social psychology of the experiment itself should come under closer and more careful scrutiny. A few previous writers, Orne (30), Reicken (33), and Rosenthal (36) have alluded to the possibility that even under carefully controlled experimental conditions there may be uncontrolled experimenter-subject interaction effects that may positively or negatively affect experimental findings.

This may well be the basis of some of the inconsistency of findings and controversy over interpretation of findings. It would seem a cardinal exigency for any psychological research to attempt to investigate the role of individual differences in subject response to the experimenter and the subject-experimenter interaction.

No matter how impersonal and objective the experimentation there is always an experimenter-subject interaction effect. This holds true, although to a lesser degree, even when the experimenter is not continuously in the immediate environment of the subject.
The matter of predictor measures for subject variability, particularly as regards biasability are by no means exhausted and might be a starting place for further exploration in this area.

The behavioral criteria themselves left something to be desired and a major recommendation would be to have as a behavioral criterion of biasability one in which the mode of pleasing the experimenter is unequivocally clear.

It is hoped that this initial exploration of bias in an experimental situation from the standpoint of subject characteristics will be a forerunner of other and more significant research.
## APPENDIX 1

### SUMMARY OF CORRELATIONS

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<th>Academic Recognition</th>
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<th>% Agreement to Stated Condition</th>
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**APPENDIX NO. 2**

**AGREEMENT TEST**

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Your rating of the statement below may range from 1 to 7 as indicated above.

1. You are serious and contemplative in one phase of your personality, but sometimes too pleasure loving in another.

2. Your outlook on life differs from that of your parents.

3. You worry about things more than you let on to others.

4. You sometimes do not produce at as high a level as that of which you are capable.

5. While you are not introverted, there are many times when you enjoy being alone.

6. Getting good grades in college is not as important a goal for you as it is for some people.

7. You tend to form impressions quickly, and then have to later revise them.

8. You are at neither extreme of political view on current events.

9. You tend to recall the pleasant things that have happened to you in the past far more frequently than those which were unpleasant.

10. Your true feelings have depth not apparent to your casual acquaintances.

11. While some things in school are very interesting to you, there are other phases that you simply have to force yourself to engage in.

12. At times the behavior of the opposite sex is a mystery to you.
13. You are more at ease in one to one personal contacts than in large groups.

14. There are probably interesting and significant differences between how you appear to your classmates and how you appear to those who really know you.

15. While it bothers you to have people owe you money, as it does everyone, you would be the type that would hate to ask the person to pay you.

16. Your vocational plans have not always been in keeping with that for which you were best qualified.

17. People don't always understand your true motives.

18. You are more at ease among your friends.

19. There are many times in your life when you wish that you were older.

20. Occasionally, you have mixed feelings about your parents.

21. A great many of your personality traits are very similar to those of your parents.

22. Often you fail to express your warm feelings.

23. As a child there were times when you were not completely understood.

24. You are extremely intrigued by the novel and the different.

25. You tend to be uncomfortable when around individuals that are hypercritical.

26. You have sometimes wished for even more self-confidence.

27. While you are not greatly introverted, there are times when you prefer not to be in large crowds.

28. You find your outlook on life being greatly modified as you grow older.
29. While there are times when everything about you seems interesting and very stimulating, there are times when things seem markedly less so.

30. There are times when you feel you would like to know more about yourself.

31. While your behavior is generally stable, those who know you can not always predict what you will do in every situation.

32. Although you are generally quite realistic in your outlook, there are times when you prefer an optimistic outlook to a realistic one.
APPENDIX NO. 3

ORIGINAL LIST OF AGREEMENT ITEMS

1. You are serious and contemplative in one phase of your personality, but pleasure loving in another.  

2. Your outlook on life differs somewhat from that of your parents.  

3. You worry about things more than you let on to others.  

4. Nothing spurs you on to accomplishment more quickly than the realization that there are those who think you will be unable to do what you have set out to do.  

5. Sometimes you say things just to keep from hurting another's feelings.  

6. You sometimes do not produce at as high a level as that of which you are capable.  

7. While you are not greatly introverted, there are times when you enjoy being alone.  

8. You figure yourself to be a usual everyday person in most ways.  

9. Getting good grades is not your only goal in college.  

10. You tend to form impressions quickly even if you have to later revise them.  

11. You are at neither extreme of political view on current events.  

12. You consider your taste in clothes to be rather moderate rather than extreme.  

13. Individuals who are strongly opinionated annoy you. While you are not extremely changeable, you do modify your opinion as times change.  

14. While you have a lively interest in people, you are not overly curious about them as individuals.  

15. Your true feelings have a depth not apparent to your casual acquaintances.
16. While some things in school are very interesting to you, there are other phases that you have to simply force yourself to engage in.

17. You like to be well thought of by others.  

18. At times the behavior of the opposite sex is a mystery to you.

19. While you enjoy spending money, you don't like to use it recklessly.  

20. After you have left a situation, you sometimes think of just the right thing you should have said.  

21. You are more at ease in one to one personal contacts than in large groups.

22. There are probably interesting and significant differences between how you appear to your classmates and how you appear to those who really know you.

23. While it bothers you to have people owe you money as it does everyone, you would be the type that would hate to ask the person to pay you.

24. You are closer to your parent of the same sex.  

25. If you have sisters or brothers, there have been times in your life when you have been jealous of them.  

26. You are not certain that your vocational plans are in keeping with that for which you are best qualified.  

27. People don't always understand your true motives.

28. You are more at ease when you are among friends.

29. There were times in your life when you have wished you were older.

30. You weren't always completely positive coming to college was the right thing for you.  

31. Occasionally, you have mixed feelings about your parents.

32. There are many of your personality characteristics that are like your parents.
33. Often you fail to express your warm feelings.

34. While you are not a highly nervous individual, there are times when you become quite tense.²

35. You don't like a life where everything is predictable, at times you like surprises.²

36. As a child you sometimes were not understood.¹

37. Oftentimes, when it is most important to call someone's name you find you can't produce it.²

38. You are intrigued by the novel and the different.

39. If there is a mistake or defect in a purchase, no matter what the cause, you would be the type to hate to take it back.²

40. You have sometimes wished for even more self-confidence.

41. While you are not greatly introverted, there are times when you prefer not to be in large crowds.

42. You would find too much change in your life disturbing.²

43. You find your outlook on life being modified as you grow older.¹

44. While your behavior is generally stable, those who know you cannot always predict what you will do in every situation.

45. Although you are generally quite realistic in your outlook, there are times when you prefer an optimistic outlook to a realistic one.

46. You tend to be uncomfortable when around individuals that are hyper-critical.

47. When other people talk of nuclear wars etc., you prefer to change the subject.²

48. The way the world is run both nationally and internationally is at times quite baffling to you.²
49. While there are times when everything about you seems interesting and very stimulating, there are other times when things seem markedly less so.

50. There are times when you feel you would like to know more about yourself.

1Statement modified for test used.

2Statement discarded.
APPENDIX NO. 4

INTERNAL-EXTERNAL CONTROL OF REINFORCEMENT

TEST

SOCIAL REACTION INVENTORY

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously there are no right or wrong answers.

Your answers to the items on this inventory are to be recorded on a separate answer sheet which is loosely inserted in the booklet. Remove THIS ANSWER SHEET NOW. Print your name and any other information requested by the examiner on the answer sheet, then finish reading these directions. Do not open the booklet until you are told to do so.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice.
The most typical psychological experiment is one in which subjects are run individually by one experimenter with two individuals mutually altering the psychological field of the other.

Many advances have been made towards the more rigorous replication of experimenter behavior and procedure from subject to subject; for example, more stress has been placed on identicalness of directions, time pauses, materials, settings, and so forth. However, it is possible to unintentionally misread a dial or see in an event or observation confirmation of one's hypothesis. Rarely do we achieve situations in psychological experiments wherein John Stuart Mill's canons can hold perfectly. Along with other foreseen and unforeseen interaction effects, we have the interaction of subject and experimenter to be taken into account.

Notwithstanding the fairly successful attempts towards standardization of procedures, subliminal cues have been demonstrably emitted from the experimenter. Furthermore, unique personality characteristics of different experimenters have been shown to have varying effects upon subjects despite "standard" experimental situations (37).

The recent work in "Experimenter Bias" is a case in point. Rosenthal and his colleagues (36) found that when naive experimenters were biased to expect certain ratings from their subjects, they in turn biased their subjects in the desired direction. The main significance of this and follow-up studies lay in the lack of awareness or intent of bias on the part of the experimenter. Moreover, experimenters rated as friendly and likeable by the subject were able to communicate bias more effectively. Although this series of studies was addressed to experimenter variables affecting experimental findings, there is the equally important question of
Find the number of the item on the answer sheet and black-in the space under the number 1 or 2 which you choose as the statement most true.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

**REMEMBER**

Select that alternative which you **personally believe to be more true**.

I more strongly believe that:

1. a. Children get into trouble because their parents punish them too much.

   b. The trouble with most children nowadays is that their parents are too easy with them.

2. a. Many of the unhappy things in people's lives are partly due to bad luck.

   b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.

   b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run people get the respect they deserve in this world.

   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. a. The idea that teachers are unfair to students is nonsense.
   b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. a. Without the right breaks one cannot be an effective leader.
   b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter how hard you try some people just don't like you.
   b. People who can't get others to like them, don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality.
   b. It is one's experiences in life which determine what they're like.

9. a. I have often found that what is going to happen will happen.
   b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
    b. Many times exam questions tend to be so unrelated to course work, that studying is really useless.

11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with.
    b. Getting a good job depends mainly on being in the right place at the right time.

12. a. The average citizen can have an influence in government decisions.
    b. This world is run by the few people in power, and there is not much the little guy can do about it.
13. a. When I make plans, I am almost certain that I can make them work.
   
b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. a. There are certain people who are just no good.
    
b. There is some good in everybody.

15. a. In my case getting what I want has little or nothing to do with luck.
    
b. Many times we might just as well decide what to do by flipping a coin.

16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
    
b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
    
b. By taking an active part in political and social affairs the people can control world events.

18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
    
b. There really is no such thing as "luck!"

19. a. One should always be willing to admit his mistakes.
    
b. It is usually best to cover up one's mistakes.

20. a. It is hard to know whether or not a person really likes you.
    
b. How many friends you have depends upon how nice a person you are.
21. a. In the long run the bad things that happen to us are balanced by the good ones.
   b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort we can wipe out political corruption.
   b. It is difficult for people to have much control over the things politicians do in office.

23. a. Sometimes I can't understand how teachers arrive at the grades they give.
   b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do.
   b. A good leader makes it clear to everybody what their jobs are.

25. a. Many times I feel that I have little influence over the things that happen to me.
   b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.
   b. There's not much use in trying too hard to please people, if they like you, they like you.

27. a. There is too much emphasis on athletics in high school.
   b. Team sports are an excellent way to build character.

28. a. What happens to me is my own doing.
   b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. a. Most of the time I can't understand why politicians behave the way they do.
b. In the long run the people are responsible for bad government on a national as well as on a local level.
APPENDIX NO. 5

SOCIAL DESIRABILITY TEST

PERSONAL REACTION INVENTORY

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

Do not make any marks on the test booklet. Record your answers in the true or false columns of the separate answer sheet that has been given you. Fill in your name and sex on the answer sheet.

Remember: Answer each item as it pertains to you personally.

1. Before voting I thoroughly investigate the qualifications of all the candidates.

2. I never hesitate to go out of my way to help someone in trouble.

3. It is sometimes hard for me to go on with my work if I am not encouraged.

4. I have never intensely disliked anyone.

5. On occasion I have had doubts about my ability to succeed in life.

6. I sometimes feel resentful when I don't get my way.

7. I am always careful about my manner of dress.

8. My table manners at home are as good as when I eat out in a restaurant.

9. If I could get into a movie without paying and be sure I was not seen I would probably do it.

10. On a few occasions, I have given up doing something because I thought too little of my ability.

11. I like to gossip at times.

12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
13. No matter who I'm talking to, I'm always a good listener.

14. I can remember "playing sick" to get out of something.

15. There have been occasions when I took advantage of someone.

16. I'm always willing to admit it when I make a mistake.

17. I always try to practice what I preach.

18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

19. I sometimes try to get even rather than forgive and forget.

20. When I don't know something I don't at all mind admitting it.

21. I am always courteous, even to people who are disagreeable.

22. At times I have really insisted on having things my own way.

23. There have been occasions when I felt like smashing things.

24. I would never think of letting someone else be punished for my wrong doings.

25. I never resent being asked to return a favor.

26. I have never been irked when people expressed ideas very different from my own.

27. I never make a long trip without checking the safety of my car.

28. There have been times when I was quite jealous of the good fortune of others.

29. I have almost never felt the urge to tell someone off.

30. I am sometimes irritated by people who ask favors of me.

31. I have never felt that I was punished without cause.

32. I sometimes think when people have a misfortune they only got what they deserved.

33. I have never deliberately said something that hurt someone's feelings.
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